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Abstract

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28-31 ottobre 2026

Riccione

siu Società Italiana
di Urologia
dal 1908

E D I Z I O N I · M I N E R V A · M E D I C A



99° CONGRESSO NAZIONALE SIU

28-31 ottobre 2026

Riccione

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Preface

Dear Colleagues and Friends,

This supplement of *Minerva Urology and Nephrology* presents the abstracts accepted for presentation at the 2026 Congress of the Italian Society of Urology. Collectively, these contributions provide a broad and contemporary overview of the scientific activity currently undertaken within the Italian urological community. The substantial number of submissions and the diversity of the topics addressed reflect the continued development of research across the different areas of Urology, including oncological, functional, reconstructive, andrology, minimally invasive surgery, imaging, translational science, and emerging technologies. The abstracts included in this supplement highlight not only the increasing methodological quality of urological research, but also the growing relevance of multidisciplinary collaboration, multicenter initiatives, and technological innovation. All submissions underwent a structured evaluation process conducted by independent Reviewers and members of the SIU Scientific Committee. Abstracts were assessed according to their scientific relevance, methodological quality, originality, and potential contribution to clinical practice. I would therefore like to acknowledge the essential work of the Reviewers and the Scientific Committee, whose expertise and commitment ensured a rigorous and transparent selection process. Although conference abstracts should be interpreted as preliminary scientific communications, they represent an important means of disseminating emerging evidence, generating new hypotheses, and promoting scientific discussion. The studies collected in this supplement identify current areas of clinical and scientific interest and may provide the basis for future investigations, collaborative projects, and full-length publications. The SIU 2026 Congress in Riccione will offer the opportunity to critically discuss these findings, place them within the context of the existing evidence, and explore their potential implications for clinical practice. In a discipline characterized by rapid scientific and technological evolution, such exchange is essential to ensure that innovation is accompanied by methodological rigor, appropriate clinical validation, and a clear focus on patient outcomes. In my role as Head of the Scientific Office of the Italian Society of Urology, I wish to reaffirm the Society's commitment to supporting high-quality research, encouraging collaboration among Italian institutions, and promoting the scientific development of younger urologists and investigators. I am confident that this supplement will provide readers with a valuable overview of current Italian urological research and will contribute to further scientific discussion within the national and international urological community.

On behalf of the Scientific Office of the Italian Society of Urology
Francesco Porpiglia

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Calcolosi urinaria - Trattamento percutaneo

SC1

A novel valve system to control irrigation outflow during flexible nephroscopy after PCNL

SC2

Standard vs. Mini-endoscopic combined intrarenal surgery (ECIRS): a comparative analysis of efficacy, safety, and perioperative outcomes in complex renal stones

SC3

Safety and efficacy of endoscopic combined intra-ureteral surgery (ECIUS) for impacted and complex ureteral stones: a single-center observational study

SC4

Single-J ureteral stent after endoscopic combined intrarenal surgery (ECIRS): evaluation of feasibility and safety

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Percutaneous nephrolithotomy *versus* robotic or laparoscopic pyelolithotomy for complex renal stones: a national survey of Italian urologists

SC1**A novel valve system to control irrigation outflow during flexible nephroscopy after PCNL**

A. Calarco, P. Viscuso, P. Morgia, C.M. Scornajenghi, B. Bucca, G. Mantica, F. Ambrosini, R. Leonardi, A. Tufano (Rome)

BACKGROUND: To determine safety and efficacy of a novel valve adapted to the open end of a 24 Fr. Amplatz sheath during flexible nephroscopy after percutaneous nephrolithotomy (PCNL).

METHODS: From January 2021 to January 2025 we prospectively evaluated patients who underwent PCNL in Galdakao-Modified Supine Valdivia (GMSV) position for renal stones >2 cm. A total of 91 patients were randomized into two groups: traditional PCNL (N.=50) vs. valve-PCNL (N.=41). Exclusion criteria were, the presence of coagulation impairments, age of <18 or >75, presence of infection, and serious comorbidities. Patients were controlled with CT scan after 3 months. A negative CT or an asymptomatic patient with stone fragments <5 mm size were the criteria to assess the stone-free rate (SFR). Treatment safety, efficacy, and complications were evaluated after surgery.

RESULTS: Our cohort (N.=91) included single kidney stones (N.=27), multiple kidney stones (N.=51), and stag-horn kidney stones (N.=13). Patient demographics, stone characteristics and stone location were comparable between the two groups (all $P>0.05$). The mean stone size was 2.72 ± 3.3 cm in the traditional PCNL group vs. 2.97 ± 3.7 cm in the valve-PCNL group ($P=0.23$). The operation time was significantly shorter in the valve-PCNL group (99.3 ± 8.75 vs. 83.4 ± 9.87 minutes; $P=0.03$). Overall SFR achieved between the two groups was 87.5% vs. 94.7% ($P=0.04$). There were no significant differences in overall complication rate (11.4% vs. 10.5%; $P=0.71$), postoperative pain (visual analog scale score; 3.2 ± 0.8 vs. 3.4 ± 0.9 ; $P=0.69$), and hospital stay (3.5 ± 0.9 vs. 4.1 ± 1.2 days; $P=0.64$).

CONCLUSIONS: The introduction of a novel valve adapted to the open end of a 24 Fr. Amplatz sheath during PCNL in GMSV resulted in a reduction of the uncontrolled outflow and consequently in an improved pyelocaliceal visualization. Shorter operative time and SFR were observed in the valve-PCNL group. Thus, further studies with a larger population are needed to verify our outcomes.

SC2**Standard vs. Mini-endoscopic combined intra-renal surgery (ECIRS): a comparative analysis of efficacy, safety, and perioperative outcomes in complex renal stones**

A. Turcan, M. Cossu, D. Garino, M. Poggio, A. Quarà, D. Amatore, S.T. De Cillis, E. Checcucci, A. Piana, F. Piramide, G. Volpi, M. Sica, P. Alessio, B.S. Ribolzi, C.S. Zevallos Flores, E. Ceresa, M. Alessio, M. Mandredi, C. Fiori, F. Porpiglia (Orbassano, Turin)

BACKGROUND: Endoscopic Combined Intra-renal Surgery (ECIRS) is a cornerstone in the management of complex renal stones. The trend toward miniaturization aims to reduce morbidity while maintaining high stone-free rates (SFR). We aimed to compare perioperative outcomes,

safety, and efficacy between Standard ECIRS (24 Ch) and Mini-ECIRS (11-17.5 Ch) in a cohort of patients with high-complexity urolithiasis.

METHODS: A retrospective analysis of 57 procedures performed between January 2025 and January 2026 (29 Standard-ECIRS; 28 Mini-ECIRS) was conducted. Variables analyzed included stone complexity (Guy's Stone Score - GSS), total stone volume, operative time (defined as skin-to-skin time, excluding positioning), hemoglobin (Hb) drop, complications (Clavien-Dindo), and length of stay (LOS). Univariate and multivariate linear regression analyses (adjusting for stone volume) were conducted to identify independent predictors of surgical outcomes.

RESULTS: The Standard-ECIRS group presented significantly higher stone complexity (GSS 3.69 vs. 3.39; $P=0.02$), higher BMI (26.8 vs. 22.1; $P=0.0009$), and higher ASA scores ($P=0.001$). Despite this higher complexity, Mini-ECIRS demonstrated superior operative efficiency, with significantly shorter et operative times (84.3 vs. 125.7 min; $P=0.001$) and a shorter hospital stay (3.5 vs. 5.9 days; $P=0.005$). Intraoperative SFR was higher in the Mini-ECIRS group (82.1% vs. 65.5%; $P=0.26$). Safety profiles were comparable, with no significant differences in mean Hb drop (1.19 vs. 0.78 g/dL; $P=0.12$) or complication rates (Clavien 1.0 vs. 1.1). Postoperative fever ($>38^\circ\text{C}$) occurred only in the Standard group (13.8% vs. 0%; $P=0.11$). Multivariate analysis, adjusted for stone volume, confirmed Mini-ECIRS as an independent predictor of shorter operative time ($P=0.047$) and reduced LOS ($P=0.032$). At parity of volume, Standard-ECIRS added an average of 25.8 minutes to surgical time and 2.04 days to the hospital stay.

CONCLUSIONS: Mini-ECIRS is a highly efficient and safe evolution of the combined approach. While Standard-ECIRS remains the reference for the highest complexity cases (GSS 4), miniaturization significantly optimizes surgical time and hospital resources without compromising safety or stone clearance. The reduced LOS and operative time suggest that Mini-ECIRS offers a superior cost-effectiveness profile in the modern urological armamentarium.

SC3**Safety and efficacy of endoscopic combined intra-ureteral surgery (ECIUS) for impacted and complex ureteral stones: a single-center observational study**

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BACKGROUND: Impacted ureteral stones represent a challenging surgical condition for which several therapeutic strategies are available, including retrograde ureteroscopy (R-URS), antegrade ureteroscopy (Perc-URS), and laparoscopic or robotic ureterolithotomy. We evaluated the safety and efficacy of Endoscopic Combined Intra-Ureteral Surgery (ECIUS), a combined antegrade-retrograde approach, for the treatment of impacted or complex ureteral stones, extending current guideline indications, in which percutaneous management is typically reserved for proximal ureteral stones >1 cm.

METHODS: We conducted a single-center observational

study (2023-2025) including patients with clinical and radiological suspicion of impacted ureteral stones. Collected variables included demographic and stone characteristics, operative time, complications (Clavien-Dindo) and hospital stay. A surgical operability score (0-9) was developed as an operator-reported outcome based on visibility, operative confidence and intraoperative hematuria. Procedures were performed by experienced endourologists using single-use digital flexible uretero-renaloscopes (7.5 Ch) through percutaneous access with ureteral access sheath in modified Galdakao-Valdivia position, assisted by retrograde semirigid ureteroscopy. Lithotripsy was performed using a latest-generation Th:YAG laser. Six-month outcomes included stone-free rate (SFR), reintervention rate and hydronephrosis related to ureteral stenosis.

RESULTS: Twenty-six patients were included. Mean stone size was 11.6 ± 3.9 mm and mean density 1166 ± 266 HU. Stones were located in the mid-ureter (46.1%), proximal (38.5%) and distal ureter (15.4%). Mean operative time was 109 ± 24 minutes and mean hospital stay 3.2 ± 1.7 days. The surgical operability score showed favorable results (mean 7.0 ± 1.0), reflecting optimal visualization and operative control. No intraoperative complications, laser-induced ureteral injuries, contrast medium extravasation, or significant postoperative complications (Clavien-Dindo $>I$) were observed. Stone migration did not occur in any case due to cranio-caudal irrigation, with fragments retrieved retrogradely. No transfusions or ICU admissions were required. All patients received nephrostomy and ureteral stent, removed within postoperative day 3 and two months, respectively. At 6 months, SFR was 96.2% with no reinterventions. Mild non-obstructive hydronephrosis was observed in 15.4% of patients.

CONCLUSIONS: The combined antegrade ECIUS technique represents a safe and effective alternative for the management of impacted or complex ureteral stones along the entire ureter, providing improved visualization and operative confidence, high stone-free rates, and low perioperative complication rates. Larger comparative studies are warranted to better define the role of ECIUS within the therapeutic algorithm for complex ureteral stones.

SC4

Single-J ureteral stent after endoscopic combined intrarenal surgery (ECIRS): evaluation of feasibility and safety

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BACKGROUND: Ureteral stenting after endoscopic combined intrarenal surgery (ECIRS) ensures urinary drainage but may cause significant urinary symptoms. The Visioflux® (Urotech) ureteral stent is a 6 Ch, single pig tail, 22 cm device with a distal extraction suture designed to improve tolerability. This study evaluated the feasibility and safety of Visioflux stent placement following ECIRS.

METHODS: Data were prospectively collected from 15 consecutive patients undergoing ECIRS for renal stones between October 2025 and March 2026, all receiving a Visioflux® stent. Postoperative complications were graded according to Clavien-Dindo. Follow-up included clinical eval-

uation and ultrasound imaging to assess upper tract drainage during indwelling time.

RESULTS: Fifteen patients were included. MiniECIRS (18F) was performed in 10 patients, standard ECIRS (24 F) in 5 cases. The median number of stones treated was 2 (range 1-4), with a mean stone volume of 3113 mm^3 (2126-5214) and mean density of 1012 HU (845-1550). Mean operative time was 74 minutes (55-91). All stents were placed under X-ray guide and the correct intraureteral location of the distal part was checked edoscopically. Postoperative fever occurred in 4/15 patients (26.7%, Clavien II), managed with antibiotics; no higher-grade complications were observed. Ultrasound showed no hydronephrosis, and no additional drainage was required. All patients were discharged without nephrostomy. No complications were attributable to the stent. None of the stent migrated. Stent removal was scheduled after a median of 10 days (range 10-17), and all stents were removed without complications. Distal suture was located in the bladder in 10/15 cases (66.7%) and in the urethra in 5/15 (33.3%).

CONCLUSIONS: Single-J ureteral stent placement after ECIRS is feasible and safe, with effective drainage and no stent-related complications. It may represent a valid alternative to conventional double-J stent with potential benefit on stent tolerance. Larger studies are needed to confirm these findings.

SC5

A comparative analysis of postoperative renal function modification following retrograde intrarenal surgery versus mini-percutaneous nephrolithotomy

L. Candela, P. Scilipoti, L. Villa, E. Ventimiglia, M. Corrales, A. Sierra del Rio, C. Solano, F. Ciamarra, L. Boeri, S. Zanetti, S. Doizi, F. Panthier, E. Montanari, A. Salonia, O. Traxer (Paris)

BACKGROUND: Acute Kidney Injury (AKI) and Acute Kidney Disease (AKD) are underreported complications of minimally invasive surgeries for stone disease. There is a lack of data on differences in AKI and AKD rates following Retrograde Intrarenal Surgery (RIRS) compared to Mini-Percutaneous Nephrolithotomy (mPCNL). To compare the modification of renal function and the rates of AKI and AKD following RIRS versus mPCNL.

METHODS: We retrospectively analyzed data of patients treated between 2009 and 2025 across three tertiary referral centers. Renal function was evaluated using the CKD-EPI formula. Postoperative AKI and AKD were defined according to KDIGO criteria. Multivariable linear regression analysis assessed the association between surgical approach and postoperative eGFR change, adjusting for age, sex, comorbidities, stone characteristics, operative time, and baseline eGFR. Logistic regression models evaluated the risk of AKI and AKD. Adjusted percentage changes in eGFR were visualized using LOESS smoothing stratified by procedure and baseline eGFR. The onset of AKD was assessed both as a continuous variable at 3 months and as a binary variable according to the international definitions.

RESULTS: Of 606 patients, 414 (68%) underwent RIRS and 192 (32%) mPCNL. Compared with RIRS, mPCNL

patients had larger stones (25 vs. 11 mm, $P<0.001$), longer operative times (100 vs. 70 min, $P<0.001$), and similar eGFR (85 vs. 82 mL/min/1.73 m², $P=0.8$). No difference in eGFR change from baseline was observed ($\beta = 2.3$; 95% CI -6.7-11, $P=0.6$), and no significantly higher risk of AKI (OR = 0.44; 95% CI 0.18-1.01; $P=0.059$) between the two groups. Patients with lower baseline eGFR showed greater improvement at loess function assessment. ADK occurred in 11% of RIRS and 4.3% of mPCNL cases with known 3-months eGFR ($P=0.051$).

CONCLUSIONS: Overall, RIRS and mPCNL demonstrated comparable postoperative renal function trajectories. Likewise, the incidence of AKD did not differ meaningfully between the two procedures. These findings suggest that the choice between RIRS and mPCNL can be guided primarily by patient history and anatomical or clinical characteristics rather than concerns regarding renal functional outcomes.

SC6

Combined retrograde-antegrade endourological approach for encrusted ureteral stent treatment

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BACKGROUND: Encrusted ureteral stents are a challenging complication, with encrustation rates rising from 26.8% at <6 weeks to 75.9% at >12 weeks. Once encrustation develops, surgical intervention is required. This study evaluates outcomes of a combined endourological approach and identifies factors associated with 30-day complications.

METHODS: Retrospective analysis of 82 adult patients treated for encrusted ureteral stents (between 2020 and 2024). Encrustation was graded using the KUB score with both X-rays and CT scan. All procedures combined retrograde and antegrade approaches under spinal anesthesia by two in-tandem surgeons, using the MIP system (Karl Storz) with thulium fiber or holmium laser. Complications were graded by the Clavien system. Multivariable logistic regression identified predictors of complications.

RESULTS: Median age was 53.4 years (IQR 38.2-64.0); 51.2% were female. Median BMI 25.0 kg/m²; 79.3% had ASA score 1-2. 4% had ileal neobladders, 8.7% presented with anatomical kidney anomalies. Median stent dwelling time was 8.0 months (IQR 6.0-11.2); median KUB score 5.0 (IQR 3.0-5.25); 8.5% had KUB ≥ 9 . Encrustation involved the collecting system alone in 53.8%, both collecting system and ureter in 34.1%, and ureter only in 6.1%. Preoperative urine cultures were positive in 18.3%. The inferior calyx was targeted in 81.7% of cases. Median surgical time was 83.0 min (IQR 60.0-105.0). Exit strategy: 57.4% mono-J catheter, 39.0% double-J stent, 3.6% nephrostomy. Stone-free status was achieved intraoperatively in 85.4%; stents were successfully removed in all patients. Median hospital stay was 3.0 days (IQR 2.0-5.0). Complications occurred in 17 patients (20.7%). Clavien grade 1 in 8.5% (perirenal fluid collection 3.6%, fever managed by observation 2.4%); grade 2 in 1.2% (hematuria requiring transfusion, fever requiring antibiotics); grade 3a in 2.4% (renal pelvic perforation 1.2%, pneumothorax 1.2%); grade 3b in 1.2% (angiobolization); grade 4 in 1.2% (sepsis requiring ICU). Patients with complications had

a significantly longer hospital stay [4.5 vs. 3.0 days, $P<0.01$]. Positive stone cultures were more frequent in the complication group (29.4% vs. 13.8%). No significant differences were found in demographics, anatomy, or scoring between groups. Multivariable regression identified no independent predictors of complications.

CONCLUSIONS: Combined retrograde-antegrade endourological management achieved complete stent removal and high intraoperative stone-free rates (85.4%) with acceptable morbidity. Complications were mostly minor and no independent predictors were identified.

SC7

Beyond technology: a comparative analysis of mini-endoscopic combined intrarenal surgery (mini-ECIRS) and robotic-rirs (ILY®) for complex renal stones

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BACKGROUND: The surgical management of complex renal stones has been revolutionized by two main high-tech approaches: the miniaturization of percutaneous access (Mini-ECIRS) and the advent of robotic-assisted retrograde platforms (Robotic-RIRS). While Robotic-RIRS aims to overcome ergonomic limitations of conventional flexible ureteroscopy, Mini-ECIRS offers the advantage of simultaneous antegrade and retrograde access. This study objective was to compare the perioperative outcomes, safety, and surgical efficiency of these two advanced platforms in a single-center experience.

METHODS: We performed a retrospective analysis of 78 consecutive patients treated for complex renal stones between January 2025 and January 2026. The cohort included 28 Mini-ECIRS and 50 Robotic-RIRS (ILY®) procedures. Statistical analysis utilized univariate tests for demographic and primary outcomes (Stone-Free Rate - SFR, Hemoglobin drop, Length of Stay). A multivariate linear regression model was applied to normalize operative times according to stone burden (mm), providing a net efficiency comparison. SFR was defined as the absence of residual fragments >3mm on post-operative imaging.

RESULTS: Significant differences were observed at baseline, as Robotic-RIRS was preferred for patients with a higher BMI (25.2 vs. 22.1 kg/m²; $P<0.001$), while Mini-ECIRS was utilized in a slightly older population (61.1 vs. 56.0 years). Regarding efficacy and safety, the two techniques were statistically comparable. The SFR was 82.1% for Mini-ECIRS and 78.0% for Robotic-RIRS ($P=0.77$). Safety outcomes showed nearly identical hemoglobin drops (1.19 vs. 1.20 g/dL; $P=0.96$) and length of stay (3.57 vs. 3.50 days; $P=0.87$). Surgical efficiency favored the percutaneous approach. While raw operative time showed a trend (84.3 vs. 99.9 min; $P=0.08$), the multivariate model adjusted for stone burden confirmed that Mini-ECIRS was significantly faster, saving an average of 24.3 minutes per procedure ($P=0.014$).

CONCLUSIONS: Both Mini-ECIRS and Robotic-RIRS are highly effective and safe for managing complex renal stones. However, Mini-ECIRS demonstrates superior surgical effi-

ciency with significantly shorter operative times when adjusted for stone complexity. While Robotic-RIRS offers specific advantages for higher BMI patients, the combined approach remains the fastest gold-standard for complete stone clearance.

SC8

Evaluating the learning curve of vacuum-assisted mini percutaneous nephrolithotomy with the cumulative sum method: a real-life investigation

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BACKGROUND: Among the available treatments for large and complex kidney stones, vacuum-assisted mini percutaneous nephrolithotomy (vamPCNL) has emerged as a novel and effective option, offering high stone-free rates with minimal morbidity. Numerous studies have investigated the learning curve of standard PCNL, indicating that approximately 60 cases are required to achieve surgical competence; however, evidence on the vamPCNL learning curve remains scarce. We aimed to assess the vamPCNL learning curve using the cumulative sum (CUSUM) method, based on operative parameters and surgical outcomes.

METHODS: Data from 247 patients who underwent vamPCNL were retrospectively analysed. The procedure was performed by two surgeons [63 (35.5%) and 184 (74.5%) cases, respectively] with no prior experience in PCNL (either vam or standard) at a single center between 01/2016 and 07/2025. We collected patient's demographics, stones characteristics and operative data. Comorbidities were scored with the Charlson Comorbidity Index (CCI). Complications were recorded and graded according to modified Clavien-Dindo classification. Stone-free status (SFS) was defined as the absence of residual stones; bifecta was defined as SFS and the absence of complications. Descriptive statistics, linear regression models and CUSUM method were applied to assess the learning curve of vamPCNL based on operative time, fluoroscopy time and bifecta achievement.

RESULTS: Overall, median (IQR) age, BMI and stone volume were 59 (50-67) years, 24.8 (22.3-27.6) kg/m² and 1.3 (0.8-3.2) cm³, respectively. A total of 98 patients (39.6%) had a CCI ≥ 1 . Median operative time and fluoroscopy time (FT) were 90 (70-120) minutes and 461 (315-692) sec, respectively. Fifty-four (21.9%) patients had postoperative complications (any Clavien), 213 (86.2%) patients were stone free. Bifecta was achieved in 169 (68.4%) cases. Age, BMI, CCI, stone volume, SFS, postoperative complications and bifecta rate were comparable between the two surgeons. CUSUM analysis showed that 43 cases were required to achieve proficiency in operative time, with differences between operators. The plateau for FT was reached after 39 vamPCNL. For bifecta rates, CUSUM analysis revealed an initial learning phase for both surgeons, with stable performance achieved after 42 and 41 cases, respectively. Operative time and FT were comparable between surgeons on linear regression model.

CONCLUSIONS: Approximately 40 cases are required to achieve reproducible outcomes in vamPCNL in terms of operative time, fluoroscopy time and surgical outcomes (SFS and complications). These findings suggest that vamPCNL may have a shorter learning curve than standard PCNL.

SC9

Outcomes and predictors of stone-free status after repeat ipsilateral mini-percutaneous nephrolithotomy

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BACKGROUND: Residual stone fragments (RFs) after mini-percutaneous nephrolithotomy (mPCNL) remain clinically relevant, often requiring additional surgery. Repeat ipsilateral mPCNL is commonly performed for significant RFs, but stone-free (SF) status is not always achieved, and predictors of success are poorly defined. We aimed to assess SF rate and identify predictors in patients undergoing repeat ipsilateral mPCNL.

METHODS: We retrospectively analyzed 73 patients with RFs on post-mPCNL CT who underwent repeat ipsilateral mPCNL at a single tertiary center between January 2016 and July 2025. Patient demographics, stone characteristics, and perioperative variables were collected. All procedures used a vacuum-assisted sheath. SF status was defined as absence of stones on CT at 3 months. Stone volume reduction (delta stone volume) was defined as the proportional decrease in stone volume between baseline and the repeat procedure. Descriptive statistics and logistic regression identified SF predictors; ROC curves assessed predictive accuracy.

RESULTS: Median (IQR) age was 55 (42.5-65) years; baseline stone volume was 10.1 (3.4-17.3) cm³. Staghorn stones were present in 39 (53.4%) patients; 23 (31.5%) had complications after the first procedure. Before the repeat mPCNL, median residual stone volume was 3.2 (0.9-6.3) cm³; 57 (78.1%) patients had multiple stones. Median delta stone volume was 72.3% (31.4-82.1). Overall SF rate was 67.1% (49/73). SF patients had lower residual stone volume [0.9 (0.6-3.4) vs. 5.1 (2.9-10.7) cm³, P=0.01] and greater delta stone volume (74.4% vs. 53.5%, P=0.02). Median operative time was slightly shorter in SF patients [82 (76-120) vs. 90 (80-148) min, P=0.01]. Multivariable analysis showed that delta stone volume, residual stone volume, and operative time were independent SF predictors. ROC analysis identified delta stone volume >58.4% as the best SF predictor (AUC 0.75; sensitivity 76.9%, specificity 72.3%).

CONCLUSIONS: Among patients undergoing repeat ipsilateral mPCNL, 67.1% achieved SF status. Higher residual stone burden predicted persistent fragments, while delta stone volume >58.4% after the first procedure increased likelihood of SF status. These results may guide patient counseling and surgical planning for secondary interventions.

SC10

Value of nephrolithiasis treatment in aged patients: safety and efficacy of PCNL - vintage study

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BACKGROUND: Percutaneous nephrolithotomy (PCNL) represents the treatment of choice for large and complex renal stones, offering high stone-free rates with acceptable morbidity.

ity. However, data regarding its outcomes in elderly patients remain limited. We aimed to evaluate outcomes of PCNL for kidney stones in geriatric patients (older than 75 years of age) compared to younger individuals.

METHODS: We retrospectively analysed data from 559 consecutive patients who underwent PCNL at a single tertiary-referral academic between 01/2016 and 07/2025. Patient's demographics, stones characteristics and operative data were collected. Comorbidities were scored with the Charlson Comorbidity Index (CCI). Stone-free status was defined as no residual stones at 3-month CT scan. Complications were recorded and graded according to modified Clavien-Dindo classification. Descriptive statistics and logistic regression models were used to identify factors associated with postoperative complications.

RESULTS: Among 559 patients, 63 (11.3%) were aged ≥ 75 years. The median age was 55 (47-63.5) years in the younger group and 79.5 (76.25-81.75) years in the older group. Geriatric patients had higher CCI ($P=0.001$), higher baseline serum creatinine (1.0 vs. 0.8 mg/dL, $P<0.01$), and lower preoperative hemoglobin (12.8 vs. 14 g/dL, $P<0.01$) than younger participants. Stone characteristics, stone-free rates, and operative time were comparable between groups, although elderly patients had a longer hospital stay. Postoperative complications occurred in 138 (28.2%) patients aged <75 years and in 11 (18.7%) geriatric patients ($P=0.080$). Postoperatively, elderly patients had higher serum creatinine levels (1.07 vs. 0.89 mg/dL, $P=0.009$), lower eGFR (53.10 vs. 91.60 mL/min, $P<0.001$), and lower haemoglobin levels (10.85 vs. 12.50 g/dL, $P=0.01$). Multivariable logistic regression analysis confirmed that stone volume (OR 1.1, $P<0.001$) and operative time (OR 1.2, $P<0.01$) were associated with postoperative complications after accounting for age. Conversely, mini-PCNL was independently associated with a reduced risk of complications (0.37, $P=0.001$).

CONCLUSIONS: Despite having higher CCI and less favorable baseline renal and hematologic profiles, geriatric patients undergoing PCNL demonstrated perioperative outcomes comparable to younger individuals, with no significant difference in postoperative complication rates, at the cost of a longer hospital stay. Stone burden and operative complexity, rather than age, emerged as the main predictors of postoperative complications, while mini-PCNL was associated with a reduced risk, supporting its use in this population.

SC11

Multiple access tracts in PCNL for large kidney stones: a retrospective comparison of standard PCNL vs. vacuum-assisted mini-PCNL

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BACKGROUND: Percutaneous nephrolithotomy (PCNL) for large and complex kidney stones could be performed with multiple access tracts. In literature, there is a lack of data regarding the outcomes of vacuum-assisted mini PCNL (vamPCNL) compared to standard PCNL (sPCNL) in this setting. We aimed to compare outcomes of vamPCNL and sPCNL for complex renal stones performed with multiple access tracts.

METHODS: We retrospectively analysed data from 123 patients who underwent PCNL with multiple access tracts for large kidney stones at a single tertiary-referral academic between January 2016 and September 2025. Among these patients, 100 (81.3%) were treated with vamPCNL. Patient's demographics, stones characteristics and operative data were collected. Stone-free status was defined as no residual stones at 3 month-follow-up CT scan. Complications were recorded and graded according to modified Clavien classification. Descriptive statistics, Chi-square/Fisher's Exact Test, Mann-Whitney U Test, and logistic regression were used to assess associations between predictors and procedural outcomes.

RESULTS: Overall, median (IQR) age and stone volume were 50 (34-62) years and 4.0 (2.6-9.5) cm³, respectively. Two and three access tracts were used in 108 (87.8%) and 15 (12.2%) cases, respectively. After surgery, 83 (67.4%) patients were stone free and 46 (37.4%) had postoperative complications (any Clavien). Groups were similar in terms of age, body mass index, Charlson Comorbidity Index (CCI), stone volume and preoperative serum hemoglobin and creatinine values. Operative time was comparable among groups (139 min for sPCNL and 130 min for vamPCNL). Hemoglobin drop [2.3 (0.7-3.1) g/dL vs. 0.9 (0.4-2.3) g/dL, $P=0.02$] and fluoroscopy time [15.2 (9.1-18.5) min vs. 12.2 (8.3-16.8) min, $P=0.01$] were higher in sPCNL than vamPCNL. No significant difference was observed in the distribution of access tracts between groups, although 3 tracts were more frequently used in the sPCNL group compared to the vamPCNL group (21.7% vs. 10%, $P=0.14$). Stone free rate (67% vs. 69.5%) was similar between vamPCNL and sPCNL. Patients treated with sPCNL had higher rates of complications than those who underwent vamPCNL (65.2% vs. 31.6%, $P=0.01$). Hospitalization time was longer for sPCNL than vamPCNL (12 vs. 6 days, $P=0.03$). Multivariable logistic regression analysis revealed that sPCNL (OR 4.5, $P=0.01$) was the only predictor for postoperative complications, after accounting for age, stone volume, and CCI.

CONCLUSIONS: vamPCNL with multiple tracts for large renal stones was associated with similar operative time and stone free rate than sPCNL with multiple access tracts. However, postoperative complications, hemoglobin drop, fluoroscopy and hospitalization time were worse after sPCNL. In clinical practice vamPCNL with multiple tracts emerged as a promising approach for large kidney stones.

SC12

Percutaneous nephrolithotomy versus robotic or laparoscopic pyelolithotomy for complex renal stones: a national survey of Italian urologists

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BACKGROUND: Complex renal calculi represent a major challenge in urological practice. According to current European Association of Urology guidelines, percutaneous nephrolithotomy is recommended as first-line treatment for complex and staghorn renal stones, whereas robotic or laparoscopic pyelolithotomy is reserved as a second-line option in selected cases. The increasing availability of robotic platforms may, however, influence real-world clinical decision-making.

METHODS: An anonymous, cross-sectional national online survey was distributed to Italian urology trainees,

young specialists, and senior consultants. The questionnaire investigated institutional resources, personal surgical experience with percutaneous nephrolithotomy and robotic or laparoscopic pyelolithotomy, preferred management strategies for staghorn calculi, perceived learning curves, and adequacy of surgical training. Descriptive statistics were used for data analysis.

RESULTS: A total of 85 respondents completed the survey. Robotic surgery was available in 92.9% of centers, while extracorporeal shock wave lithotripsy was available in 50.6%. Most participants were actively involved in percutaneous nephrolithotomy (90.6%), often with high annual case volumes, whereas pyelolithotomy was performed by 77.6%, generally at lower volumes. For staghorn calculi, endoscopic combined intrarenal surgery and multi-session percutaneous nephrolithotomy were the most frequently preferred strategies, although pyelolithotomy was considered an option in nearly one-third of cases. When performed, a robotic approach was overwhelmingly favored. The most common indications

for preferring pyelolithotomy were anatomical abnormalities and failure of previous percutaneous nephrolithotomy. More than half of respondents reported that robotic surgery availability influences surgical indications, and over 40% had observed potentially inappropriate use of robotic approaches for stone disease. Percutaneous nephrolithotomy was perceived as technically demanding with a longer learning curve, whereas robotic pyelolithotomy was considered easier to master. Most respondents judged current training in complex renal stone disease in Italy to be inadequate.

CONCLUSIONS: This national survey highlights a growing influence of robotic technology on the management of complex renal calculi in Italy, with an increasing use of robot-assisted pyelolithotomy despite guideline recommendations favoring percutaneous nephrolithotomy as first-line treatment. These findings underline the need to reinforce guideline-based practice, optimize structured training in percutaneous nephrolithotomy, and further evaluate the role of robotic approaches through outcome-driven studies.

Carcinoma vescicale - NMIBC

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SC13

Predicting cancer-specific mortality in non-muscle-invasive bladder cancer: comparative performance of AUA vs. EAU risk classifications

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BACKGROUND: Risk stratification in non-muscle-invasive bladder cancer (NMIBC) traditionally focuses on recurrence and progression, as in the European Association of Urology (EAU) and American Urological Association (AUA) classifications. Since these events ultimately drive cancer-specific mortality (CSM), assessing their ability to predict CSM may refine patient counseling and follow-up. We compared the accuracy of these models in predicting CSM.

METHODS: We relied on 2215 consecutive patients with non-muscle-invasive bladder cancer (NMIBC) treated with transurethral resection of bladder tumor (TURBT) at seven tertiary-referral European centers (2015-2022). Patients were categorized according to: 1) the 2021 EAU classification into low- (LR), intermediate- (IR), high- (HR), and very high-risk (VHR) groups, based on T stage, WHO 1978/2004 grade, presence of carcinoma in situ (CIS), and additional factors (age >70 years, multifocality, and tumor size ≥ 3 cm); and 2) the AUA classification, which lacks a VHR group but expands HR category. Kaplan-Meier estimates were used to assess CSM. Time-dependent receiver operating characteristic (ROC) curves and area under the curve (AUC) values at 2 and 5 years were calculated to test model discrimination.

RESULTS: Median age was 70 years (IQR: 63-77). Overall, 1364 (62%) harbored Ta, 702 (32%) T1, and 118 (5.3%) Tis stage; 328 (15%) had CIS, 1254 (57%) HG disease, and 135 (6.2%) VH. Multifocality was reported in 989 (45%) patients, with median tumor size of 2 cm (IQR: 1-3). According to EAU criteria, 501 (23%) were LR, 989 (45%) IR, 599 (27%) HR, and 126 (5.6%) VHR; according to AUA criteria, 370 (17%) were LR, 1,005 (45%) IR, and 840 (38%) HR. Median follow-up was 49 months (IQR: 30-68). The 2- and 5-year CSM rates were 0.0% and 1.3% for EAU LR vs. 2.3% and 4.5% for IR vs. 7.1% and 14% for HR vs. 6% and 15% for VHR patients; corresponding values for AUA were 0.0%, 4.7%, and 4.8% at 2 years and 0.0%, 9.3%, and 10% at 5 years. The EAU classification demonstrated superior discrimination for CSM (AUC 0.70 vs. 0.58 at 2 years, $P=0.028$; 0.75 vs. 0.61 at 5 years, $P=0.001$).

CONCLUSIONS: Although developed to predict recurrence and progression, both models provide prognostic insight into CSM. The EAU classification showed superior accuracy compared with the AUA system, supporting its broader prognostic utility in NMIBC.

SC14

Performance of the EAU risk classification in predicting progression in primary vs. Recurrent non-muscle-invasive bladder cancer: do we need new tools?

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BACKGROUND: Risk stratification according to the 2021 European Association of Urology (EAU) classification represents the cornerstone for treatment and follow-up scheduling in non-muscle-invasive bladder cancer (NMIBC). However, this model was primarily developed in treatment-naïve populations, and its accuracy in patients with recurrent disease remains uncertain. We aimed to compare the discriminative ability of the EAU risk classification for progression prediction between primary and recurrent NMIBC.

METHODS: We relied on 2074 consecutive patients with non-muscle-invasive bladder cancer (NMIBC) treated with transurethral resection of bladder tumor (TURBT) at seven tertiary-referral European centers (2015-2022). Patients were categorized according to 2021 EAU risk groups into low- (LR), intermediate- (IR), high- (HR) and very high-risk (VHR) categories. Primary NMIBC was defined as first-ever occurrence, while recurrent NMIBC indicated a prior history of NMIBC. Endpoint was time to progression. Time-dependent receiver operating characteristic (ROC) analyses were performed at 36 and 48 months to estimate AUCs. Differences in discriminative performance between primary and recurrent tumors were evaluated with a nonparametric bootstrap approach (1000 resamples per group) to generate empirical distributions of AUC differences and two-sided P values were derived.

RESULTS: Overall, 1762 (85%) and 312 (15%) had primary and recurrent NMIBC, respectively. Of all primary NMIBC patients, 478 (27%) were LR vs. 420 (24%) IR vs. 725 (41%) HR vs. 139 (7.9%) VHR. Of all recurrent NMIBC patients, 176 (56%) were LR vs. 118 (38%) IR vs. 18 (5.8%) VHR. Median follow-up was 34 months (IQR: 28-36). At 36 months, progression occurred in 9% of primary vs. 16% of recurrent NMIBC patients; at 48 months, the rates were 11% and 20%, respectively. The EAU risk classification demonstrated higher accuracy for progression prediction in primary compared with recurrent NMIBC, with time-dependent AUCs of 0.70 vs. 0.60 at 36 months ($P=0.048$) and 0.70 vs. 0.56 at 48 months ($P=0.024$).

CONCLUSIONS: The EAU risk classification shows good discriminative ability for progression in primary NMIBC but underperforms in recurrent disease. These results highlight the need for novel prognostic tools tailored to previously treated NMIBC populations to guide follow-up.

SC15

Homogeneity of EAU 2021 intermediate risk group: a multicenter external validation

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BACKGROUND: According to the 2021 EAU risk stratification scoring model, Ta high-grade (TaHG) tumors can be classified as intermediate-risk (IR) bladder cancer if fewer than two high-risk features are present. Consequently, the

IR category encompasses a broad spectrum of tumors, from Ta low-grade (TaLG) to TaHG, raising questions about its biological and prognostic consistency. This study aims to externally validate the IR group by comparing outcomes of TaHG tumors with those of other intermediate-risk cases.

METHODS: This multicenter retrospective study included 1046 patients with intermediate-risk (IR) non-muscle-invasive bladder cancer treated at 13 international referral centers between 2006 and 2024. T1 tumors and patients treated with BCG were excluded. All received at least one induction course of intravesical chemotherapy after resection. IR classification was based on the 2021 EAU risk model, including TaHG with fewer than two risk factors. Oncological outcomes were analyzed to compare recurrence- (RFS) and progression-free survival (PFS) between TaHG IR patients and the rest of the intermediate-risk population.

RESULTS: Overall, 1046 patients were included, with a median age of 70 years. Among them, 228 (22%) had TaHG IR tumors, while the remaining cases were Ta low-grade (TaLG) IR tumors. The median number of intravesical instillations was 6 (IQR 6-12) and all patients received at least one induction course. Maintenance was administered to 331 (42%) patients. Kaplan-Meier analyses for 5-year recurrence-free (RFS) and progression-free survival (PFS) were made to compare these two groups. RFS at 5-years for TaLG IR and TaHG IR tumors was 51% and 56% respectively ($P=0.8$); PFS at 5 years for IR tumors and TaHG IR tumors was 96% and 94% respectively ($P=0.4$).

CONCLUSIONS: Although the EAU 2021 intermediate-risk (IR) category includes a biologically heterogeneous population ranging from TaLG to TaHG tumors, our study provides external validation of its consistency. The oncological outcomes of TaHG patients classified as intermediate risk were comparable to those of other IR cases showing no significant differences in recurrence- or progression-free survival. These findings support the biological and prognostic robustness of the EAU 2021 IR classification and indicate that intravesical chemotherapy can be effectively used for selected TaHG tumor that fall in this specific risk group.

SC16

Update from the Bladder Cancer Italian Active Surveillance (BIAS) project for low-grade bladder tumors: long-term oncological outcomes of patients under active surveillance

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BACKGROUND: Active Surveillance (AS) has emerged as a conservative management strategy for patients with low-grade non-muscle-invasive bladder cancer (NMIBC), aiming to defer or avoid repeated transurethral resections. We present an updated analysis of the multicentric Bladder Cancer Italian Active Surveillance (BIAS) project to confirm the long-term oncological safety of AS. The primary endpoint was the rate of AS failure at extended follow-up, while secondary endpoints included the oncological outcomes of patients who failed surveillance.

METHODS: This ongoing prospective observational study, initiated in January 2013, includes patients with pathologically confirmed low-grade pTa/pT1 NMIBC who experienced

recurrence during follow-up and voluntarily opted for AS. Inclusion criteria comprised a history of low-grade NMIBC (G1-G2), 1-5 tumors, largest lesion <1 cm, absence of gross hematuria, and negative urine cytology (UC). AS consisted of flexible office cystoscopy and UC every 3 months during the first year, and every 6 months thereafter. Failure was defined as the occurrence of one or more exclusion criteria after enrolment.

RESULTS: A total of 302 patients were included. Median (IQR) age at AS entry was 72 years (65-79), and median time from last transurethral resection of the bladder (TURB) to AS enrolment was 12 months (6-24). Multifocality was observed in 107 cases, and 110 patients presented lesions ≤ 5 mm at baseline. Median AS duration was 16 months (6-36). Overall, 176 patients experienced AS failure due to an increased number or size of lesions ($N=95$ and $N=98$, respectively), gross hematuria ($N=20$), positive UC ($N=20$), or voluntary withdrawal ($N=5$). Notably, spontaneous regression was observed in 5 cases. At TURB performed after failure, 19 patients showed an upgrade to HG/CIS, 3 an upstage to T2, and 30 were tumor negative. Currently, 126 patients remain under AS. Among those who exited the protocol (median FU 48 months [34-62]), 108 required no further TURB, while 45 underwent additional resections, most showing pTa ($N=44$), pT1 ($N=1$), and no pT2 recurrences. Only 15 patients eventually progressed to HG/CIS disease.

CONCLUSIONS: This updated report reinforces the long-term oncological safety of Active Surveillance for low-grade NMIBC. Even among patients who failed AS, subsequent follow-up demonstrated limited progression risk, supporting AS as a reliable conservative strategy in appropriately selected patients.

SC17

Artificial intelligence (AI)-based models for bladder cancer (BC) endoscopic detection

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BACKGROUND: Artificial intelligence (AI)-based models are increasingly being explored for the diagnostic evaluation of patients undergoing assessment for bladder cancer (BC). The aim of this study was to systematically review the literature regarding the use of AI models for tumor detection during bladder endoscopy in patients with suspected BC.

METHODS: We systematically searched the PubMed, Embase, and Scopus databases through September 2025 in accordance with PRISMA guidelines. Eligible studies reported the diagnostic performance of AI-based technologies applied to cystoscopy and transurethral resection of bladder tumor (TURBT), in patients with suspected BC. We excluded case reports, meeting abstracts, narrative reviews, case series, and non-original publications. Data extraction was performed using a standardized approach and included clinicopathological data and performance metrics. Study quality was independently assessed using the National Institutes of Health Quality Assessment Tool.

RESULTS: A total of 12,840 patients across 13 studies published between 2018 and 2025 met the inclusion criteria. A total of 236,762 images/frames were analyzed, of which

36,815 contained lesions. AI models included convolutional neural networks (CNN), U-Net variants, GoogLeNet, ResNet, DenseNet, EfficientNet, CystoNet, and the Cystoscopy Artificial Intelligence Diagnostic System. 12 studies were retrospective, and 1 was prospective. 10 studies were conducted at a single institution, and 3 had a multicenter design. AI-based models demonstrated moderate diagnostic performance, reliably identifying BC with moderate to high accuracy.

CONCLUSIONS: AI models are promising diagnostic tools, potentially adjunctive in clinical practice, but without yet-established standardized performance metrics. However, methodologies across studies remain heterogeneous, and results remain context dependent.

SC18

Real-world adherence to EAU-recommended non-muscle-invasive bladder cancer management: from evidence-based practice to oncological outcomes

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BACKGROUND: European Association of Urology (EAU) guidelines recommend several interventions in the management of non-muscle-invasive bladder cancer (NMIBC), including early instillation (EI), second-look transurethral resection (re-TURBT), and risk-adapted intravesical therapy. Real-world adherence and its oncologic impact remain insufficiently characterized.

METHODS: We retrospectively analyzed 2,194 consecutive NMIBC patients treated with TURBT between 2014 and 2021 at six European tertiary centers. Eligibility for EI, re-TURBT, and intravesical instillations was defined in accordance with EAU criteria. Temporal trends of EAU guideline-recommended interventions were described using annual percentage changes (EAPC). Adherence was assessed through Sankey plots. Recurrence- (RFS) and progression-free survival (PFS) were evaluated using inverse probability of treatment weighting adjusted for sex and EAU risk group according to treatment adherence. Cox regression models were also fitted.

RESULTS: Median age was 70 years. Overall, 63% of patients harbored Ta, 32% T1, and 5% Tis; 60% were high grade. Risk distribution was 22% low, 29% intermediate, 41% high, and 8% very-high risk. EI was recommended in 1,333 patients and performed in 290 (22%), and its use did not change over time (21% in 2014 vs. 16% in 2021, $P=0.4$). Re-TURBT was indicated in 1,006 patients and performed in 445 (44%), with a significant increase over time (14% in 2014 vs. 36% in 2021, $P<0.001$). Intravesical instillations were recommended in 1,713 patients and initiated in 497 (29%), with significant increase over time (19% in 2014 vs. 43% in 2021, $P=0.006$). Adherence was associated with superior 24-month RFS: 81% with EI vs. 64% without (HR 0.61, $P<0.001$), 75% with re-TURBT vs. 57% without (HR 0.44, $P<0.001$), and 75% with intravesical instillations vs. 58% without (HR 0.50, $P<0.001$). Patients starting intravesical instillations had longer 24-month PFS (98% vs. 89%; HR 0.19, $P<0.001$).

CONCLUSIONS: In this European cohort, adherence to

EAU guideline-recommended NMIBC management was low, yet EI, re-TURBT, and intravesical therapy conferred clear oncologic benefit. Improving delivery of guidelines recommendations through standardized pathways and checklists are needed to improve oncological outcomes and should serve as a quality metric in NMIBC care.

SC19

See-and-treat office-based diode laser ablation without anesthesia in recurrent low-grade NMIBC

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BACKGROUND: Office-based management of recurrent Ta low-grade non-muscle-invasive bladder cancer (NMIBC) represents an evolving paradigm aiming to minimise procedural burden while preserving oncological integrity. We evaluated the feasibility, safety, tolerability, and short-term oncological outcomes of outpatient transurethral laser ablation (TULA) using the LEONARDO® Mini Dual diode laser (980/1740 nm) in a prospective single-centre cohort.

METHODS: Sixty consecutive patients mean age 72 years, (range 65-82 years) with suspected recurrent low-grade NMIBC underwent TULA during diagnostic flexible cystoscopy without pre-scheduling or intravesical anaesthesia. A cold-cup biopsy preceded each ablation for mandatory histological confirmation. Pain was quantified *via* visual analogue scale (VAS). Patient preference *versus* conventional transurethral resection of bladder tumour (TURBT) was systematically recorded. Complications were graded according to the Clavien-Dindo classification.

RESULTS: Pre-ablation biopsy confirmed pTa low-grade NMIBC in 66.7% of cases, with carcinoma in situ identified in 4 patients (6.7%), underscoring the oncological relevance of systematic tissue sampling. Mean energy delivered was 336 J (range 15-1414 J). No procedure required hospitalisation; all patients were discharged within two hours. Grade I haematuria occurred in 4 patients (6.7%); no Grade II or higher complications were recorded. Notably, despite 13.3% of patients receiving anticoagulant therapy and 30.0% antiplatelet therapy, none of the variables analysed demonstrated a clinically meaningful association with bleeding risk on Fisher's Exact Test, further supporting the favourable haemostatic profile of dual-wavelength diode laser energy; these findings remain exploratory given the limited event number. Median VAS pain score was 2 (IQR 1-2). Overall, 96.7% of patients preferred outpatient TULA over TURBT under general or spinal anaesthesia, primarily attributing this preference to immediate same-session treatment availability. At 3-month follow-up cystoscopy, recurrence rate was 5.0% ($N=3$), all managed with repeat TULA followed by intravesical mitomycin C induction.

CONCLUSIONS: Outpatient diode laser ablation constitutes a safe and well-tolerated alternative to TURBT for recurrent low-grade NMIBC, achievable without dedicated laser training or intravesical anaesthesia. The incidental CIS detection in 6.7% of cases reinforces the indispensable role of pre-ablation biopsy. This strategy optimises institutional resource allocation and reduces operating room occupancy, supporting its broader integration into contemporary bladder cancer surveillance pathways.

SC20**Validation of BIAS and IBCG scoring systems for predicting high-grade progression in recurrent low grade non-muscle-invasive bladder cancer initially eligible for active surveillance**

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BACKGROUND: We aimed to validate two major scoring systems – the Bladder Cancer Italian Active Surveillance (BIAS) criteria and the International Bladder Cancer Group (IBCG) score – for predicting high-grade (HG) progression at recurrence in patients with primary low-grade (LG) non-muscle invasive bladder cancer initially eligible for active surveillance (AS).

METHODS: We retrospectively included 155 patients with recurrent LG NMIBC (2013-2022), eligible for AS according to BIAS criteria at time of diagnosis. All recurrences were managed with TURBT, enabling histopathological confirmation of tumor grade across 383 recurrences. Clinicopathological data necessary to assess IBCG score and BIAS criteria were systematically collected at each recurrence, and their diagnostic performance in predicting HG progression was evaluated using C-statistics. Multivariable logistic regression was used to assess which individual BIAS and IBCG criteria were most predictive of progression.

RESULTS: At a median (IQR) follow-up of 55 (18-83) months, HG Progression occurred in 45 (12%) of recurrences. BIAS criteria were met in 59% of recurrences, of whom 5.3% showed progression to HG. Conversely, progression was found in 8/62 (13%) patients with no IBCG risk factors at recurrence. BIAS showed higher discriminative ability than IBCG (C-statistic 0.68 vs. 0.51, $P < 0.001$) and higher negative predictive value (94.7% vs. 87.1%). Limitations include the recurrence-level analysis and the use of standard management (TURBT) at each recurrence.

CONCLUSIONS: In patients with primary LG NMIBC initially eligible for AS, failure to meet BIAS criteria at time of recurrence accurately identifies those at higher risk of progression, allowing a greater proportion of patients to safely avoid immediate intervention.

SC21**Updates from the cut-less randomised trial: VI-Rads followed by photodynamic trans-urethral resection of bladder tumours (PDD-TURBT) vs. white-light conventional and second-resection to avoid Re-TURBT in non-muscle invasive bladder cancer (NMIBC)**

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BACKGROUND: A second transurethral resection of bladder tumour (Re-TURBT) is recommended by EAU

Guidelines on non-muscle-invasive bladder cancer (NMIBC) due to the risk of understaging and/or persistent disease after primary resection. However, Re-TURBT is often unnecessary, potentially harmful and expensive, constituting overtreatment. The CUT-less trial combines the preoperative staging accuracy of VI-RADS with the intraoperative enhanced detection of photodynamic diagnosis (PDD) to overcome primary TURBT pitfalls, potentially redefining Re-TURBT indications.

METHODS: Single-centre, non-inferiority, phase IV, open-label, randomized controlled trial (1:1). The primary endpoint is the relative proportion of short-term BC recurrences between arms within 4.5 months (first follow-up cystoscopy), to assess whether patients preoperatively categorized as VI-RADS 1-2 (very-low/low likelihood of MIBC) can safely avoid Re-TURBT *via* primary PDD-TURBT. Secondary endpoints include mid/long-term recurrence and progression, HRQoL modelled over a lifetime horizon, and health-economic cost-benefit (per Re-TURBT avoided) and cost-utility (per QALY) analyses. All patients undergo preoperative multiparametric MRI with VI-RADS determination. Based on the pre-specified power analysis, the target sample size is 327 intermediate-/high-risk NMIBC patients candidates for Re-TURBT per EAU Guidelines, to be enrolled over 3 years from December 2025. Participants are randomized 1:1 to standard of care (SoC: WL-TURBT + WL Re-TURBT) or Experimental arm (PDD-TURBT, Re-TURBT omitted); both receive adjuvant intravesical therapy and risk-adjusted surveillance.

RESULTS: ClinicalTrials.gov: NCT05962541. Recruitment started in December 2025. To date, 27 patients have entered screening: 7 have been randomized (3 Experimental, 4 SoC), 10 are awaiting multiparametric MRI prior to potential randomization, and 10 were screening failures – 5 due to final pathology inconsistent with pT1/pTa high-grade disease and 5 due to VI-RADS >2 . Based on current recruitment pace, a pre-planned interim analysis on the primary endpoint is anticipated by October 2026, with approximately 20 patients per arm expected to be recruited.

CONCLUSIONS: The CUT-less trial is actively recruiting, showing that the workflow integrating VI-RADS and PDD-guided resection is feasible in clinical practice. The first interim analysis (October 2026) will provide preliminary data on early recurrence rates between PDD-TURBT without Re-TURBT and standard two-step WL resection. Results from the CUT-less may drive a paradigm shift towards a more personalized, socially and economically sustainable NMIBC pathway across Europe and worldwide.

SC22**Longitudinal assessment of patient-reported quality of life and mental health during active surveillance for low-grade NMIBC**

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BACKGROUND: While transurethral resection of bladder tumor (TURBT) remains the gold- standard treatment for non-muscle-invasive bladder cancer (NMIBC), there is growing interest in de-intensification strategies aimed at reducing the

patient burden of repeated procedures and the overall economic impact of the disease. Active Surveillance (AS) has been proposed as a potential alternative to TURBT in selected cases of recurrent low-grade (LG) NMIBC, with promising oncologic outcomes. However, the impact of AS on patients' quality of life (QoL) remains unexplored. We aimed to evaluate longitudinal changes in QoL during AS for LG NMIBC, with a secondary objective of identifying patient subgroups at increased risk of QoL deterioration.

METHODS: Prospective data were collected from patients enrolled in the Bladder Cancer Italian Active Surveillance (BIAS) project, an ongoing AS protocol initiated at our institution in January 2013, which has included a total of 231 individuals to date. Overall, 48 patients had at least 12 months of follow-up and complete paired QoL data. QoL was assessed at baseline and at 12 months using the EORTC QLQ-C30, EORTC QLQ-NMIBC24, and EQ-5D-5L questionnaires. Paired *t*-tests compared baseline and 12-month scores, while subgroup analyses by age (<70 vs. ≥70 years) and sex were performed using Mann-Whitney U Tests.

RESULTS: Median age was 66 years (IQR 59-77); 18 patients (38%) were female. Median follow-up was 16 months (IQR 14-24). Global health status and domain-specific QoL scores remained stable over time across all instruments. Median EORTC QLQ-C30 global health scores were 97 (IQR 95-99) at baseline and 93 (IQR 88-95) at 12 months. Median EQ-5D-5L index values were 0.92 (IQR 0.88-1.00) and 0.89 (IQR 0.85-0.95), respectively. No statistically significant differences were observed in overall QoL scores or in subgroup analyses by sex or age group (all *P*>0.05). Patients aged ≥70 years showed a non-significant trend toward higher depressive symptom scores, likely reflecting age-related health decline rather than cancer-related distress. Median EORTC QLQ-NMIBC24 scores demonstrated overall stability between baseline and 12 months, with no significant changes across any domains. No patients discontinued AS during follow-up.

CONCLUSIONS: This is the first study assessing QoL in patients undergoing AS for recurrent LG NMIBC. Our data suggest that AS preserves overall QoL and psychological well-being over at least 12 months of follow-up. These findings support AS as a safe and well-tolerated management strategy for well selected patients. Further efforts are warranted to identify individuals who are at risk of psychological distress.

SC23

Germline homologous recombination repair (GHRR) variants in bladder cancer: preliminary evidence and clinical implications

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BACKGROUND: The contribution of germline DNA repair gene (gDRG) variants to bladder cancer (BC) susceptibility and progression is still poorly defined. This study aims to evaluate the prevalence and clinical implications of germline homologous recombination repair (HRR) gene variants in BC patients of European ancestry.

METHODS: In this prospective case-control study, 75 BC

patients attending follow-up at a single tertiary center were screened for germline variants in 20 gDRGs. Patients were included regardless of disease stage and classified by pathogenicity (Class 3-5). Clinical characteristics and outcomes were compared between variant-positive and variant-negative patients.

RESULTS: Among 75 eligible patients, 72 underwent successful germline sequencing. A total of 23 patients (30.6%) harbored at least one pathogenic, likely pathogenic, or VUS variant. The most frequently altered genes included ATM (N=6), ATR (N=4), BARD1 (N=4), CHEK2 (N=3), and PMS2 (N=3). Eight patients (34.7%) had multiple variants, and one carried three variants. Notably, 25.8% of NMIBC and 50% of MIBC patients had gDRG variants. Moreover, 30% of patients with lowgrade G1 disease harbored at least one variant. Patients with gDRG variants had a higher rate of histopathological variants (34.8% vs. 13.5%) and underwent radical cystectomy at a younger age (60 vs. 75 years, *P*<0.05).

CONCLUSIONS: Our findings support the integration of germline genetic testing and counseling into the management of all bladder cancer patients, regardless of disease stage. The identification of germline pathogenic or likely pathogenic variants, as well as variants of uncertain significance, can inform personalized treatment decisions and enable risk-based screening for relatives. Broader adoption of germline and somatic testing requires a coordinated, multidisciplinary effort led by scientific societies. Additionally, therapeutic opportunities, such as the use of PARP inhibitors in patients with homologous recombination repair deficiencies, may expand treatment options in bladder cancer.

SC24

Recurrence-free survival after checklist adoption in non-muscle invasive bladder cancer: insights from a single-center experience

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BACKGROUND: Recurrence after transurethral resection of bladder tumor (TURBT) remains a major challenge in the management of non-muscle invasive bladder cancer (NMIBC). It is still debated whether the use of surgical checklist (CL) may improve oncological outcomes.

METHODS: We started to prospectively collect data on Checklist (CL) use since 2023. We analyzed our institutional NMIBC database and compared patients treated with vs. without CL between 2023 and 2025. The primary endpoint was recurrence-free survival (RFS). Survival probabilities were estimated using Kaplan-Meier curves, and differences were assessed by the log-rank test. A multivariable Cox regression model (MCR) was used to evaluate the association between CL use and RFS, adjusting for prespecified covariates including age, T stage, presence of muscular layer in the specimen, and administration of adjuvant intravesical instillations.

RESULTS: Overall, 295 patients were included. Among these, CL+ was applied in 141 (48%); median follow-up was

14 months. CL patients showed higher rates of muscular layer presence (98% vs. 92%, $P=0.01$) and pT0 rates (33% vs. 19%) relative to control counterparts. KM showed 1 year-RFS rated of 94.2% in CL+ vs. 76.3% in CL-. In MCR, CL+ was an independent predictor of RFS (HR: 0.29, 95%CI: 0.13, 0.63, $P=0.002$).

CONCLUSIONS: The implementation of a surgical checklist during TURBT was associated with improved quality indicators (such as higher detrusor muscle sampling) and translated into a significantly lower risk of recurrence at one year. These findings support the integration of structured procedural checklists into routine NMIBC surgical practice as a simple, cost-effective strategy to enhance oncological outcomes.

SC25

Urinary markers for the follow-up of patients with NMIBC: the patient's perspective

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BACKGROUND: In recent years, increasing interest has focused on the use of urinary biomarkers: a non invasive approach which may reduce the number of endoscopic evaluations or at the very least identify subgroups of patients at higher risk who require further cystoscopic evaluation. However, their clinical implementation depends not only on the diagnostic performances and potentials but also on the patient acceptance of their limitations. The objective of this study was to investigate the patient perspective in NMIBC follow-up, assessing the impact of cystoscopy on quality of life (QoL) and estimating the Minimal Accepted Sensitivity (MAS), defined as the minimum sensitivity considered acceptable by the patient in order to use a urinary biomarker instead of cystoscopy.

METHODS: Approximately 500 patients were included in this prospective single-center study. Before undergoing cystoscopy, each patient completed a short questionnaire addressing two key aspects: the acceptable false-negative rate (1%, 2%, 5%, or 10%) for replacing cystoscopy with a urinary test, and the perceived impact of cystoscopy on their QoL, rated on a scale from 0 to 10. Additional data collected included age, sex, year of diagnosis, EAU risk category, and number of previous cystoscopies.

RESULTS: The study population reflected typical NMIBC characteristics: median age 74 years, male predominance (80%), and nearly half of patients classified as high risk. Median QoL score was 4.6. Overall, 64.1% of patients considered only a 1% false-negative rate acceptable (corresponding to a MAS of 99%). Smaller proportions accepted higher thresholds: approximately 10% accepted 2%, 12% accepted 5%, and 13.4% accepted 10%. Women were more conservative, with 84% requiring maximum sensitivity. Men showed higher acceptance of 5% and 10% thresholds, although the majority still preferred 1% (59.6%). The number of previous cystoscopies did not significantly influence responses. QoL had a stronger impact: among patients reporting minimal burden, approximately 75% required a 1% false-negative rate; conversely, among those with higher burden ($QoL \geq 7$), this proportion decreased to 52%, with about one-quarter accepting up to 10%.

CONCLUSIONS: Despite the discomfort, most patients undergoing NMIBC surveillance required very high sensitiv-

ity levels (close to 99%) in order to accept urinary biomarkers as a valid alternative to cystoscopy. However, preferences were not uniform and were influenced by factors such as sex, age, and particularly quality of life. These findings highlight the importance of integrating patient perspective, alongside diagnostic performance and economic considerations, in the design of increasingly personalized follow-up strategies for NMIBC.

SC26

Bladder biopsy prior to outpatient laser ablation of recurrent NMIBC identifies occult high-risk disease and changes clinical management

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BACKGROUND: Non-muscle invasive bladder cancer (NMIBC) represents approximately 75% of new bladder cancer (BC) diagnoses and is typically treated with transurethral resection of bladder tumor (TURB-T), followed by endovesical instillations. The cornerstone of follow-up consists of repeated cystoscopies to enable early detection and treatment of recurrences. Frequent recurrences of low-grade (LG) tumors represent a common global challenge due to the need for repeated TURB-T procedures and multiple endovesical instillations, which increase healthcare-related costs. Several strategies have been proposed to reduce the surgical burden on patients and associated costs; among these, transurethral laser ablation (TULA) of small LG NMIBC recurrences is a promising option. This procedure allows immediate and definitive treatment without the need for a new surgical intervention.

METHODS: At our centre, we perform a bladder biopsy prior to TULA to confirm the diagnosis and assess for any histological changes in the tumor, although this is not indicated in international guidelines or previous publications. We use flexible biopsy forceps to obtain a sample of the lesion, followed by ablation of the tumour with a diode laser, performed in a 'see-and-treat' approach during follow-up cystoscopy in the same outpatient setting.

RESULTS: To date, we have performed this procedure in 47 patients without the need for any form of anesthesia, achieving excellent results in terms of tolerability and efficacy. In 5 cases (10%), the pathologist reported the presence of carcinoma in situ (CIS) in the specimen. All patients therefore started endovesical instillations with Bacillus Calmette-Guérin (BCG), with no evidence of recurrence at 6 months.

CONCLUSIONS: Early identification of progression from low-grade (LG) NMIBC to high-grade urothelial carcinoma results in a significant change in patient management. Specifically, this enables the prompt initiation of intravesical Bacillus Calmette-Guérin (BCG) therapy and a more intensive cystoscopic surveillance schedule, as patients are reclassified as high-risk according to EAU risk stratification criteria, thereby optimizing treatment outcomes. In our experience, performing a bladder biopsy in patients undergoing TULA is quick and feasible in an outpatient setting, and facilitates early detection of high-grade tumors in patients with a history of LG NMIBC. This approach may allow timely initiation of appropriate treatment and contribute to a more efficient use of healthcare resources.

SC27

The impact of photodynamic diagnosis during transurethral resection of bladder tumour for non-muscle-invasive bladder cancer. Protocol for a prospective controlled trial (TUR_BLUE)

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BACKGROUND: Non-muscle-invasive bladder cancer (NMIBC) is characterised by a substantial risk of residual disease and understaging after initial transurethral resection of bladder tumour (TURB), particularly in high-grade disease. Second look TURB (re-TURB) is therefore recommended in selected patients, although it is invasive and resource intensive. Photodynamic diagnosis (PDD) with intravesical hexaminolevulinate improves lesion visualisation, but its effect on the completeness of primary TURB in the era of high-definition equipment remains uncertain. TUR_BLUE addresses whether PDD improves the completeness of initial TURB and may reduce residual disease detected at re-TURB in high-risk NMIBC. The study is designed to inform both surgical decision-making and resource use in NMIBC management.

METHODS: TUR_BLUE is a single-centre, prospective, parallel-group, superiority randomised controlled trial. Adult patients scheduled for TURB for a primary bladder lesion >1.5 cm suspected on ultrasound and/or flexible cystoscopy will be randomised 1:1 to white-light cystoscopy

(WLC)-guided TURB or PDD-guided TURB. Patients with pT1 high-grade NMIBC or Ta high-grade NMIBC without detrusor muscle in the specimen will undergo guideline-based re-TURB within 6-8 weeks. The primary endpoint is the proportion of patients with residual tumour and/or new carcinoma in situ (CIS) at re-TURB. Secondary endpoints include upstaging at re-TURB, malignant lesion detection at primary TURB and re-TURB, treatment change triggered by additional findings, 3-month recurrence in patients not undergoing re-TURB, quality of life, and adverse events.

RESULTS: Based on institutional activity (2019-2021), approximately 45% of enrolled patients are expected to meet criteria for re-TURB (40% pT1 high-grade and 5% Ta high-grade without detrusor muscle). Assuming a residual disease rate of 37% after standard white-light TURB and 15% after PDD-guided TURB, a total of 120 patients undergoing re-TURB (60 per arm) will provide 80% power to detect superiority with a one-sided alpha of 0.05. Therefore, the projected total accrual is 250-300 participants. Recruitment is planned over 36 months, with study completion anticipated in 2029.

CONCLUSIONS: TUR_BLUE is a prospective randomised trial designed to determine whether photodynamic diagnosis-guided TURB improves the completeness of primary resection compared with contemporary high-definition white-light cystoscopy. By evaluating residual disease at re-TURB, treatment impact, recurrence, quality of life, and resource implications, the study may provide clinically relevant evidence to refine surgical management and optimise care pathways for patients with highrisk NMIBC.

Tumore vescicale muscolo invasivo I

SC28

The role of fluorodeoxyglucose positron emission tomography/computed tomography in detecting lymph node involvement in comparison to conventional imaging in patients with bladder cancer with variant histology

SC29

Stage migration in bladder cancer: impact of FAPI-PET, FDG-PET, and CE-CT on clinical management decisions compared to final histopathological staging

SC30

Diagnostic performance and clinical impact of intraoperative urethral frozen section in bladder cancer patients candidates for orthotopic neobladder

SC31

Evaluation of two large language models (LLM) for supporting multi-disciplinary team (MDT) decision-making in bladder cancer

SC32

Contemporary trends and predictors of PT0 in radical cystectomy specimens among non-muscle and muscle-invasive bladder cancer patients: a propensity score-matched analysis from a single tertiary centre in the UK

SC33

Impact of time to treatment initiation on survival

in muscle-invasive bladder cancer: an IPTW analysis of the National Cancer Database

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The importance of a multidisciplinary approach for the radical cystectomy: the GRACE-M project topic urothelial cancer. Follow-up

SC35

Impact of neobladder configuration (Δ vs. Y) on urodynamic and functional outcomes after robotic intracorporeal reconstruction

SC36

Association of preoperative ferric carboxymaltose with perioperative hemoglobin dynamics in anemic patients undergoing intracorporeal robotic-assisted radical cystectomy

SC37

Impact of prior pelvic irradiation on peri-operative safety, early and late complications of robotic-assisted cystectomy with intra-corporeal diversion: a matched paired comparison

SC38

Temporal trends in urinary diversion selection after radical cystectomy: a 25-year single-center analysis

SC39

Urodynamic and functional outcomes after Δ -shaped robotic intracorporeal orthotopic neobladder: a two-center experience

SC28**The role of fluorodeoxyglucose positron emission tomography/computed tomography in detecting lymph node involvement in comparison to conventional imaging in patients with bladder cancer with variant histology**

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BACKGROUND: Fluorodeoxyglucose positron emission tomography/computed tomography (^{18}F -FDG PET/CT) is increasingly being incorporated into the staging of bladder cancer to enhance detection of lymph node metastases. This study aimed to compare the diagnostic performance of ^{18}F -FDG PET/CT with conventional magnetic resonance imaging (MRI) and computed tomography (CT) in patients with bladder cancer of variant histology (BCVH) undergoing radical cystectomy.

METHODS: A retrospective analysis was conducted on patients with BCVH who underwent preoperative ^{18}F -FDG PET/CT, MRI, and CT imaging prior to radical cystectomy between 2018 and 2024 at our institution. Imaging findings were correlated with corresponding postoperative histopathology results to determine diagnostic accuracy for nodal involvement.

RESULTS: Thirty-nine patients with BCVH underwent FDG-PET/CT, CT and MRI prior to radical cystectomy. The mean age was 65 years (SD 13). Clinical stage was in Ta 2%, Tis in 5%, T1 in 21%, T2 in 18%, T3 in 34% and T4 in 13%. The most common variant histology was squamous cell carcinoma (59%), followed by glandular differentiation (15%), plasmacytoid (8%), nested (8%), micropapillary (5%) and adenocarcinoma (5%). Overall, concordance rates between FDG-PET/CT, MRI and CT with final cystectomy specimens in predicting lymph node involvement were 89.7%, 74.1% and 72.4%, respectively. FDG-PET/CT demonstrated higher sensitivity for lymph node detection (87.5%) compared to MRI (16.7%) and CT (8.3%); however, specificity (90.5%) was lower than CT (100.0%) and similar compared to MRI (90.4%).

CONCLUSIONS: Among patients with BCVH, ^{18}F -FDG PET/CT shows superior sensitivity for identifying lymph node metastases compared with MRI and CT, while CT maintains the highest specificity. Larger, multicenter studies are needed to validate these results and further define the optimal imaging strategy for this challenging patient population.

SC29**Stage migration in bladder cancer: impact of FAPI-PET, FDG-PET, and CE-CT on clinical management decisions compared to final histopathological staging**

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BACKGROUND: To assess the rate of clinically relevant stage migration induced by FAPI-PET, FDG-PET, and contrast-enhanced CT (CECT) in bladder cancer, defined as

imaging-derived staging discordant with final histopathology to a degree that would have altered clinical management.

METHODS: Nine consecutive patients with histologically confirmed bladder cancer who underwent radical cystectomy with extended lymph node dissection were prospectively enrolled. All patients received FAPI-PET, FDG-PET, and CECT prior to surgery. Imaging-based TNM stage was derived for each modality combining imaging N and M status with histopathological T stage as a surrogate. Three management categories were defined a priori: curative intent (surgery with or without perioperative chemotherapy) for stage II-III A; multimodal or systemic therapy with or without selected surgery for stage IV A; systemic or palliative therapy for stage IV B. Stage migration was defined as assignment to a different management category compared to histopathological staging; direction was classified as upstaging or downstaging.

RESULTS: At final pathology, 2 (22.2%), 4 (44.4%) and 2 (22.2%) patients harboured pT2, pT3 and pT4a disease, respectively; all tumours were high grade. Stage distribution was: II in 2 (22.2%), III A in 3 (33.3%), IV A in 1 (11.1%), IV B in 3 (33.3%). Clinically relevant stage migration occurred in 1/9 patients (11.1%) with FAPI-PET, 2/9 (22.2%) with FDG-PET, and 3/9 (33.3%) with CECT. FAPI-PET recorded 1 downstaging event: a stage IV A patient was classified as stage II, which would have led to curative surgery instead of multimodal/systemic treatment. FDG-PET recorded 1 upstaging event (a stage II patient classified as IV A due to false positive nodal uptake, precluding curative surgery) and the same downstaging event as FAPI-PET. CECT recorded 1 upstaging event (a stage II patient classified as IV A due to false positive nodal finding) and 2 downstaging events: a stage IV B patient with osseous metastases classified as IV A due to undetected bone lesions; a stage IV B patient with visceral metastases classified as III A, which would have led to curative surgery instead of systemic therapy.

CONCLUSIONS: FAPI-PET showed the lowest rate of clinically relevant stage migration (11.1%) with no upstaging events, outperforming FDG-PET (22.2%) and CECT (33.3%). CECT missed distant metastases in 2 patients, leading to potential assignment to inappropriately curative management. These findings support FAPI-PET as the most reliable modality for treatment planning in bladder cancer.

SC30**Diagnostic performance and clinical impact of intraoperative urethral frozen section in bladder cancer patients candidates for orthotopic neobladder**

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BACKGROUND: Intraoperative urethral frozen section (FS) is routinely performed during radical cystectomy (RC) to assess the feasibility of orthotopic neobladder reconstruction, ensuring a cancer-free urethral anastomosis and to reduce the risk of urethral recurrence. However, its diagnostic accuracy and clinical impact on urinary diversion remain poorly defined.

METHODS: We retrospectively analysed consecutive bladder cancer patients undergoing RC with planned ortho-

topic neobladder reconstruction at a high-volume centre between 2010 and 2024. Patients were stratified according to intraoperative urethral FS status (positive vs. negative). In case of a positive urethral frozen section, additional urethral resection was performed until a negative margin was achieved; if not feasible, concomitant urethrectomy was performed. The primary endpoint was the diagnostic performance of FS compared with definitive histology. Secondary endpoints included conversion to ileal conduit and urethral recurrence (UR). Kaplan-Meier analyses were performed to estimate urethral recurrence-free survival (URFS) and cancer-specific survival (CSS).

RESULTS: Overall, 200 patients were included, of whom 15 (7.5%) had a positive urethral FS. Baseline characteristics were comparable between FS-positive and FS-negative patients ($P>0.1$), except for a higher prevalence of concomitant carcinoma in situ in the FS-positive group (40% vs. 17%, $P=0.04$). Sensitivity, specificity, and overall accuracy were 82.4%, 99.5%, and 98.0%, respectively. Conversion to ileal conduit was significantly more frequent in FS-positive patients (47% vs. 4.9%, $P<0.001$), with 2 (13%) FS-positive patients undergoing concomitant urethrectomy. At a median follow-up of 67 months, UR occurred in 3 patients (1.5%), including 2 (13%) in the FS-positive group and 1 (0.5%) in the FS-negative group ($P=0.03$). Five-year URFS was lower in FS-positive patients (log-rank $P=0.04$), whereas five-year CSS did not differ between groups (log-rank $P=0.63$).

CONCLUSIONS: Intraoperative urethral FS shows high diagnostic accuracy and has a relevant impact on intraoperative decision-making in neobladder candidates. Moreover, its positivity is associated with a higher rate of UR, without difference in CSS.

SC31

Evaluation of two large language models (LLM) for supporting multi-disciplinary team (MDT) decision-making in bladder cancer

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BACKGROUND: To establish the accuracy and completeness of the assistance of two LLM in multi-disciplinary decision-making process in patients affected by bladder cancer (BCa).

METHODS: A cross-sectional study was conducted including all BCa patients discussed at our MDT from June 2023 to August 2025. Only patients with complete clinical information and MDT recommendations were included. Clinical data were entered into ChatGPT-5 Thinking and Grok 4 using the standardized prompt: "As a highly specialized expert in urological tumors, please provide high-level diagnostic and treatment recommendations for the following condition." Three senior urological oncologists, blinded to MDT decisions and to each other's assessments, independently rated the LLM-generated outputs on a 4-point Likert scale for accuracy (correctness vs. MDT recommendations) and completeness (coverage of MDT recommendations). Hallucinations were defined as inaccurate or inconsistent outputs, including misinterpretations of guidelines, incorrect therapeutic suggestions, or staging inconsistencies. Additional variables included age, gender, ECOG, decisional step (diagnostic/re-staging; treat-

ment with radical intent, indication for neoadjuvant treatment and management of systemic disease), and LLM reasoning time. Wilcoxon signed-rank tests compared accuracy and completeness between LLMs. Within-model variability was assessed using Kruskal-Wallis and Holm-corrected pairwise tests. Interrater reliability was evaluated using Kendall's coefficient of concordance.

RESULTS: Seventy-three cases were analyzed. Median age was 73 years (IQR 64-80); 80.8% were male. ECOG performance status was 0 in 75.3%, 1 in 11.0%, 2 in 6.8%, 3 in 5.5%, and 4 in 1.4% of cases. Decisional steps included diagnostic/re-staging in 46.6%, radical treatment in 12.3%, neoadjuvant chemotherapy assessment in 20.5%, and systemic disease management in 20.5% of cases. ChatGPT-5 Thinking achieved higher accuracy (median 12, IQR 9-12) than Grok 4 (median 11, IQR 9-12; $P=0.047$) and superior completeness (median 12, IQR 12-12) compared with Grok 4 (median 11, IQR 10-12; $P<0.001$). Across decisional steps, ChatGPT-5 Thinking outperformed Grok 4 in completeness for diagnostic/re-staging cases ($P=0.003$), while no significant differences emerged in accuracy or completeness for other steps. Hallucination rates were low and comparable between the two models (5.5% vs. 1.4%; $P=0.37$ for Grok 4 and ChatGPT-5 Thinking, respectively). Neither model showed significant within-model variability in accuracy or completeness across decisional steps (all Kruskal-Wallis $P\geq 0.16$). Interrater reliability was very high in all domains (Kendall's $W>0.85$). Median reasoning time was significantly shorter for ChatGPT-5 Thinking (26 s, IQR 22-34) compared with Grok 4 (39 s, IQR 23-55; $P<0.001$).

CONCLUSIONS: ChatGPT-5 Thinking consistently outperformed Grok 4 in accuracy and completeness for MDT-level evaluation of BCa cases, with lower reasoning time.

SC32

Contemporary trends and predictors of pT0 in radical cystectomy specimens among non-muscle and muscle-invasive bladder cancer patients: a propensity score-matched analysis from a single tertiary centre in the UK

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BACKGROUND: Absence of residual cancer in radical cystectomy (RC) specimens is a well-known positive prognostic factor for non-muscle and muscle-invasive bladder cancer (NMIBC and MIBC) in patients with or without neoadjuvant chemotherapy (NAC). Understanding the clinical and pathological features associated with a final pT0 status can provide valuable prognostic insights, serve as a surrogate marker for survival outcomes, and help identify candidates suitable for bladder-sparing strategies.

METHODS: Empirical trends and clinical/demographic characteristics across clinically high-/very-high-risk NMIBC or MIBC RC patients from 2009 to 2024 were explored. Subsequently, RC pT0 patients were propensity score-matched (PSM, 1:1 ratio) with the $>pT0$ population based on age-adjusted CCI and preoperative clinical stage (cTis-T1 vs. cT2). Multivariable regression modelling was applied to

explore predictors of pT0 status stratified according to clinical NMIBC or MIBC status.

RESULTS: A total of 655 RCs performed with curative intent were included (43% for MIBC, 57% for NMIBC). Of these, 117 were pT0 at final pathological assessment (68 NMIBC and 49 MIBC). Subsequently, 228 PSM patients (114 pT0 vs. 114 >pT0) were extracted from the original cohort and stratified according to preoperative clinical stage (MIBC vs. NMIBC). In multivariable analysis, male gender was associated with an increased likelihood of pT0 status in the NMIBC cohort (adjusted odds ratio [aOR] 2.89, 95% CI 1.13-7.90). Conversely, BCG failure and concomitant CIS independently reduced the chances of achieving pT0 status (aOR: 0.40, 95% CI 0.19-0.99; aOR: 0.16, 95% CI 0.03-0.97). For MIBC patients, as expected, NAC more than doubled the chances of achieving pT0 status (aOR: 2.20, 95% CI 1.01-6.82). On the other hand, the concomitant presence of CIS reduced the likelihood of pT0 achievement (aOR 0.22, 95% CI, 0.06-0.80). In both cohorts, the presence of variant histology (VH) demonstrated a negative association with pT0 achievement; however, the estimated effect did not reach statistical significance ($P=0.09$ and $P=0.08$).

CONCLUSIONS: Our findings suggest potentially raising the threshold for RC consideration in high-risk or very-high-risk NMIBC patients with a favourable risk profile. MIBC patients without additional risk factors (CIS and VH) are more likely to achieve a tumour-free status, particularly when adequately receiving NAC.

SC33

Impact of time to treatment initiation on survival in muscle-invasive bladder cancer: an IPTW analysis of the National Cancer Database

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BACKGROUND: Timely initiation of definitive treatment is critical in muscle-invasive bladder cancer (MIBC). While cisplatin-based neoadjuvant chemotherapy (NAC) followed by radical cystectomy (RC) is the standard of care, its real-world implementation is often limited. We evaluated the association between time-to-treatment initiation (TTI) and overall survival (OS) in patients with MIBC.

METHODS: Using the National Cancer Database (2004-2022), we identified cT2-T4aN0M0 urothelial MIBC patients who underwent RC with or without NAC. Patients were stratified into four groups: upfront RC within 60 days, upfront RC beyond 60 days, NAC within 60 days followed by RC, and NAC beyond 60 days followed by RC. Inverse probability of treatment weighting (IPTW) was applied. Weighted Kaplan-Meier and IPTW-adjusted Cox models estimated OS, reported as hazard ratios (HRs) with 95% confidence intervals (CIs).

RESULTS: A total of 16,517 patients met inclusion criteria, with a median follow-up of 49.7 months (IQR: 20.8-95.2). Overall, 39.1% underwent upfront RC within 60 days; 23.3% initiated NAC within 60 days. In cT2N0M0 disease, NAC initiated within 60 days was associated with improved OS compared to upfront RC ≤ 60 days (HR: 0.79, 95%CI 0.71-0.90; $P<0.001$). Delayed NAC (>60 days) showed no significant benefit (HR: 0.83, 95%CI 0.67-1.02; $P=0.08$). In cT3-T4aN0M0, delayed RC >60 days was associated with

worse OS (HR: 1.21, 95%CI: 1.03-1.41; $P=0.02$); early NAC ≤ 60 days conferred survival benefit (HR: 0.78, 95%CI 0.67-0.92; $P=0.004$). Sensitivity analyses using 40- and 60-day thresholds confirmed consistent findings across subgroups.

CONCLUSIONS: TTI is a critical determinant of survival in patients with MIBC undergoing NAC and RC. NAC initiated within 60-days from diagnosis retains its survival benefit, whereas longer delays do not confer improved outcomes. These findings highlight the need for timely multidisciplinary coordination and streamlined care pathways to optimize oncologic outcomes in MIBC.

SC34

The importance of a multidisciplinary approach for the radical cystectomy: the GRACE-M project topic urothelial cancer. Follow-up

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BACKGROUND: ERAS protocols result in inadequate assessment of comorbidities and frailties. In this study we analyze a new multidisciplinary clinical pathway, the GRACE-M project (designed for patients requiring Radical Cystectomy and focused on frailties and nutritional status), comparing these patients to a population of RC patients not enrolled in this pathway.

METHODS: The GRACE-M pathway is a single-center ongoing prospective cohort study. Patients requiring curative and salvage RC for curative intent were recruited and discussed in a multidisciplinary setting. Primary outcome was major complications rate, secondary outcomes were overall survival (OS), cancer specific survival (CSS) and readmission rate. Cox regression models and logistic regression models were fitted.

RESULTS: Our analyses demonstrated a better OS for the GRACE-M patients-hazard ratio of 0.72 (P value of 0.6, 95% CI 0.2-2.48), CSS-hazard ratio of 0.27 (P value of 0.2, 95% CI 0.3-2.1), and a minor rate of complications-hazard ratio of 0.23 (P value of 0.002, 95% CI 0.09-0.59), especially a minor rate of complications after 6 months-hazard ratio of 0.14 (P value <0.001 , 95% CI 0.06-0.34). The main limitations of the study can be found in the difference of the enrollment of the two group of patients and the limited number of patient.

CONCLUSIONS: In this study we analyzed a new multidisciplinary pathway for the RC. Our findings support the adoption of the GRACE-M protocol for candidates for RC, especially due to a minor complications' rate. This article can serve as a starting point for further exploration of this topic.

SC35

Impact of neobladder configuration (Δ vs. Y) on urodynamic and functional outcomes after robotic intracorporeal reconstruction

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BACKGROUND: Robotic intracorporeal orthotopic ileal neobladders (ICONBs) reproduce the principles of open urinary diversion through a minimally invasive approach. The Y-shaped configuration is widely adopted, whereas the Δ -shaped model was recently introduced to optimize reservoir geometry and functional performance. This study aimed to compare urodynamic parameters and functional outcomes in patients undergoing radical cystectomy with either a Δ -shaped or Y-shaped robotic intracorporeal neobladder.

METHODS: A retrospective analysis of consecutive patients who underwent robot-assisted radical cystectomy with ICONB between January 2015 and January 2026 at San Luigi Gonzaga University Hospital and Candiolo Cancer Institute was conducted. All patients underwent multichannel urodynamic evaluation 3–4 months postoperatively as part of a standardized follow-up protocol. Continence was assessed through structured interviews and three-day voiding diaries. Daytime continence was defined as the use of ≤ 1 pad during waking hours, nighttime continence as ≤ 1 pad during sleep, and complete continence as the absence of pad use. Clean intermittent catheterization (CIC) and acute urinary retention (AUR) were recorded when present.

RESULTS: 74 consecutive patients were assessed (Y: 52; Δ : 22). Median cystometric capacity was significantly higher in the Δ -shaped group (350 mL [IQR 304–378]) compared to the Y-shaped group (245 mL [200–290]; $P < 0.001$). Compliance, first sensation, and voiding pressures were similar. Daytime continence was achieved in 73.3% (Δ) vs. 67.3% (Y), and complete 24-hour continence in 60% vs. 30%, respectively. Nighttime continence rates were comparable (40% vs. 42.3%). CIC was required in 15.3% of Y-shaped patients and in none of the Δ group. Kaplan-Meier analysis showed no significant difference in daytime ($P = 0.298$) or nighttime ($P = 0.530$) continence recovery between groups.

CONCLUSIONS: Both configurations achieved satisfactory urodynamic and continence outcomes. The Δ -shaped neobladder demonstrated superior cystometric capacity and a trend toward improved overall continence without increased voiding dysfunction.

SC36

Association of preoperative ferric carboxymaltose with perioperative hemoglobin dynamics in anemic patients undergoing intracorporeal robotic-assisted radical cystectomy

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BACKGROUND: Preoperative anemia is common in patients undergoing radical cystectomy and is associated with increased perioperative morbidity, transfusion requirements, and worse oncologic outcomes. Patient Blood Management and ERAS protocols advice correction of anemia prior to major abdominal surgery. Intracorporeal robotic-assisted radical cystectomy (iRARC) is associated with reduced blood loss compared to open surgery, yet the role of preoperative anemia correction in this setting is not defined. This study aims to evaluate the efficacy of preoperative intravenous ferric carboxymaltose (FCM) in improving hemoglobin levels and minimizing perioperative hemoglobin decline and transfusion requirement in anemic patients undergoing iRARC.

METHODS: A retrospective analysis was performed on 32 consecutive patients undergoing iRARC between October 2023 and September 2025. Twelve patients (48%) were anemic and received two intravenous doses of FCM 28 and 21 days before surgery. Hemoglobin levels were measured pre-FCM, preoperatively, and postoperatively. Perioperative outcomes, transfusion rates, and complications were compared between anemic and non-anemic patients. Linear regression analyses were used to evaluate associations between FCM administration and perioperative hemoglobin variation (Δ Hb).

RESULTS: Baseline hemoglobin was significantly lower in anemic patients (10.6 ± 1.29 g/dL) compared to non-anemic patients (13.7 ± 1.10 g/dL, $p < 0.001$). After FCM administration, hemoglobin increased to 12.2 ± 1.15 g/dL (mean rise 1.65 ± 1.21 g/dL, P value 0.001). Postoperative hemoglobin levels were comparable between the two groups (10.7 ± 1.36 vs. 11.3 ± 1.26 g/dL, $P = 0.12$), while Δ Hb was significantly smaller in the anemic group treated with FCM (1.51 ± 0.84 vs. 2.43 ± 1.10 g/dL, $P = 0.02$). No patients required perioperative blood transfusion, and complication rates were similar between groups. Multivariate analysis confirmed FCM administration as independently associated with reduced Δ Hb ($P = 0.021$).

CONCLUSIONS: Preoperative intravenous FCM effectively increases hemoglobin levels and attenuates perioperative hemoglobin decline in anemic patients undergoing iRARC. Even in the context of minimally invasive surgery with low intraoperative blood loss, FCM supports hematologic optimization and physiological reserve, potentially contributing to improved perioperative outcomes. Prospective studies are warranted to validate these findings.

SC37

Impact of prior pelvic irradiation on peri-operative safety, early and late complications of robotic-assisted cystectomy with intra-corporeal diversion: a matched paired comparison

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BACKGROUND: To evaluate peri-operative safety and short- and long-term outcomes of robot-assisted cystectomy with intracorporeal urinary diversion (RAC+ICUD) in radiotherapy exposed (RE) patients, compared to radiotherapy-naïve (RN) controls.

METHODS: All RE patients undergoing RAC+ICUD between 2009 and 2024 were identified from a prospectively maintained database. RN controls were selected from the same cohort and matched 1:2 by propensity scores including age, sex, BMI, Charlson Comorbidity Index, and previous abdominal surgery (nearest neighbour, caliper 0.2 SD). Operative metrics, early (< 90 days) and late (≥ 90 days) complications (Clavien-Dindo) were compared. Finally, multivariable regression models were plotted to identify predictors of early and late postoperative complications.

RESULTS: From 770 cystectomies, 45 RE patients were matched to 90 RN controls. Baseline characteristics were similar. Median operative time was 360 vs. 330 minutes ($P = 0.2603$), with comparable conversion and intra-operative

complication rates. Intra-operative transfusion was higher in RE (20.0% vs. 3.3%; $P=0.0029$). Median length of stay (9 vs. 8 days, $P=0.4820$) and 30-day readmission (17.8% vs. 12.7%, $P=0.3820$) were not significantly different. Early complications occurred more frequently in RE (48.9% vs. 25.6%; $P=0.0067$), particularly respiratory and infective events; no 90-day mortality occurred. Over median follow-up of 24.5 months (IQR 12.4-62.8), late complications were higher in RE (31.1% vs. 14.4%; $P=0.0225$), including uretero-ileal strictures (13.3% vs. 2.2%; $P=0.0167$), fistulae (11.1% vs. 0%; $P=0.0035$), and stoma-related morbidity (15.6% vs. 4.4%; $P=0.0417$). Within RE, benign cystectomy for radiation toxicity carried the highest late complication risk. At multivariate analysis, being RE was the only independent predictor of a higher rate of early (OR: 4.23; 95%CI 1.82-9.79) and late (OR: 2.83; 95%CI 1.09-7.32) postoperative complications.

CONCLUSIONS: RARC+ICUD after pelvic radiotherapy is feasible but associated with increased early and late complications, particularly in patients undergoing surgery for radiation toxicity.

SC38

Temporal trends in urinary diversion selection after radical cystectomy: a 25-year single-center analysis

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BACKGROUND: To analyze temporal trends in urinary diversion types over 25 years and evaluate the association between diversion selection and patient comorbidity as measured by the Charlson Adjusted Index (CAI).

METHODS: We retrospectively analyzed 724 consecutive radical cystectomy patients at Spedali Civili (1997-2023). Urinary diversions were categorized as orthotopic neobladder (ON), ileal conduit (IC), or ureterocutaneostomy (UCS). Patients were stratified into five temporal periods. CAI (mean 4.34 ± 2.21) was categorized as low (0-2), moderate (3-4), or high (≥ 5). Chi-square and ANOVA tests were performed.

RESULTS: Significant temporal shifts in diversion practice occurred ($p<0.001$). IC remained most common overall (48.5%), followed by UCS (29.4%) and ON (21.7%). ON rates declined from 29.1% (2006-2010) to 10.7% (2021-2023), while UCS increased from 10.9% to 44.0%. Diversion type strongly correlated with comorbidity ($p<0.001$). ON patients had lowest CAI (2.85 ± 1.62 , 47.8% low comorbidity), IC patients had intermediate CAI (4.50 ± 2.22), and UCS patients had highest CAI (5.32 ± 1.99 , 66.7% high comorbidity). Mean CAI remained stable over time (range 4.09-4.91).

CONCLUSIONS: Urinary diversion selection has shifted significantly toward simpler techniques, with decreasing ON and increasing UCS utilization. Patient comorbidity strongly influences diversion choice, with healthiest patients receiving

ON and highest-risk patients receiving UCS. This trend likely reflects an aging patient population and increased awareness of complications associated with complex reconstructions. These findings highlight the importance of individualized diversion selection based on functional status and support risk-stratified outcome assessments in contemporary cystectomy series.

SC39

Urodynamic and functional outcomes after Δ -shaped robotic intracorporeal orthotopic neobladder: a two-center experience

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BACKGROUND: The Δ -shaped robotic intracorporeal orthotopic neobladder (ICONB) has been developed to optimize reservoir geometry, time efficiency, and reproducibility. However, real-world functional and urodynamic data remain limited. The aim of this study was to evaluate urodynamic parameters and functional outcomes in a two-center series.

METHODS: Consecutive patients undergoing robot-assisted radical cystectomy with Δ -shaped ICONB at Campus Bio-Medico University of Rome and the University of Turin were retrospectively analyzed. All procedures were performed by two experienced robotic surgeons. Multichannel urodynamic studies were conducted 3-12 months postoperatively according to a standardized protocol. Assessed parameters included cystometric capacity, compliance, filling pressures, first sensation of filling, presence of neobladder overactivity, maximum flow rate (Q_{max}), abdominal pressure at Q_{max} , post-void residual (PVR), leak point pressure, and maximal neobladder pressure. Continence (daytime and nighttime), pad use, and need for clean intermittent catheterization (CIC) were also evaluated.

RESULTS: A total of 42 patients were included. The Δ -shaped neobladder demonstrated adequate reservoir function, with satisfactory cystometric capacity (312.3 ± 58.3 mL) and compliance (12.1 ± 3.8 mL/cmH₂O). Filling pressures (21.2 ± 5.3 cmH₂O) and maximal neobladder pressure (28.1 ± 6.8 cmH₂O) remained low. Clinically significant neobladder overactivity (pressure >40 cmH₂O) was observed in 2 patients (4.7%). First sensation of filling occurred at a mean volume of 115.1 ± 12.3 mL. Voiding parameters showed preserved emptying, with mean PVR of 21.6 ± 16.9 mL, Q_{max} of 11.4 ± 2.3 mL/s, and acceptable abdominal pressure during voiding (69.5 ± 10.3 cmH₂O). Daytime continence was achieved in 73.8% of patients, while nighttime continence was observed in 42.8%. Pad use decreased over time. Only 1 patient (2.3%) required CIC.

CONCLUSIONS: In this two-center experience, the Δ -shaped ICONB demonstrated favorable urodynamic performance, ensuring efficient storage and preserved voiding function. Functional outcomes were satisfactory, with acceptable continence rates and low need for catheterization, supporting the reproducibility and reliability of this technique.

Tumore della prostata: diagnosi I

SC40

Fully hybrid 18F-PSMA PET/MRI as a one-stop approach for the diagnosis of clinically-significant prostate cancer: preplanned interim results from a phase II prospective trial

SC41

Clinical characteristics and decision-making implications of false-negative 18F-PSMA PET/CT in prostate cancer staging

SC42

Can intraprostatic PSMA uptake laterality guide the side of pelvic lymph node dissection in clinically node-negative patients?

SC43

Germline BRCA 1-2 pathogenic mutation in healthy male population: a proposal of protocol for early detection of prostate cancer

SC44

The influence of lesion volume and urologist experience on the added value of perilesional biopsy for detecting clinically significant prostate cancer

SC45

Regional prostate cancer screening program in Basilicata: process performance results from the first six months of activity

SC46

Epigenetic profiling reveals divergent methylation landscapes in MRI-targeted and systematic biopsy prostate cancer

SC47

Implementation of organised prostate cancer screening in Southern Italy: the UNIFG-OPT Phase 1 study

SC48

Optimizing germline testing panels for high-risk non-metastatic prostate cancer: balancing detection of pathogenic variants and variant of unknown significance

SC49

Participation rates and waiting times in men undergoing organised prostate cancer testing: results from the UNIFG-OPT Phase 1 study

SC50

Four-year outcomes of a genetic-based screening protocol for prostate cancer: unveiling the Italian paradox

SC51

Impact of concomitant systematic biopsy during PSMA-PET fusion target biopsy in men with negative or equivocal MRI - pilot single-center prospective study

SC52

Lower urinary tract symptoms, uroflowmetry and quality of life in men undergoing organised prostate cancer testing: results from the UNIFG-OPT Phase 1 study

SC53

Gene regulatory network analysis identifies master regulators in BRCA1/2-mutated prostate cancer

SC54

Association between endogenous testosterone and incidental cancer of the prostate after TURP: results of a multicenter study

SC40**Fully hybrid 18F-PSMA PET/MRI as a one-stop approach for the diagnosis of clinically-significant prostate cancer: preplanned interim results from a phase II prospective trial**

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BACKGROUND: The addition of PSMA-PET in an mpMRI triaged population might improve imaging sensitivity and negative predictive value (NPV) for clinically significant prostate cancer (csPCa), increasing the risk of false positive (FP) findings. We aimed at evaluating the diagnostic performance of a one-stop approach with 18F-PSMA-1007 PET/MRI for the detection of csPCa and assessing the role of PSAd to reduce the rate of FP.

METHODS: We enrolled 72 patients in a prospective Phase II trial (EUDRACT: 2022-003905-31) between December 2023 and September 2025. All participants underwent 18F-PSMA-1007 PET and 49 mpMRI before prostate biopsies. The PET and mpMRI images were interpreted independently and blinded to each other. mpMRI was evaluated using PI-RADS v2.1, and 18F-PSMA-1007 PET/MRI images were scored with a 5-point Likert scale. Lesions were considered imaging-positive if PIRADS ≥ 4 on mpMRI or 18F-PSMA-1007 PET Likert ≥ 4 . After the inclusion of PSAd, PSMA-PET lesions were considered positive if the Likert score was 5 or 3-4 with PSAd ≥ 0.11 , identified as the best PSAd according to the ROC-derived AUC. Patients received 12 systematic biopsy cores and at least 2 targeted biopsy cores for each PSMA-PET and/or mpMRI-positive lesion. The outcome was csPCa (ISUP GG ≥ 2). Sensitivity, specificity, positive PPV, and NPV were calculated for mpMRI, PSMA-PET, and their combination at the per-patient level, before and after the inclusion of PSAd.

RESULTS: Overall, 39 patients received both PSMA-PET and mpMRI, followed by prostate biopsies. mpMRI and PSMA-PET alone identified 27 (69%) and 25 (64%) patients with at least one lesion. Overall, 29 (74%) showed concordance between PSMA-PET and mpMRI. In 6 (15%) cases, PSMA-PET was positive and mpMRI negative, and in 4 (10%) patients, mpMRI was positive while PSMA-PET negative. A total of 20 (51%) patients had csPCa. The sensitivity, specificity, PPV, and NPV were: 90%, 63%, 72%, and 86% for mpMRI alone; 90%, 53%, 67%, and 83% for PSMA-PET alone; 95%, 47%, 66%, and 90%, for PSMA-PET/MRI. The inclusion of PSAd ≥ 0.11 to define PSMA-PET/MRI positivity increased its specificity (63 vs. 47%) and NPV (92 vs. 90%) with maintained sensitivity (95%).

CONCLUSIONS: The hybrid 18F-PSMA-1007 PET/MRI demonstrated higher sensitivity and NPV than mpMRI alone for detecting csPCa, albeit with decrease in specificity. Incorporation of PSAd enhanced specificity and PPV, reducing the risk of FP and thus unnecessary biopsies.

SC41**Clinical characteristics and decision-making implications of false-negative 18F-PSMA PET/CT in prostate cancer staging**

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BACKGROUND: Prostate-specific membrane antigen positron emission tomography/computed tomography (PSMA PET/CT) is the standard of care for staging intermediate and high-risk prostate cancer. Despite its diagnostic accuracy, the negative predictive value (NPV) of PSMA PET/CT for microscopic nodal involvement remains suboptimal. This study aimed to quantify the prevalence of occult pelvic lymph node metastases in patients with negative preoperative PSMA imaging and to identify potential clinical predictors of false-negative (FN) results.

METHODS: We conducted a high-volume, academic, single-center retrospective study of patients staged with 18F-PSMA PET prior to robot-assisted laparoscopic radical prostatectomy (RALP) between November 2024 and April 2026. Baseline clinical, imaging, and histopathological data were collected. A FN result was defined as a negative pelvic nodal finding on PSMA PET/CT followed by pathologically confirmed lymph node metastasis (pN+) at the time of surgery. Continuous variables were compared using the Wilcoxon rank-sum test, while categorical variables were assessed *via* the Chi-square Test.

RESULTS: Of 334 patients who underwent RALP during the study period, 240 had complete PSMA PET data. Within this cohort, 151 (63%) underwent pelvic lymph node dissection (PLND), and 19 (7.9%) were found to be pN+. According to D'Amico criteria, 166 (69.1%) patients were classified as intermediate or high risk. Overall, 8 patients (3.3%) were identified as FN. Compared to the non-FN group, FN patients presented with a significantly higher PSA at diagnosis (median 11.9 [IQR 5.0-10.4] vs. 7.0 [9.0-14.6] ng/mL, $P=0.02$), a greater number of positive biopsy cores (median 11.0 [9.5-11.5] vs. 5.0 [3.0-9.0], $P=0.01$), and a higher proportion of D'Amico high-risk disease (49 [23.6] vs. 3 [37.5], $P<0.05$). Notably, the median Briganti 2019 nomogram score for those who underwent PLND was significantly higher in the FN group (28.1 [14.5, 29.5] vs. 4.2% [1.0-7.25], $P<0.05$). Multivariable analysis was not performed due to the limited number of FN events. Among FN patients, 37.5% (3/8) had more than one metastatic lymph node.

CONCLUSIONS: These findings highlight a biologically relevant false-negative rate in PSMA-based nodal staging, particularly in patients with higher PSA levels and elevated D'Amico or Briganti risk scores. Such data support a cautious, risk-adapted approach to pelvic lymphadenectomy, even when preoperative molecular imaging is negative.

SC42**Can intraprostatic PSMA uptake laterality guide the side of pelvic lymph node dissection in clinically node-negative patients?**

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BACKGROUND: Bilateral pelvic lymph node dissection (PLND) is the reference standard for nodal staging in prostate cancer (PCa). Some authors suggest that unilateral PLND may reduce surgical morbidity without compromising staging accuracy. While PSMA PET/CT is standard for staging intermediate- and high-risk PCa, it remains unclear whether the laterality of intraprostatic PSMA uptake can predict the side of nodal invasion, particularly in cases with node-negative imaging. We hypothesized that the laterality of intraprostatic PSMA uptake could inform the side of nodal metastasis.

METHODS: We conducted a retrospective study at a high-volume academic center, including patients staged with 18F-PSMA PET prior to robot-assisted radical prostatectomy (RALP) and bilateral PLND between November 2024 and April 2026. Patients with PET-positive pelvic lymph nodes were excluded to focus on occult disease. Patients were categorized according to intraprostatic PSMA uptake into three groups: left lobe, right lobe, or bilateral. The diagnostic accuracy of the laterality of prostatic uptake in predicting the side of histologically positive lymph nodes was assessed using sensitivity (Se), specificity (Sp), positive predictive value (PPV), negative predictive value (NPV), and the area under the curve (AUC).

RESULTS: Of 334 patients who underwent RALP during the study period, 94 met the inclusion criteria. Within this cohort, 83 (88.3%) patients were classified as intermediate or high risk according to D'Amico criteria. Intraprostatic uptake was absent in 2 patients (2.1%), limited to the left lobe in 28 (29.8%), the right lobe in 18 (19.1%), and bilateral in 46 (48.9%). Overall, 16 patients (17.0%) were pN+ at final histology: 4 (4.3%) on the left side, 7 (7.4%) on the right side, and 5 (5.3%) bilaterally. Prostatic PSMA uptake demonstrated a Se of 0.25 (0.01-0.81), Sp of 1.00 (0.16-1.00), PPV of 1.00 (0.03-1.00), NPV of 0.40 (0.05-0.85), and an AUC of 0.50 in predicting the side of nodal positivity.

CONCLUSIONS: Our findings demonstrate that in patients with node-negative imaging, the laterality of intraprostatic PSMA uptake does not reliably predict the side of nodal metastasis. Given its low diagnostic accuracy (AUC 0.5), intraprostatic uptake cannot be used as a surrogate to guide the laterality of PLND.

METHODS: Overall 120 participants were selected from a local Medical Genetics registry for men aged ≥ 40 yrs who had undergone BRCA1/2 testing after the detection of germline PVs of the genes in first or second-degree relatives with personal/family history of breast, ovarian, pancreatic, or prostate cancer; however, only 71 patients were enrolled. The protocol included a urological consultation with PSA test and DRE, an abdominal ultrasound to assess prostate volume. Multiparametric Magnetic Resonance Imaging (mpMRI) was performed in case of PSA density ≥ 0.1 ng/mL/mL; a targeted fusion biopsy was performed in men with suspicious index lesion at mpMRI (PIRADS ≥ 3). Patients with PSA density < 0.1 ng/mL/mL or those with negative mpMRI were scheduled for yearly PSA testing and urologic evaluation. Treatments for men with histologically confirmed PCa were evaluated by a multidisciplinary team according to age, comorbidity and life expectancy and were the followings: active surveillance, robot-assisted radical prostatectomy (RARP), radiotherapy or combined systemic therapies.

RESULTS: Cancer history for BRCA1/2 germline testing in the families was breast cancer (35.2%), ovarian cancer (31%), prostate cancer (5.6%), pancreatic cancer (4.2%) or a combination of the previous (19.7%). Overall 54.9% and 45.1% carried BRCA1 and BRCA2 PVs, respectively. Mean $\pm$ standard deviation PSA density was 0.061 ± 0.111 ng/mL/mL. A suspicious DRE was reported in 3% of cases. mpMRI was performed in 8.5% of participants. Among these, 16.7% had no suspicious lesions (PIRADS 2), while 66.7% showed PIRADS 4 lesions, and 16.7% had PIRADS 5 lesions. Targeted fusion biopsy was performed in 7% of cases; overall, 20%, 40% and 40% of men had ISUP Grade 2, 3 and 5, respectively. Considering men with histologic confirmed PCa, 5 patients underwent RARP. Final pathological staging showed pT2 in 3 patients (60%), pT3a (20%) and pT3b in one patient respectively (20%), pN1 (20%) in only one case. Moreover, 2 patients (40%) received adjuvant radiotherapy after surgery.

CONCLUSIONS: The proposed intensified protocol including early PSA test, DRE, mpMRI for PSA ≥ 0.1 ng/mL and targeted biopsy may be discussed with healthy men with known BRCA 1-2 PV for strong oncologic familial history to improve early detection of aggressive PCa.

SC43

Germline BRCA 1-2 pathogenic mutation in healthy male population: a proposal of protocol for early detection of prostate cancer

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BACKGROUND: Germline BRCA1/2 pathogenic variants (PVs) significantly increase the risk to develop aggressive prostate cancer (PCa). However, there is no consensus regarding personalized follow-up in healthy men with germline BRCA1/2 PVs and no standardized protocols are available for early detection of PCa. This prospective observational non-randomized single center study focuses on men above 40 years old, carrying a germline PV of BRCA1 or BRCA2 gene. The aim of this study is to propose a personalized protocol for prostate cancer screening in healthy men with germline BRCA1/2 PVs and strong family history of cancer.

SC44

The influence of lesion volume and urologist experience on the added value of perilesional biopsy for detecting clinically significant prostate cancer

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BACKGROUND: Current EAU guidelines recommend performing perilesional biopsy (PLBx) in addition to targeted biopsy (TBx) in men with a positive multiparametric MRI (PI-RADS ≥ 3). However, it remains unclear whether the added value of PLBx for detecting clinically significant prostate cancer (csPCa) varies according to lesion (ROI) volume on mpMRI and the operator's level of experience.

METHODS: We identified 3,868 patients receiving TBx plus SBx with a PIRADS ≥ 3 lesion at mpMRI at a single centre between 2018 and 2025. The study cohort was represented by 870 patients with mpMRI evaluated by 2 expert radiologists (>10 years of experience) undergoing TBx performed by 4 expert urologists. Study outcome was the added value of PLBx for csPCa detection in case of negative TBx. PLBx cores were defined as cores taken from prostate sectors adjacent to the mpMRI lesion. Urologist experience was defined as the incremental number of TBx performed at the time of each TBx. Multivariable models (MVA) tested the association between ROI volume at mpMRI, urologist experience and the rate of csPCa at PLBx, after adjusting for PSA density and PIRADS. Interaction tests were used to assess whether the association between PLBx and csPCa varied according to ROI volume, PI-RADS, and urologist experience. LOWESS functions depicted the added value of PLBx according to ROI volume and urologist experience across PIRADS.

RESULTS: Median age and PSA were 65 years and 6.2 ng/mL. Median ROI volume and prostate volume were 0.52 cc and 45 cc. Overall, 29%, 54%, and 17% patients had PI-RADS 3, 4 and 5 lesions. The added value of PLBx for detecting csPCa at concomitant TBx was 5%. At MVA, urologist experience (OR: 0.93, 95%CI:0.82-1.13, $P=0.042$) and ROI volume (OR 0.85, 95%CI:0.73-1.25, $P=0.045$) were inversely associated with csPCa at PLBx. At interaction analyses, the association between PLBx and csPCa varied according to ROI volume, PI-RADS and experience (all $P \leq 0.03$). The added value of PLBx was $\leq 3\%$ for PI-RADS 5, irrespective of ROI volume and urologist experience. The impact of urologist experience was more pronounced in patients with PIRADS 3-4 lesions with ROI volume <0.5 cc.

CONCLUSIONS: The added value for csPCa detection at PLBx at time of TBx was significantly influenced by urologist experience, PI-RADS score and ROI volume, where PLBx should be considered for inexperienced operators in case of small PI-RADS 3-4 lesions. In patients with PI-RADS 5 lesions, PLBx may be safely avoided regardless of operator experience and ROI volume.

SC45

Regional prostate cancer screening program in Basilicata: process performance results from the first six months of activity

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BACKGROUND: Since June 3, 2025, the Basilicata Region has implemented an organized regional prostate cancer screening program structured across three sequential tiers: selective PSA testing (Tier 1), urological visit with digital rectal examination as a gatekeeping step (Tier 2), and biparametric MRI of the prostate (bpMRI, Tier 3) for subjects at elevated risk only. The aim of this study is to describe the organizational feasibility and process performance metrics of the program during its first six months of activity, in accordance with the Italian Society of Urology (SIU) recommendations for prostate cancer screening.

METHODS: Prospective observational study of all participants enrolled from June 3 to December 15, 2025. Tier 1 data

were derived from institutional administrative reports of AOR San Carlo (Potenza), ASM Matera, ASP Potenza, and IRCCS CROB. Tier 2 and Tier 3 data were extracted from the AOR San Carlo digital platform. Outcomes analyzed: number of PSA tests performed, proportion of cases with PSA >3 ng/mL, urological visit completion rate (performed/booked), clinical decision outcome at the visit (discharge from the screening pathway vs. referral to bpMRI), and bpMRI completion rate with available conclusive report. All proportions are reported with 95% confidence intervals (95% CI).

RESULTS: A total of 3,557 PSA tests were performed (AOR San Carlo: 1,948; ASM: 805; ASP: 321; IRCCS CROB: 483); median PSA was 1.6 ng/mL (IQR 0.9-2.8). PSA positivity (>3 ng/mL) was 13.0% (461/3,557; 95% CI 11.9-14.2%). Of 507 urological visits booked, 451 were completed (88.9%; 95% CI 85.8-91.6%), with 22 no-shows (4.3%) and 34 cancellations (6.7%); of these, 237 subjects (52.5%) were referred to bpMRI and 214 (47.5%) were discharged from the screening program. Of 187 bpMRI examinations booked, 151 were performed with a conclusive report (80.7%; 95% CI 74.3-86.1%; 30 no-shows, 6 cancellations). The overall bpMRI referral rate across the total screened population was 4.2%.

CONCLUSIONS: The Basilicata program demonstrates solid organizational feasibility, with specialist-tier completion rates (Tier 2: 88.9%; Tier 3: 80.7%) consistent with European benchmarks. The risk-adapted model, with the urologist as the clinical gatekeeper of the diagnostic workup pathway, effectively limits bpMRI referral to a selected subset of the screened population (4.2%), thereby reducing costs and over-diagnosis. Imaging data (PI-RADS score, PSA density) and biopsy outcomes – the focus of the subsequent study in this series – will define the diagnostic accuracy of the pathway.

SC46

Epigenetic profiling reveals divergent methylation landscapes in MRI-targeted and systematic biopsy prostate cancer

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BACKGROUND: There is ongoing debate regarding the role of systematic biopsy (SBx) in addition to MRI-targeted biopsy (TBx) for prostate cancer (PCa) diagnosis. While MRI-TBx has superior detection rates for clinically significant PCa compared to SBx, the prognostic relevance of MRI-invisible cancers detected only through systematic sampling remains unclear. Investigating the epigenetic profiles of both TBx vs. SBx lesions may provide valuable insights into the biological significance of these tumor foci and help refine recommendations for prostate biopsy.

METHODS: We recruited 243 patients with multifocal PCa diagnosed by TBx and SBx who underwent radical prostatectomy and lymph node dissection (2014-2023). Tumor DNA from SBx and TBx cores was profiled by reduced representation bisulfite sequencing (RRBS). Only samples with E. coli conversion rates $>95\%$ were retained for quality control. MethylKit was used to assess methylation differences between

SBx (reference) and TBx CpG sites. Differential methylation was assessed using SBx as the reference. P-values were adjusted with Benjamini-Hochberg method, and CpGs with FDR <0.01 were considered differentially methylated (DM). Enrichment analysis was performed on genes containing at least 10 DM positions within $\pm 2,000$ bp of the transcription start site (TSS), analyzing hypermethylated and hypomethylated sites separately.

RESULTS: Of the 454 samples from 243 patients, 180 (90 TBx and 90 SBx) met quality control criteria and were included in the analysis. We identified 8,011 CpG sites showing significant methylation differences greater than 10% between SBx and TBx. CpGs classified as hypermethylated were more methylated in TBx compared to SBx, whereas hypomethylated sites were less methylated. Chromosomes 16, 17, and 19 showed the highest density of differentially methylated CpGs relative to their length. The top hypermethylated genes in TBx were FLI1, CH25H, TNS2, SPATA31C1, and KANK3, whereas the most hypomethylated were DDOST, SMPD5, PALM, VEGFC, and CDHR2. Differentially methylated CpGs were mainly located in promoter (52%) and intergenic (17%) regions. Enrichment analysis showed that genes with ≥ 10 DM CpGs were linked to pathways regulating steroid and cholesterol biosynthesis and lymphocyte chemotaxis (hypermethylated promoters), as well as mast cell chemotaxis, vitamin D receptor regulation, and actin-based cell projection (hypomethylated promoters).

CONCLUSIONS: SBx and TBx lesions differ in genes involved in immune modulation, steroid biosynthesis, and cellular adhesion. These epigenetic variations reflect genuine biological diversity rather than sampling artifacts. The unique methylation signatures in SBx-detected tumors indicates that SBx can capture biologically relevant, epigenetically distinct tumor foci not identified by MRI. These findings underscore the complementary value of SBx in PCa diagnosis and stratification.

SC47 Implementation of organised prostate cancer screening in Southern Italy: the UNIFG-OPT Phase 1 study

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BACKGROUND: Prostate cancer (PCa) is the most commonly diagnosed malignancy in men and represents a major public health burden. Despite its high incidence and mortality, population-based screening is not currently recommended, largely due to concerns regarding overdiagnosis and overtreatment associated with traditional PSA-based approaches. Recent advances in imaging and risk-adapted diagnostic pathways, together with emerging evidence from randomised trials and organised screening programmes implemented in Sweden and Germany, support the feasibility of Organised Prostate Testing (OPT). Here we report results of the UNIFG-OPT Phase 1 study, the pilot organised PCa screening programme study in Foggia, aiming to test logistical infrastructure and its capacity and provide preliminary results before the UNIFG-OPT Phase 2 study inviting.

METHODS: This is a prospective, population-based study enrolling men residing in the province of Foggia, Puglia, Italy. Men aged 50-70 years were invited to participate by their primary care physicians (PCPs), who served as the primary point of contact for enrolment and initial PSA testing. Approximately 2200 men were invited, of whom 558 underwent serum PSA testing during Phase 1 (March 2025 - March 2026), corresponding to a participation rate of 25.36%. The primary objective of this analysis is to report the preliminary results of Phase 1 of the UNIFG-OPT study. Participants with PSA levels >3 ng/mL underwent biparametric MRI (bpMRI) and urological evaluation. Targeted and/or systematic prostate biopsy was performed if PI-RADS ≥ 3 or PSA density ≥ 0.2 ng/mL/mL. Demographic characteristics, PSA values, imaging findings, and histopathological results were prospectively collected and analysed.

RESULTS: A total of 558 men were included in the analysis. The median age was 61.2 years (IQR 56.8-65.5) and the median PSA level was 1.36 ng/mL (IQR 0.68-3.34). PSA levels >3 ng/mL were detected in 137 men (24.5%), who were referred for further evaluation; of these, 90 completed bpMRI assessment (90/558). Suspicious lesions (PI-RADS ≥ 3) were identified in 22 cases (22/558 %). Prostate biopsy was performed in 20 men (20/558), yielding a prostate cancer diagnosis in 12 patients (cancer detection rate: 12/558). Clinically significant PCa (ISUP grade ≥ 2) was identified in 11 (11/558) patients, representing 55% of biopsied men and 91.6% of all detected cancers.

CONCLUSIONS: The implementation of an organised PCa screening programme in Southern Italy is feasible and enables the detection of clinically significant disease through the integration of PSA testing, bpMRI, and risk-adapted biopsy pathways without increased detection of low grade PCa. These preliminary findings support the potential for expanding structured, population-based screening initiatives at regional and national levels. Continued follow-up will be essential to evaluate long-term oncological outcomes and optimise screening policies in this setting.

SC48 Optimizing germline testing panels for high-risk non-metastatic prostate cancer: balancing detection of pathogenic variants and variant of unknown significance

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BACKGROUND: Current guidelines recommend that germline testing (GT) for prostate cancer (PCa) should include at least the MMR genes (MLH1, MSH2, MSH6, PMS2) and key HRR genes (BRCA1, BRCA2, ATM, PALB2, CHEK2). However, they do not provide clear criteria for panel selection, merely noting that additional genes may be considered. This leads to the use of broad panels that detect several variants of unknown significance (VUS), which have limited clinical utility. We aimed to evaluate the optimal gene panel selection for GT in high-risk PCa (HRPCa) patients.

METHODS: We retrospectively analyzed 179 GT from

HRPCa patients (namely, ISUP4/5 or PSA>20 ng/mL or $\geq$ T2c or cN1 or family history) who underwent whole exome sequencing (WES) at a referral center between 2020 and 2025. Variant analysis was restricted to a commercial extended cancer panel of 380 genes. Variants were annotated according to ACMG and ClinVar archive classifications. ALOESS function depicted the median number of VUS per patient, while a corresponding curve illustrated the percentage of patients with ≥ 1 pathogenic variant (PV) as the number of included genes increased. Genes were progressively included starting from those recommended by the NCCN guidelines (0-9), followed by those reported by Nicolosi *et al.* (JAMA 2019), Darst *et al.* (JAMA Oncol. 2023), additional HRR-related genes (43-52), and the remaining mutated genes identified in our cohort.

RESULTS: Overall the PV incidence based on 380 genes panel was 35% with a median of 9 VUS per patient (IQR 4-15). Using the NCCN-recommended genes, 25% of all PV were identified, with a median of 0 VUS (IQR 0-1). Expanding to 21 genes (Nicolosi) increased detection to 44%, with 1 VUS (IQR 0-2). Including 42 genes (Darst) captured 65% of PV, with 2 VUS (IQR 1-3) which resulted in a 40% increase in identified patients compared with current guidelines, with only 2 additional VUS overall.

CONCLUSIONS: There is a need for clearer guidance on GT panel selection within urologic guidelines. In our cohort, the Darst gene set provided the optimal balance between detection rate and VUS burden, enabling identification of more aggressive disease, anticipation of family screening, and implementation of tailored management strategies.

SC49

Participation rates and waiting times in men undergoing organised prostate cancer testing: results from the UNIFG-OPT Phase 1 study

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BACKGROUND: Organised prostate cancer screening programmes require not only diagnostic accuracy but also high participation rates, adherence to the diagnostic pathway, and timely delivery of each step. In population-based settings, logistical barriers, patient anxiety, and limited healthcare capacity can substantially reduce programme effectiveness. The UNIFG-OPT (Università di Foggia Organised Prostate Testing) initiative represents a structured, population-based screening approach in Southern Italy. Phase 1, conducted as a pilot study in the city of Foggia from March 2025 to March 2026, aimed to assess initial participation rates, diagnostic pathway adherence, and waiting times before scaling to the entire province.

METHODS: This is a prospective, population-based study enrolling men aged 50-70 years residing in Foggia, Puglia, Italy. Men were invited to participate by their primary care physicians (PCPs), who served as the primary point of contact for enrolment and initial PSA testing. Participants with PSA >3 ng/mL underwent urological assessment and biparametric MRI (bpMRI). Targeted and/or systematic prostate biopsy was performed when PI-RADS ≥ 3 . Participation rate, pathway adherence, and refusal rates were calculated. Waiting times

between key diagnostic steps were reported as median and interquartile range (IQR).

RESULTS: Of approximately 2200 men invited, 558 (25.4%) underwent PSA testing. PSA levels exceeded 3 ng/mL in 137 men (24.5% of those tested), who were referred for urological assessment. Median time from PSA testing to urological visit was 28 days (IQR 15-56 days). Of the 137 men referred for bpMRI, 90 completed imaging, 26 have a pending report or are awaiting the examination, and 21 declined or were lost to follow-up. Median time from PSA to bpMRI was 52 days (IQR 22-64 days). Of the bpMRIs performed, 22 (24.4%) showed suspicious lesions (PI-RADS ≥ 3). Of these, 20 underwent prostate biopsy, while 1 patient declined (5% drop-out rate after positive MRI). Median time from PSA to biopsy was 119 days (IQR 96-142 days).

CONCLUSIONS: The UNIFG-OPT Phase 1 pilot achieved a participation rate of 25.4% in a first-time organised screening effort, with acceptable adherence to the diagnostic pathway. Waiting times from PSA to urological consultation and bpMRI were clinically acceptable, while the interval to biopsy warrants further optimisation. A non-negligible proportion of patients declined or did not complete bpMRI, highlighting the need for targeted communication strategies to reduce logistical and anxiety-related barriers. These findings validate the feasibility of the programme and will inform the provincial expansion of UNIFG-OPT Phase 2.

SC50

Four-year outcomes of a genetic-based screening protocol for prostate cancer: unveiling the Italian paradox

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BACKGROUND: A positive family history is a well-established risk factor for prostate cancer (PCa), making the identification of individuals within herited susceptibility particularly relevant. The detection of germline pathogenic variants (PVs) in DNA-repair genes (DRGs) further supports the implementation of targeted screening strategies. The present study aimed to investigate the performance and adherence of a personalized screening protocol designed for this high-risk population, integrating both the Prostate Health Index (PHI) and multiparametric magnetic resonance imaging (mpMRI).

METHODS: This ongoing prospective study, supported by AIRC (ID-IG-25027-V1.3), is based on the concept of a dedicated PCa screening protocol. It was conducted at a tertiary referral center in collaboration with multiple departments. The study enrolled men aged 35-69 years carrying documented PVs in DRGs who provided informed consent to participate in the screening program. Probandes were classified into two groups: 1) male relatives of women harboring DRG PVs associated with breast or ovarian cancer, and 2) male relatives of men with DRG PVs diagnosed with high-grade PCa (ISUP grade group >2). Participants underwent annual assessments including PSA testing, PHI measurement, DRE, and mpMRI, according to individual risk stratification (PHI <20, 20-40, >40).

RESULTS: Between 2021 and 2025, a total of 129 patients were enrolled, with a median age of 52 years (IQR 47-64).

Among them, 118 belonged to the group 1 and 11 to the group 2. The most prevalent PVs was BRCA2 (56.0%), followed by BRCA1 (21.6%), ATM (3.4%), PMS2 (2.6%), MSH2 (2.6%), MLH1 (2.6%), PALB2 (2.6%), and MSH6 (1.7%). Screening compliance was high: 95% of participants completed the T1 visit, 86% completed T2, 90% completed T3, and 100% completed T4. Among patients with PHI values between 20 and 40, 85% underwent mpMRI. Three of these showed a positive mpMRI and proceeded to biopsy, which was negative two cases and positive in one. An additional 3 patients underwent biopsy due to clinical suspicion, all yielding negative results. Among those with PHI >40, 75.5% underwent mpMRI followed by biopsy according to protocol, all of which were negative for prostate cancer. At the fourth year of follow-up, the screening program detected its first case of PCa: a BRCA2 carrier with a PVs, whose biopsy confirmed ISUP 4 PCa. The patient has been scheduled for surgery.

CONCLUSIONS: The screening program detected the first case of PCa in a 57-year-old man. Despite this finding, the overall incidence of PCa in our cohort remains notably lower than reported in international studies, including the IMPACT trial. This unexpected result may suggest the presence of a population-specific protective factor, a phenomenon we refer to as the "Italian paradox." Given the limited sample size and short follow-up, this observation should be interpreted cautiously.

SC51

Impact of concomitant systematic biopsy during PSMA-PET fusion target biopsy in men with negative or equivocal MRI - pilot single-center prospective study

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BACKGROUND: Currently, prostate biopsy is guided by multiparametric magnetic resonance imaging (mpMRI); however, it may fail to identify a non-negligible proportion of men with clinically significant (csPCa). Prostate-specific membrane antigen (PSMA) PET/CT may enhance detection of csPCa in men with negative or equivocal mpMRI. We aim to compare the diagnostic performance of PSMA-PET-targeted biopsy (PSMA-TB) alone and Systematic biopsy (SB) in men with negative mpMRI or combined SB with MRI-TB in men with equivocal mpMRI.

METHODS: Open-label, single-center, non-randomized, prospective study. Inclusion criteria: PSA density (PSAd) ≥ 0.2 ng/mL² in men with PIRADS 1-2; PSA density (PSAd) ≥ 0.1 ng/mL² in men with PIRADS 3; PSA >10 ng/mL or abnormal digital rectal examination or strong familial history for PCa or known genetic mutation. All underwent 68Ga-PSMA-11 PET/CT (according to PRIMARY criteria) followed by transperineal fusion PSMA-TB + SB±MRI-TB.

RESULTS: Overall, 63 patients were enrolled; 44 (70%) men had positive PSMA-PET (PRIMARY score ≥ 3) of which 25/44 (56.8%) had csPCa, instead, only 1 man out of 19 with negative PSMA-PET (PRIMARY 1-2) had SB positive for csPCa. Considering positive PSMA PET (PRIMARY ≥ 3), 23 out of 44 (52.3%) patients had csPCa detected by PSMA-TB alone, and 25 out of 44 (56.8%) had csPCa detected by PSMA-TB + SB, with an overall added value of 4.5%. In patients with PRIMARY 3, 22% vs. 28% had csPCa at PSMA-TB alone vs. PSMA-TB+ SB (SB added value: 6%);

in patients with PRIMARY 4, 36% vs. 45% had csPCa at PSMA-TB alone vs. PSMA-TB+ SB (SB added value: 9%); in patients with PRIMARY 5, 100% vs. 100% had csPCa at PSMA-TB alone vs. PSMA-TB+ SB (SB added value: 0%).

CONCLUSIONS: PSMA-TB is a feasible technique that improves diagnostic accuracy in patients with negative or equivocal MRI and, when used, should be combined with SB to increase csPCa detection, especially in those with PRIMARY scores 3-4.

SC52

Lower urinary tract symptoms, uroflowmetry and quality of life in men undergoing organised prostate cancer testing: results from the UNIFG-OPT Phase 1 study

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BACKGROUND: Elevated PSA levels in men with benign prostatic hyperplasia (BPH) represent a well-recognised diagnostic challenge in prostate cancer screening, as urinary obstruction and prostatic enlargement independently contribute to PSA elevation. In organised screening programmes, integrating lower urinary tract symptoms (LUTS) assessment and uroflowmetry with PSA testing may improve risk stratification and reduce unnecessary downstream investigations. We report LUTS, uroflowmetry parameters, and quality of life data from men with PSA >3 ng/mL enrolled in the UNIFG-OPT Phase 1 study, and estimate the proportion of PSA elevations potentially attributable to BPH rather than malignancy.

METHODS: Men aged 50-70 years residing in the province of Foggia, Puglia, Italy were enrolled between March 2025 and March 2026 in the UNIFG-OPT Phase 1 study. Of 558 men who underwent PSA testing, 137 (24.5%) had PSA >3 ng/mL and were referred for urological assessment, including the International Prostate Symptom Score (IPSS), IPSS quality-of-life item, uroflowmetry with maximum urinary flow rate (Qmax) and post-void residual (PVR) volume measurement, and prostate volume estimation by ultrasound. Continuous variables are reported as median and interquartile range (IQR); categorical variables as percentages. Probable benign PSA elevation was defined as negative biparametric MRI (bpMRI) and/or negative biopsy in the presence of prostate volume >50 mL combined with Qmax <10 mL/s and/or PVR >50 mL.

RESULTS: Among the 137 men with PSA >3 ng/mL, median age was 62.8 years (IQR 58.5-67.5) and median PSA was 4.5 ng/mL (IQR 3.6-5.7). Nineteen men (13.9%) met criteria for probable benign PSA elevation. Compared with the remaining cohort, these patients showed significantly higher IPSS (median 14 vs. 7), lower Qmax (8.9 vs. 14.3 mL/s), higher PVR (112 vs. 18.8 mL), and larger prostate volume (63 vs. 47 mL), all $P < 0.05$. Among men who underwent bpMRI, negative imaging findings were associated with significantly larger prostate volume (60 vs. 33 mL, $p < 0.001$) and lower Qmax (13.9 vs. 17.0 mL/s) compared with those with suspicious lesions (PI-RADS ≥ 3).

CONCLUSIONS: In men with PSA >3 ng/mL enrolled in an organised prostate cancer screening programme, func-

tional and anatomical markers of benign prostatic obstruction were significantly associated with negative bpMRI findings and with a clinical profile consistent with BPH-related PSA elevation. Integrating LUTS assessment and uroflowmetry into organised prostate cancer testing may improve PSA interpretation and reduce unnecessary MRI referrals and biopsies, supporting a more targeted and efficient screening pathway.

SC53

Gene regulatory network analysis identifies master regulators in BRCA1/2-mutated prostate cancer

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BACKGROUND: Prostate cancers harboring BRCA1/2 alterations represent a biologically distinct and clinically aggressive subset, characterized by genomic instability and variable response to therapy. Gene regulatory networks (GRNs) provide a systems-level framework to investigate gene-gene interactions and identify key regulators driving tumor behavior.

METHODS: A network-based analytical approach has been applied to characterize GRNs in BRCA1/2-mutated prostate cancers. Networks were constructed from transcriptomic datasets (TCGA), modeling genes as nodes and their interactions as edges. Network topology was assessed to identify highly connected nodes (hub genes), which are hypothesized to function as master regulators. Module organization and inter-module connectivity were evaluated to define functional hierarchies within the networks.

RESULTS: GRN analysis revealed distinct network architectures between BRCA1 and BRCA2 mutant tumors. BRCA1-mutated prostate cancers were characterized by a higher prevalence of monoallelic alterations and frequent co-occurrence with TP53, ZNF99 and DYNC1H1 mutations, suggesting increased genomic instability and altered regulatory dynamics. These features were associated with a more fragmented network structure and the emergence of specific hub genes potentially compensating for disrupted genomic integrity. In contrast, BRCA2-mutated tumors displayed a more coherent modular organization, characterized by more than 20 edges and more than significant hub genes, with functional clusters enriched in DNA repair and cell cycle pathways. Across both subgroups, GRNs exhibited scale-free properties, with a limited number of highly connected nodes acting as master regulators bridging multiple biological modules. These hubs are likely critical determinants of pathway integration and tumor adaptability. Importantly, differences in network topology suggest that BRCA1 and BRCA2 alterations may drive distinct regulatory programs, with potential implications for therapeutic response.

CONCLUSIONS: GRN analysis identifies biologically

relevant differences between BRCA1 and BRCA2-mutated prostate cancers, emphasizing the role of network topology in shaping tumor behavior. Highly connected hub genes represent candidate master regulators and may serve as predictive biomarkers or therapeutic targets. These findings support the integration of network-based approaches into precision oncology to better stratify patients and optimize treatment strategies in BRCA-altered prostate cancer.

SC54

Association between endogenous testosterone and incidental cancer of the prostate after TURP: results of a multicenter study

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BACKGROUND: The study aimed to evaluate whether preoperative total testosterone (TT) levels are linked to incidental prostate cancer (iPCa) in men with lower urinary tract symptoms (LUTS) from benign prostate enlargement who underwent transurethral resection of the prostate (TURP).

METHODS: We prospectively tested the hypothesis in a cohort of 550 patients undergoing TURP for LUTS caused by benign prostate enlargement, after ruling out any suspicion of prostate cancer. Other excluding criteria were subjects with indwelling trans-urethral catheter, urinary infection and testosterone replacement therapy. Endogenous total testosterone was preoperatively measured between 8:00 and 10:00 AM. Endogenous PSA was adjusted by doubling baseline levels in patients under 5-ARI medications. Associations between clinical variables (testosterone, PSA, and prostate volume) and iPCa were evaluated using multivariate logistic regression analysis. Results were expressed as odds ratios (OR) with 95% confidence intervals (95% CI); statistical significance was set at $P < 0.05$.

RESULTS: A diagnosis of iPCa was done in 45 cases (8.56%, 95% CI: 6.49%-11.22%) confirming the values reported by literature. No significant differences were found between the groups (BPH vs. iPCa) for median age (68 vs. 67 years; $P = 0.4587$) and BMI (25.4 vs. 26.2, $P = 0.4387$). Median TT levels were higher in the BPH group compared to the iPCa group (15.4 vs. 12.3; $P = 0.0752$). It was evident that lower levels of TT were a protective factor ($OR < 1$) for the detection of iPCa: each unit increase reduced iPCa risk by 5% ($1 - 0.95$) with a statistical significance of $P = 0.045$. Otherwise, we found PSA as a risk factor ($OR > 1$): each unit increase raised risk by 4%, though the 95% CI (1.00-1.07) included 1, indicating borderline significance ($P = 0.048$). Prostate volume showed no significant association with the detection of iPCa ($P = 0.0576$).

CONCLUSIONS: Preoperative levels of TT correlate with iPCa. The impact of TT on iPCa detection warrants more investigations through a large-scale multicenter prospective study. Finding a correlation between endogenous TT and iPCa diagnosis would be crucial for improving patient management preoperatively.

Incontinenza e Neuro-urologia

SC55

Perioperative predictors of urinary incontinence at 6 and 12 months after robot-assisted radical prostatectomy: a single center experience

SC56

Durability of atoms implant efficacy in male stress urinary incontinence: extended follow-up data

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Modified hybrid approach for AMS 800® implantation: optimizing component positioning

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Virtue sub-urethral sling for stress urinary incontinence after radical prostatectomy: single center experience over 10 years

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Laparoscopic pudendal nerve release: our experience and results

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Post-vasectomy pain syndrome and vasectomy complications: real-life data from a single tertiary referral center

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Evaluation of patient-reported outcomes following atoms implantation for male stress urinary incontinence

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Longitudinal invasive urodynamic assessment in patients with lumbosacral myelomeningocele: patterns of change during structured follow-up

SC63

Long-term efficacy of sacral neuromodulation in patients with non obstructive urinary retention (NOUR): a single center 15-year experience

SC55

Perioperative predictors of urinary incontinence at 6 and 12 months after robot-assisted radical prostatectomy: a single center experience

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BACKGROUND: Urinary incontinence (UI) is one of the most distressing complications following robot-assisted radical prostatectomy (RARP), significantly affecting patients' quality of life. We aimed to identify perioperative factors associated with postoperative UI in patients undergoing RARP for prostate cancer (PCa) at our institution.

METHODS: We performed a retrospective analysis of a prospectively collected database including all patients who underwent RARP between 2021 and 2024 at our center. Primary outcomes were the presence of UI at 6 and 12 months postoperatively. Perioperative predictors tested were nerve-sparing (bilateral, unilateral and extrafascial), bladder neck sparing performance, prostate volume, and prior endoscopic prostate surgery. Univariable logistic regression analyses were conducted for each predictor, followed by a multivariable model to identify independent perioperative predictors of short- and long-term UI, reported as adjusted odds ratios (aOR) and 95% confidence intervals (CI).

RESULTS: A total of 394 patients were included in the analysis. Median age was 65 years (IQR 60-70), while median prostate volume was 45 mL (IQR 34-60). Postoperative UI was reported in 58 patients (14.7%) at 6 months and persisted in 35 patients (8.9%) at 12 months following RARP. In multivariable logistic regression analyses, nerve-sparing surgery was the only independent predictor associated with short and long-term UI occurrence. Compared to bilateral nerve-sparing, unilateral resection showed a significantly higher risk for short and long-term UI occurrence (aOR 2.70, 95% CI 1.06-6.87 and aOR 1.61, 95% CI 0.46-5.67). Extrafascial nerve-sparing showed an even higher risk for short and long-term UI occurrence (aOR 3.92, 95% CI 1.31-11.78 and aOR 4.94, 95% CI 1.26-19.33). Bladder neck sparing and a history of surgery for benign prostatic hyperplasia (BPH) were not significant predictors of urinary incontinence (UI) at either 6 months or 12 months postoperatively.

CONCLUSIONS: UI remains a relevant concern after RARP, with 14.7% and 8.9% of patients affected at 6 and 12 months, respectively. Nerve-sparing surgery was identified as an independent predictive factor influencing both short- and long-term postoperative UI occurrence. Further studies are warranted to explore additional perioperative predictors influencing continence recovery after RARP.

SC56

Durability of atoms implant efficacy in male stress urinary incontinence: extended follow-up data

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BACKGROUND: Male stress urinary incontinence (SUI) remains a clinically significant complication following prostate surgery, despite continuous technological improvements.

This study aimed to assess the long-term efficacy and safety of ATOMS® system implantation in a single-center cohort.

METHODS: All male patients referred to our institution for postoperative SUI and treated with the ATOMS® system between 01/2015 and 04/2025 were included. Preoperative evaluation comprised medical history, 24-hour pad test and pad count, physical examination, urodynamic assessment, and completion of the ICIQ-UI SF questionnaire. Patients with reduced bladder capacity or compliance, as well as uncontrolled detrusor overactivity, were excluded. Continence was defined as complete dryness or the use of a single safety pad (social continence). Results are reported as median and interquartile range.

RESULTS: A total of 264 patients were treated, with a median age of 78 years (73-82). Most patients had undergone prostate cancer surgery (86%). Radiotherapy (RT) was performed in 76% of cases, and 99 patients had a history of previous incontinence surgery (PIS: 69 ProACT, 12 sling, 7 AUS, 3 bulking, 3 ProACT+AUS, 3 ProACT+bulking, 2 ProACT+sling). Preoperative median 24-hour pad test was 355g (250-500 g) and pad count was 4 (3-6). Median follow-up was 57 months (34-91). Patients required a median of 2 cushion refills, with a median volume of 12 mL (6-18). A significant improvement was observed in pad test (30 ng, 0-100 ng, $P<0.01$), pad count (1, 0-2, $P<0.01$), and ICIQ-UI SF score (from 17; 15-29 to 7; 4-11, $P<0.01$). Overall, 72 patients (21.9%) achieved dryness and 177 (67%) reached social continence. Dry and social continence rates in RT vs. noRT patients were 15.8%/31.9% ($P=0.13$) and 51.3%/73.4% ($P=0.017$), respectively; corresponding rates in PIS vs. noPIS patients were 27.3%/27.3% ($P=1$) and 61.6%/70.3% ($P=0.71$). A total of 87 complications occurred in 82 patients (31.1%); 47 required surgical management (17.8%: 10 port revisions, 9 port removals, 12 device removals with immediate reimplantation, 5 removals for pain, 11 for malfunction). At the PGI-I questionnaire, 59.1% of patients reported "very much better", 19.3% "much better", and 13.3% "a little better".

CONCLUSIONS: The ATOMS® system demonstrated favorable long-term continence outcomes, as confirmed by objective measures and validated patient-reported outcomes. Most patients reported high satisfaction following surgery. Previous incontinence surgery did not negatively affect outcomes. Radiotherapy was associated with lower social continence rates, without a significant impact on dryness. Although the overall complication rate was relatively high, most events were minor (Clavien-Dindo grade I). At final follow-up, complete device explantation due to pain or malfunction was required in only 6% of patients, and among reimplanted devices, only one required subsequent removal.

SC57

Modified hybrid approach for AMS 800® implantation: optimizing component positioning

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BACKGROUND: The AMS 800® artificial urinary sphincter represents the gold standard for moderate-to-severe male stress urinary incontinence. Surgical outcomes remain highly dependent on technique and optimal component position-

ing. We describe a standardized modified hybrid approach combining perineal and scrotal access to reduce invasiveness while improving component positioning.

METHODS: Seventy-eight consecutive patients underwent AMS 800® implantation between 2017 and 2024. The technique combines a perineal approach for cuff placement with a limited scrotal access for pressure-regulating balloon (PRB) and pump positioning. After cuff placement, the retropubic space is accessed through the external inguinal ring. PRB placement is performed under direct vision using a Killian rhinoscope. The pump is positioned in a subdartos pouch, with all connections completed at the scrotal level. Perioperative and functional outcomes were analyzed.

RESULTS: Mean age was 71.5±5.1 years. Most patients had prior radical prostatectomy (68/78, 87.3%), including robot-assisted procedures; 15 (19.2%) received radiotherapy and 13 (16.7%) had previous anti-incontinence procedures. Preoperatively, patients used 4.3±2.1 pads/day, with a median pad test of 450 g (IQR 300-900). Mean operative time was 55±9 minutes, and median hospital stay was 2 days (IQR 2-4). No intraoperative complications occurred. Two patients (2.6%) required PRB repositioning. No infections, hematomas, or urethral/visceral injuries were observed. At 12 months, 74/78 patients (94.9%) achieved social continence (0-1 pad/day). Median pad test improved to 15 g (IQR 9-38). Patient-reported improvement was 92.3%.

CONCLUSIONS: This hybrid approach is safe and effective, allowing reduction of blind passage of the sphincter components during implantation. This is associated with more controlled and safer component positioning and may contribute to a reduction in postoperative complications. It represents a reproducible refinement of AMS 800 implantation with favorable functional outcomes.

SC58

Virtue sub-urethral sling for stress urinary incontinence after radical prostatectomy: single center experience over 10 years

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BACKGROUND: The aim of the study is to assess and report the safety and efficacy of Virtue male sling surgical procedure at our institution.

METHODS: We prospectively collected the data of 129 consecutive patients submitted to the implantation of the Virtue male sling at our institution between October 2015 and October 2025. All patient included were diagnosed with SUI after RP and failed conservative treatment.

RESULTS: Mean patients age was 72 (69, 76), 42 (33%) pts submitted to traditional Open RP, 5 (3%) pts submitted to Laparoscopic RP and 82 (64%) pts submitted to Robot Assisted RP. 31 (24%) of these patients received an additional salvage radiotherapy treatment for post RP biochemical recurrence. Before sling placement, 56 (43%) pts had mild incontinence (1-2 pads/day), 46 (36%) pts had moderate incontinence (3-5 pads/day) and 27 (21%) had severe incontinence (>5 pads/day). Mean preoperative pads/day usage was 3 (2, 4) with a mean pre-operative ICIQ-SF of 8 (6, 14). 23 (18%) post-operative complications occurred, 21 (91%) classified grade I-II and 2(9%) grade III-IV according to the Clavien-Dindo Grading System. At 12 months follow-up time the patients

reported considerable improvements with 74 (57%) pts fully continent with no pads/day usage, 19 (15%) pts reported a mild incontinence (1-2 pads/day), 24 (19%) pts reported a moderate incontinence (3-5 pads/day) while 12 (9%) pts reported severe residual incontinence (>5 pads/day). Mean post-operative ICIQ-SF resulted 3 (0, 5), 3 (0, 5), 4 (0, 5), 4 (0, 7) and 4 (0, 6) at 1 month, 3 months, 6 months, 12 months and last post-operative Follow-up control, respectively with a mean overall post-operative ICIQ-SF reduction of 6 (5, 8) units. At a mean 22 (12, 24) Months followup time 74 (57%) pts resulted fully continent, 28 (22%) pts reported urinary a urinary continence improvement (at least a reduction of 2 pads/day) but with residual incontinence while sling failure (no continence improvements at all) was recorded in 27 (21%) pts. Of these patients with sling failure 8 (6%) were submitted to Sling Virtue revision and plissettage with variable outcomes while two patients were submitted to sling virtue removal and sling Atom placement and Artificial Urinary Sphincter (AUS) implantation respectively at other institutions.

CONCLUSIONS: According to our experience, the Virtue male sling for stress urinary incontinence after radical prostatectomy is an effective and safe treatment option for mild to moderate SUI. Patients' selection remains crucial and multicentric trials are needed to better assess the potentiality of this device.

SC59

Laparoscopic pudendal nerve release: our experience and results

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BACKGROUND: Pudendal neuralgia is a rare but severely disabling cause of chronic pelvic pain, frequently associated with urinary, sexual, and defecatory dysfunctions. In patients refractory to conservative management, surgical decompression of the pudendal nerve represents a valid and often definitive therapeutic option. The laparoscopic approach allows direct visualization of deep pelvic neural structures and targeted neurolysis. The aim of this study was to evaluate the clinical effectiveness, safety, and functional outcomes of laparoscopic pudendal nerve neurolysis.

METHODS: A total of 95 patients diagnosed with pudendal neuralgia who underwent laparoscopic pudendal nerve neurolysis between January 2014 and June 2024 were included. Sixty-seven patients (70.5%) were female. Diagnosis was primarily based on the Nantes criteria (88.4%), with pelvic magnetic resonance imaging performed in selected cases (11.6%). Pain intensity was assessed using the Visual Analogue Scale (VAS) preoperatively and at 3, 12, and 24 months postoperatively. Urinary symptoms, sexual function, surgical complications, and the interval between symptom onset and surgery were also analyzed.

RESULTS: The mean interval between symptom onset and surgery was 22 months (range 5-46). Mean operative time was 55 minutes (48-85), with a mean hospital stay of 2 days (2-3). No major complications (Clavien-Dindo ≥ III) were reported. A pain reduction of ≥3 VAS points at 3 months was observed in 65 patients (68.4%), predominantly in those treated within 6 months from symptom onset. At 12 and 24 months, pain reduction was observed in 10.5% and 17.9% of patients, respectively, mainly among those undergoing

delayed surgery. Improvement in urinary symptoms and sexual function was reported in 64.2% of patients at 3 months, with later benefits observed in patients treated more than 24 months after symptom onset. Three patients (3.2%) showed no clinical improvement.

CONCLUSIONS: A pain reduction of ≥ 3 points on the VAS observed in 68.4% of patients at 3 months confirms the early effectiveness of laparoscopic decompression, while the progressive consolidation of clinical benefit at subsequent follow-up evaluations suggests a gradual functional recovery of the pudendal nerve. Surgical timing appears to be a key determinant of clinical outcome, suggesting that early intervention may significantly enhance therapeutic results. Laparoscopic pudendal nerve neurolysis is a safe and effective procedure for the treatment of pudendal neuralgia refractory to medical therapy, providing significant pain relief and improvement in urinary and sexual function.

SC60

Post-vasectomy pain syndrome and vasectomy complications: real-life data from a single tertiary referral center

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BACKGROUND: Vasectomy is an increasingly utilized method of permanent male contraception. No-scalpel vasectomy (NSV) is the preferred technique due to its favorable safety profile and low complication rates. However, complications such as infection, hematoma, and chronic post-vasectomy pain syndrome (PVPS) can occur. The true incidence and risk factors for PVPS remain uncertain. This study aims to evaluate the rates of PVPS and other complications following vasectomy, as well as to identify associated risk factors.

METHODS: This retrospective study evaluated 1774 sexually active men undergoing vasectomy between 2016 and 2024 at a single tertiary-referral center. Baseline data, including age and BMI, were collected preoperatively. Postoperative follow-up assessed complications, need for repeat surgery, and results of post-vasectomy semen analysis (PVSA) performed three months after the procedure. Statistical analysis utilized nonparametric tests and multivariate logistic regression to identify independent risk factors for complications (significance: $P < 0.05$).

RESULTS: Patients had a median age of 42 years (IQR 7.0), median BMI 26.95 (IQR 4.96), and median follow-up of 101 months (IQR 97-104). Most (90%) completed PVSA; 94.9% achieved azoospermia at first analysis, with 2% requiring re-vasectomy, and 0.2% undergoing vasovasostomy or TESE for regret. Postoperative recovery was uneventful in 97.3% of cases; infection and hematoma rates were 1.5% and 1.1%, respectively. PVPS occurred in 0.7% ($N=14$); most were managed with NSAIDs, a minority ($N=3$) required escalated treatment, including one surgical re-intervention. Multivariate analysis identified postoperative complications ($P < 0.001$) and higher BMI ($P = 0.012$) as independent risk factors for PVPS; age was not significant.

CONCLUSIONS: No-scalpel vasectomy offers high efficacy and safety for male sterilization, with rare complications and a low PVPS incidence. Postoperative complications and elevated BMI independently increase PVPS risk and may

merit consideration during preoperative counseling and risk stratification.

SC61

Evaluation of patient-reported outcomes following atoms implantation for male stress urinary incontinence

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BACKGROUND: The ATOMS system is a compressive device developed for the management of male stress urinary incontinence and has shown promising continence outcomes. This study aimed to evaluate patient-reported outcomes in a single-center cohort.

METHODS: All consecutive male patients referred to our institution for postoperative stress urinary incontinence and treated with the ATOMS® system between January 2018 and April 2025 were included. Preoperative assessment consisted of detailed medical history, 24-hour pad test and pad count, physical examination, and urodynamic evaluation. Patients with reduced bladder capacity or compliance, as well as those with uncontrolled detrusor overactivity, were excluded. Continence was defined as complete dryness or the use of one safety pad per day (social continence). Patient-reported outcomes were measured using validated questionnaires, including ICIQ-UI SF, ICIQ-MLUTSsex, ICIQ-S, and WHOQOL. Data are presented as median values with interquartile ranges.

RESULTS: Among the 97 patients who underwent ATOMS® implantation, complete questionnaire data were available for 77 individuals (response rate: 79.4%). Median age was 74 years (71-78), and most patients had previously undergone prostate cancer surgery (78%). Twenty-six patients had received radiotherapy, and 22 had a history of prior anti-incontinence procedures. Median follow-up was 39 months (22-62). A marked reduction in 24-hour pad test values was observed, decreasing from 350 g (215-600) to 35 g (0-70), alongside a reduction in daily pad use from 4.5 pads/day (3-6) to 1 pad/day (0-2) (all $P < 0.01$). Complete dryness was achieved in 26 patients (33.8%), while 56 patients (72.7%) reached social continence. The ICIQ-UI SF score significantly improved from 17 (15-20) to 6 (2-10.5) ($P < 0.01$). A slight but statistically significant variation was found in the ICIQ-MLUTSsex score, from 32 (20.5-40) to 31.5 (23.75-42) ($P = 0.04$). Patients who achieved social continence reported significantly better ICIQ-S scores (25 [17-30.25] vs. 29 [20-34], $P < 0.01$) and WHOQOL scores (90 [76.75-101.25] vs. 86.5 [77-94], $P < 0.01$) compared to those who did not.

CONCLUSIONS: The objective continence outcomes observed in the present study are consistent with those reported in previous series. A significant overall subjective improvement was documented, as reflected by the ICIQ-UI SF scores, including patients with suboptimal continence outcomes. Although the median ICIQ-MLUTSsex score remained unchanged, likely due to the absence of sexual activity in a substantial proportion of patients, a variation in the interquartile range was observed, suggesting a trend toward improved sexual function among sexually active individuals. The ICIQ-S and WHOQOL questionnaires effectively captured patient-reported satisfaction, particularly among those achieving social continence.

SC62

Longitudinal invasive urodynamic assessment in patients with lumbosacral myelomeningocele: patterns of change during structured follow-up

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BACKGROUND: Neurogenic lower urinary tract dysfunction affects over 90% of patients with lumbosacral myelomeningocele (MMC) and is the primary cause of long-term renal morbidity and mortality. The urodynamic pattern is inherently dynamic: detrusor overactivity, impaired bladder compliance, and detrusor-sphincter dyssynergia (DSD) may emerge or deteriorate regardless clinical symptoms. Symptom-based surveillance is unreliable due to the underlying neurological sensory deficit. Invasive urodynamic study (UDS) remains the only objective tool to monitor lower urinary tract safety, patients with risk stratification according to the Leal da Cruz classification and the AUA/SUFU criteria, and guides therapeutic escalation. The aim of this study was to evaluate the longitudinal evolution of urodynamic parameters in patients with lumbosacral MMC during a structured, protocol-driven follow-up.

METHODS: Retrospective analysis of a prospectively maintained institutional database. We included 67 patients with lumbosacral MMC who underwent serial multichannel invasive UDS with surface perineal EMG from January 2023 to December 2025. UDS was repeated every 6-12 months (mean follow-up 22 months, range 12-36). Parameters recorded at each evaluation included maximum detrusor pressure (Pdet max), detrusor leak point pressure (DLPP), bladder compliance, cystometric capacity, post-void residual (PVR), and DSD. Patients were risk-stratified at each visit. Upper tract surveillance included renal-bladder ultrasound, voiding cystourethrography (VCUG), and serum creatinine check. Treatment was adjusted on the basis of UDS findings: clean intermittent catheterization (CIC), antimuscarinics, beta-3 agonists, and intradetrusor onabotulinumtoxinA.

RESULTS: At baseline, a high-risk urodynamic pattern (DLPP >40 cmH₂O and/or compliance <10 mL/cmH₂O) was identified in 52% of patients (35 out of 67). Detrusor overactivity was present in 58% (mean Pdet max 62 cmH₂O), low compliance in 54%, DSD in 50%, and VUR in 17%. Upper tract changes were already present at baseline in 29%. Serial UDS revealed significant longitudinal variability: 40% of high-risk patients converted to a low-risk pattern at the second evaluation following CIC and antimuscarinics, rising to 62% at the third. Conversely, 18% of initially low-risk patients showed silent urodynamic deterioration without symptom progression. New-onset or worsening DSD was documented in 14% during follow-up. Statistically significant correlations were found between unfavourable UDS parameters and upper tract deterioration ($P<0.05$). In 13% of high-risk patients who failed first-line conservative management, intradetrusor onabotulinumtoxinA injection was performed, with subsequent urodynamic reassessment confirming improvement in bladder compliance and reduction of Pdet max.

CONCLUSIONS: Invasive serial UDS is indispensable in the structured follow-up of lumbosacral MMC. The urodynamic pattern shows clinically relevant longitudinal evolution, unpredictable from symptoms alone. Both silent deterioration in initially low-risk patients and partial reversibility of high-risk patterns confirm that a lifelong protocol-driven UDS surveillance programme, every 6-12 months, is necessary regardless of apparent clinical stability.

SC63

Long-term efficacy of sacral neuromodulation in patients with non obstructive urinary retention (NOUR): a single center 15-year experience

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BACKGROUND: Aim of the study is to evaluate the long-term efficacy and quality of life in patients treated with sacral neuromodulation for non-obstructive urinary retention (NOUR). The secondary aim is to determine the incidence and the characteristics of perioperative and long-term complications.

METHODS: This was a retrospective analysis on 72 patients with NOUR who underwent SNM over a 15-year period. Data on diagnosis, prior treatments, surgical stages, outcomes and complications were collected from outpatient visits, medical records and follow-up visits (1, 3, 6, 12 months postoperatively, then annually). First stage success was defined as $\geq 50\%$ improvement of urinary parameters from baseline. Daily number of clean intermittent catheterizations and, if present, of spontaneous voids were obtained from voiding diaries. Quality of life was assessed using ICIQ-MLUTS and ICIQ-FLUTS questionnaires, administered by a single operator preoperatively and, only for patients with SNM still in place, through telephone interviews in August 2025. Statistical analyses were performed with SPSS 26.0 using paired *t*-test and McNemar's test ($P<0.05$).

RESULTS: Mean age at the time of the procedure was 59 years (range 21-85); mean symptom duration 41 months (range 2-180). NOR was idiopathic in 34 patients, neurologic in 18, and post-pelvic surgery in 20. 58 patients performed CIC and 6 had an indwelling catheter. 16 patients (22%) did not proceed to the second stage, and 4 (7%) required explantation after second stage, mainly due to loss of efficacy or minor complications. Data refer to the remaining 72% with active SNM, with mean follow-up of 49 months (range 6-156). Compared to baseline, reductions $\geq 50\%$ in the daily number of CIC were still present in 63% of the patients and a statistically significant ($P<0.001$) reduction was observed in the mean daily number of CIC, as well as in the questionnaires' scores, both globally and divided into the different subscales. More in detail, there was a mean reduction of 2.5 in the daily number of CIC and spontaneous voiding was restored in 4 patients (two of which previously had an indwelling catheter), with a mean of 6 voids per day. Of those with an indwelling catheter, 4 had it removed (two using CIC), and 2 retained it. There was a mean reduction in the LUTS global scores of 4.7 points (4.7 in the MLUTS and 5 in the FLUTS), while the VS subscale showed a mean reduction of 5.3 points in males and 2.7 points in females. Among those who kept the SNM, complications occurred in 11.5%, all classified as Clavien-Dindo grade I (mild-moderate pain in different areas, discomfort at implant site or constipation).

CONCLUSIONS: This study shows that SNM is associated with significant long-term improvement in urinary symptoms and quality of life, with an acceptable complication rate and no life-threatening events in line with previous reports.

SMART COMMUNICATION (SC64 - SC70)

Trapianto renale

SC64

Retroperitoneoscopic nephrectomy for ADPKD: outcomes and technical insights from a single-centre series

SC65

Bovine pericardial patch for renal artery reconstruction in living donor kidney transplantation: a single-center cohort study

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Improving organ allocation within a regional kidney transplant network: integration of KDPI and CAKS for risk stratification

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Cryopreserved vascular allografts for venous extension in robot-assisted living donor nephrec-

tomy: a preliminary cross-institutional series between two regional university hospitals

SC68

From obstruction to acute kidney injury: determinants of renal injury and recovery in unilateral obstructive uropathy due to ureteral stones

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Single-port robot-assisted pyeloplasty: multi-center international experience and early outcomes

SC70

Minimally invasive adrenalectomy in a tertiary referral center: a 20-year single-center experience comparing laparoscopic and robotic approaches

SC64

Retroperitoneoscopic nephrectomy for ADPKD: outcomes and technical insights from a single-centre series

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BACKGROUND: ADPKD is a multisystem disorder characterized by bilateral kidney and liver cysts, with ~50% of patients reaching ESKD by age 60. We report our series of retroperitoneoscopic nephrectomies performed prior to renal transplantation, an approach that avoids peritoneal contamination unlike the more common transperitoneal route.

METHODS: Retrospective analysis of consecutive ADPKD patients undergoing pre-transplant retroperitoneoscopic nephrectomy. Patients are placed in full flank position; retroperitoneal access is *via* Petit's triangle using a Gaur balloon. Four trocars are placed in diamond configuration. The renal artery is controlled first; large cysts are drained to reduce volume, followed by ureter and vein ligation. The kidney is extracted intact *via* endo-bag without morcellation; very large specimens are split in two.

RESULTS: 18 patients underwent nephrectomy for ADPKD in our department between January 2020 and March 2025. The primary indication was space creation prior to renal transplantation (13 cases), while flank pain (3 cases) and hematuria (2 cases) were less frequent. Sixteen patients were on dialysis (13 hemodialysis, 3 peritoneal dialysis). The median Charlson Comorbidity Index was 4 (range 4-5), and the mean hemoglobin level was 11.3 ± 1.4 g/dL. Mean renal volume on CT was 2,870 cc (range 1,080-5,400). No conversions to open surgery or intraoperative complications occurred. Mean operative time was 149 minutes (range 116-174). Mean cyst suction volume was 1,290 cc (range 500-2,500), with a final renal volume of 810 cc (range 477-1,164). Mean incision length was 7.3 cm (range 7-8). First flatus occurred on postoperative day (POD) 1 in all patients, and first stool on POD 3 (range 2-4). Mean peak VAS pain score was 2.8 (range 1-5) on POD 1, 2.8 (range 2-5) on POD 2, and 2.3 (range 1-5) on POD 3. Mean hemoglobin drop was 2.5 g/dL. Two patients developed Clavien-Dindo >II complications (arteriovenous fistula), and four required transfusion of one unit of red blood cells. No infectious complications occurred. Median hospital stay was 6 days (range 3-9), with no 30-day postoperative complications.

CONCLUSIONS: Retroperitoneoscopic nephrectomy is effective and safe for ADPKD, particularly advantageous for peritoneal dialysis patients. Even large kidneys can be managed safely by surgeons skilled in retroperitoneal access.

SC65

Bovine pericardial patch for renal artery reconstruction in living donor kidney transplantation: a single-center cohort study

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BACKGROUND: Complex renal arterial anatomy (*e.g.*, early branching, small-caliber vessels, multiple or polar arteries) increases the technical difficulty and risk of vascular complications in living donor kidney transplantation (LDKT).

Bovine pericardial patch (BP) has emerged as a valuable tool for patch-augmented arterial reconstruction, enabling tension-free anastomosis and improving luminal geometry. We present our experience using BP for renal artery reconstruction in LDKT.

METHODS: This retrospective cohort study included consecutive LDKT recipients who underwent renal artery reconstruction with BP at our institution. Indications for BP use included early arterial division, small-caliber arteries, short renal arteries, multiple renal arteries, and polar arteries. Perioperative data, desensitization therapies, operative metrics, and clinical outcomes were analyzed. Serum creatinine ($\mu\text{mol/L}$) at baseline, 1, 3, 6 months, and 1 year was assessed using a linear mixed-effects model.

RESULTS: Eighty-eight recipients were included (mean age 47.8 ± 13.2 years; 52.3% male). Donor age was 53.4 ± 10.2 years. Indications for BP use were early division (30.7%), small-caliber artery (22.7%), short renal artery (21.6%), multiple arteries (18.2%), and polar artery (6.8%). Anastomosis was single in 72.7%, double in 26.1%, and triple in 1.1%. Cold and warm ischemia times were 83.8 ± 13.6 and 23.1 ± 4.3 minutes, respectively. Delayed graft function (DGF), defined as the need for dialysis in the first week after transplantation occurred in 13.6%. Ureteral and arterial complications were each 1.1%. One patient (1.1%) died. Serum creatinine decreased from $785.8 \mu\text{mol/L}$ at baseline to $147.4 \mu\text{mol/L}$ at 1 month, remaining stable at $133.7 \mu\text{mol/L}$ at 1 year.

CONCLUSIONS: BP-assisted renal artery reconstruction in LDKT is feasible, associated with low arterial complication rates, and supports good early graft function. Larger studies are needed to optimize patient selection and evaluate long-term outcomes.

SC66

Improving organ allocation within a regional kidney transplant network: integration of KDPI and CAKS for risk stratification

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BACKGROUND: The increasing use of extended criteria donors requires more accurate graft assessment and efficient logistical management. In this context, the integration of predictive scores and collaboration among Kidney Transplant (KT) centers, including newly established programs, represent key elements to optimize organ allocation and improve clinical pathways. This study aimed to evaluate the utility of integrating Kidney Donor Profile Index (KDPI) and Canadian Anatomic Kidney Score (CAKS) in predicting early renal function and supporting organ allocation within a regional network.

METHODS: We prospectively analyzed a total of 71 KT performed within a single regional collaborative kidney transplant (KT) network involving an established and a newly opened KT centers. KDPI is a composite score summarizing donor-related risk and predicting graft survival. The Canadian Anatomic Kidney Score (CAKS) is a novel 6-point grading system that standardizes the gross description of a donor kidney across 3 components – vessels, anatomy, and sticky fat. Both KDPI and CAKS were systematically adopted as shared tools for evaluation and decision-making. Preimplantation biopsy was used to assess Karpinski score, providing a direct

evaluation of histological injury. Correlations among KDPI, CAKS, and Karpinski scores were assessed, along with their association with early graft function.

RESULTS: Median KDPI was 68 (IQR 40-85), with 26.8% of grafts ≥ 85 , while median CAKS was 1.0 (IQR 0-1.5). KDPI, CAKS and Karpinski scores were significantly correlated ($r=0.616$; $P<0.0001$), indicating consistency between clinical, macroscopic, and histological assessments. Despite a substantial proportion of high-risk organs (KDPI ≥ 85 in 26.8% of cases), the integrated approach allowed more appropriate organ distribution and optimization of available resources between experience and young center. The incidence of delayed graft function was 26.8%, consistent with the complexity of the donor pool. Importantly, the use of shared predictive tools improved coordination, reducing cold ischemia times and optimizing operating room scheduling. Standardization of evaluation criteria also supported clinical decision-making and accelerated skill development in the emerging center.

CONCLUSIONS: The combined use of KDPI and CAKS, integrated with histological assessment, represents a valuable strategy for predicting early graft function and guiding organ allocation. Within a collaborative regional model, this approach enhances allocation efficiency, supports equitable distribution of organs according to recipient and center characteristics, and improves logistical management.

SC67

Cryopreserved vascular allografts for venous extension in robot-assisted living donor nephrectomy: a preliminary cross-institutional series between two regional university hospitals

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BACKGROUND: Living-donor kidney transplantation (LDKT) is the gold standard for end-stage renal disease. Traditionally, the left kidney is preferred for its longer vein. However, the “donor safety first” principle, combined with the transition to laparoscopic and robotic donor nephrectomy, has increased the frequency of using right-sided grafts or encountering “iatrogenically” shortened veins due to mechanical stapling. In this study, we report our preliminary experience evaluating the efficacy of cryopreserved vascular grafts for renal vein lengthening in LDKT to overcome anatomical vascular length limitations.

METHODS: All LDKT in this series were performed using a robotic-assisted laparoscopic approach. All procedures were carried out by a dedicated and experienced surgical team thanks to a cross-institutional partnership involving two regional University Hospitals. When necessary, cryopreserved venous allografts were employed to ensure adequate renal vein length. All transplants were carried out using a standard retroperitoneal approach in the iliac fossa.

RESULTS: From June 2024 to October 2025, nine living-donor kidney transplants were performed. The donor cohort included 7 females and 2 males with a median age of 58 years (IQR 51-69), while the recipient cohort included 4 females and 5 males with a median age of 39 years (IQR 23-55). Cryopreserved venous allografts were used in 5/9 LDKT (55.5%), following right kidney procurement. Cold ischemia time was higher in grafts requiring vascular extension

than in those without elongation (median 139 minutes [IQR 130-141] vs. 115 minutes [IQR 107-121], respectively; $P<0.05$). Rewarming time was also longer in the vessel extension group (median 38 minutes [IQR 37-40] vs. 33.5 minutes [IQR 31-35], respectively; $P=0.6$). No intraoperative or high-grade postoperative complications were observed. At a median follow-up of 10 months (IQR 8-17), there were no deaths or graft losses. The median serum creatinine level at last follow-up was 1.6 mg/dL (IQR 1.2-1.7).

CONCLUSIONS: Renal vein lengthening with cryopreserved vascular grafts is a valuable tool in modern transplantation, addressing short veins – common in right-sided grafts and after laparoscopic or robotic stapling – and complex recipient venous anatomy. By enabling safer anastomoses, this technique supports excellent graft function while preserving donor safety.

SC68

From obstruction to acute kidney injury: determinants of renal injury and recovery in unilateral obstructive uropathy due to ureteral stones

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BACKGROUND: Acute obstructive uropathy is a urological emergency that can lead to acute kidney injury (AKI) and sepsis. Prompt decompression is essential to restore renal function and prevent infectious complications and irreversible renal injury. However, predictors of AKI and the extent of renal recovery in unilateral obstruction remain debated. The present study aimed to identify predictors of AKI and renal recovery in this setting.

METHODS: Clinical, laboratory and radiological data from 173 consecutive patients undergoing urgent urinary decompression for stone related upper urinary tract obstruction between 01/2016 and 08/2025 at a tertiary referral center were evaluated. Patients with a single kidney or bilateral obstruction were excluded. Renal function was measured through serum creatinine and CKD-EPI eGFR. AKI and its severity were defined according to KDIGO criteria. eGFR was recorded at baseline (before obstruction), at decompression, at postoperative day (POD) 1 and 3, at discharge and at 6-month follow-up. CKD was defined as baseline eGFR <60 mL/min. Type of decompression (nephrostomy tube vs. retrograde ureteral stent) and timing of surgery (from symptoms' onset) were recorded. Descriptive statistics, Mann-Whitney and Chi-square Test, and regression models assessed predictors of renal recovery and eGFR changes.

RESULTS: Overall, patients had a median age of 56 (IQR (45.0-68.0) years and a median Body Mass Index (BMI) of 25.3 kg/m². Median eGFR was 81.1 mL/min, and CKD was present in 19% of patients. AKI occurred in 126 (72.8%) cases. AKI stage was classified as stage I, II and III in 80 (63.5%), 34 (27.0 %) and 12 (9.5%) cases, respectively. Median length of stay was 4 (3-9) days. In the AKI group, GFR at presentation, POD 1, 3, discharge, and follow-up was 38.8, 51.7, 66.7, 77.3 and 74.2 mL/min, respectively. A significant improvement was observed at each time point (all $P<0.001$), except between discharge and follow-up ($P=0.48$). In this subgroup, diabetes ($\beta=-10.4$, $P=0.003$), nephrostomy tube placement ($\beta=-6.9$, $P=0.036$), sex ($\beta=-5.9$, $P=0.022$) and higher KDIGO stage ($\beta=10.2$ and 12.1 for stage II and III vs. I, both $P<0.001$) pre-

dicted slope of AKI recovery from presentation to POD 3. At follow-up, eGFR was lower in AKI vs. no-AKI patients (74.7 vs. 85.5 mL/min, $P=0.004$). AKI was the only predictor of eGFR change from discharge to follow-up in the overall cohort ($\beta = -28.8$, $P<0.001$), while sex was the only predictor in the AKI subgroup ($\beta = -23.4$, $P=0.016$).

CONCLUSIONS: AKI is common in unilateral stone-related obstructive uropathy, with early renal recovery after decompression that stabilizes after discharge. Recovery is driven by patient-related factors rather than baseline renal function. These findings support early intervention and risk-based follow-up.

SC69

Single-port robot-assisted pyeloplasty: multi-center international experience and early outcomes

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BACKGROUND: Robot-assisted pyeloplasty (RAP) is the current gold standard for minimally invasive repair of ureteropelvic junction obstruction (UPJO). The Da Vinci's Single-Port (SP) system represents the latest evolution of robotic surgery, designed to further minimize access trauma and improve cosmesis through a single incision. Although several small single-center reports have demonstrated the feasibility of SP-RAP, no study to date has evaluated its perioperative performance across multiple institutions. To report the first international multicenter experience of SP-RAP and describe peri-operative outcomes, assessing feasibility, safety, and reproducibility in real-world practice.

METHODS: This is a retrospective, multicenter series including patients undergoing SP-RAP between 2020 and 2025 at three tertiary high-volume robotic urology centers (two in Europe, one in North America). Baseline demographic and clinical variables, intraoperative data (operative time, estimated blood loss, conversion rates, intraoperative complications), and 30-day postoperative outcomes (complications, readmission, reintervention) were extracted from institutional databases. Descriptive statistics (median, IQR, frequencies) were used to summarize the findings.

RESULTS: A total of 58 SP-RAP procedures were included. Of them, 53% were females, with a median Age was 47 years (IQR 34-61) and a median BMI of 25.1 (IQR 22.3-28.9). Previous abdominal surgeries were reported in 17% of patients, median Charlson Comorbidity Index was 4 (IQR 2-4). The low anterolateral transperitoneal approach was the most frequently adopted (84%), followed by retroperitoneal access (12%). Intraoperatively, median operative time was 141 min (IQR 121-164) and estimated blood loss was 30 mL (IQR 20-50). A drain was placed in 16% of cases and a ureteral stent in 98%. Median stent dwell time was 36 days (IQR 30-47). Only one intraoperative complication (1.7%) occurred (peritoneal breach) without any conversion to multi-port or open surgery. Median length of stay was 1.5 days (IQR 1-4), and 48% of patients were discharged within 24 hours. Within 30 days, complications occurred in 18 patients (32%), predominantly Clavien I-II. Clavien IIIa/b were limited to 3 cases (5%), two percutaneous nephrostomies and one redo RAP. No grade IV-V complications occurred.

CONCLUSIONS: This study provides the first interna-

tional validation and the largest series of SP-RAP to date. SP-RAP was safe, feasible, and reproducible, achieving low morbidity and short hospitalization. These results suggest that extraperitoneal SP-RAP is a promising step forward in the evolution of minimally invasive reconstructive urology.

SC70

Minimally invasive adrenalectomy in a tertiary referral center: a 20-year single-center experience comparing laparoscopic and robotic approaches

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BACKGROUND: In the last years, robotic surgery has been increasingly adopted in adrenal surgery, although its role compared to conventional laparoscopy remains debated. The aim of this study is to report the single-center experience and to assess perioperative outcomes of minimally invasive adrenalectomy.

METHODS: Data from a prospectively maintained database at a single tertiary referral center were retrospectively analyzed. Consecutive patients undergoing minimally invasive adrenalectomy (laparoscopic or robotic) between 2005 and 2025 were included, while primary open procedures were excluded. Demographic, intraoperative, postoperative, and pathological variables were collected. Descriptive statistics included means and standard deviations or medians and interquartile ranges for continuous variables, and frequencies and proportions for categorical variables. Comparative and multivariable analyses were performed to assess predictors of complications and recurrence.

RESULTS: A total of 471 patients underwent minimally invasive adrenalectomy and were included in the analysis, of whom 367 (77.9%) underwent laparoscopic adrenalectomy and 104 (22.1%) robotic adrenalectomy. Mean age was approximately 57 years, and patients in the robotic group presented with significantly higher BMI and comorbidity burden. Median tumour size was larger in the robotic group (5.6 vs. 4.4 cm, $P=0.002$). Mean operative time was slightly longer in the robotic group (93 vs. 82 minutes, $P<0.001$), while estimated blood loss was comparable (~165-175 mL). Intraoperative complications were rare (<1%). Overall postoperative complication rates were 10.9% (LA) vs. 16.3% (RA), without significant differences, and major complications were extremely low (~0.8-0.9%). Median length of hospital stay was 4 days in both groups. At final pathology, most lesions were benign (81.1%), followed by adrenocortical carcinoma (6%), malignant pheochromocytoma (8.8%) and metastases. Local recurrence rates were low and comparable between groups (2.5% overall).

CONCLUSIONS: Our single-center experience confirms that minimally invasive adrenalectomy is safe and feasible, with low morbidity and favorable perioperative outcomes. Robotic adrenalectomy was preferentially adopted in more complex patients and larger tumors, without negatively impacting complication rates or early oncologic outcomes. These findings support the role of robotic surgery in expanding minimally invasive indications to more challenging adrenal cases.

SMART COMMUNICATION (SC71 - SC76)

Chirurgia del tumore renale localizzato e localmente avanzato

SC71

Robotic *vs.* Open partial nephrectomy in complex cases: real-world benchmarking of the opera trial

SC72

Comparison of postoperative complications between open and robotic partial nephrectomy: a high-volume single-center propensity-matched analysis

SC73

Economic sustainability of Hugo RAS *versus* standard laparoscopy for radical nephrectomy: a comprehensive micro-costing analysis

SC74

Experience over complexity: determinants of surgical success in multicentric robot-assisted partial nephrectomy with the Hugo™ RAS System

SC75

Learning curve of robot-assisted partial nephrectomy for simple and complex renal masses: a cumulative sum method analysis

SC76

Renal functional following angioembolization after partial nephrectomy

SC71

Robotic vs. Open partial nephrectomy in complex cases: real-world benchmarking of the opera trial

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BACKGROUND: The randomized multicenter OpeRa trial compared robotic-assisted (RAPN) and open partial nephrectomy (OPN) for R.E.N.A.L. ≥ 7 renal tumors. Despite early termination, no significant difference was observed in 30-day complication rates (RAPN 37% vs. OPN 46%), while RAPN showed longer warm ischemia and operative times but shorter hospital stay. To contextualize these findings in daily practice, we externally benchmarked OpeRa results in a real-world cohort reproducing trial eligibility and endpoint definitions.

METHODS: We retrospectively identified consecutive adults who underwent partial nephrectomy at a tertiary academic center, applying OpeRa-aligned inclusion criteria (R.E.N.A.L. ≥ 7 , baseline eGFR ≥ 50 mL/min/1.73 m², RAPN or OPN only). Propensity-score matching (nearest-neighbor, caliper 0.2; ratio 1:1.5) was used to emulate randomization based on age, sex, Charlson comorbidity index (CCI), baseline eGFR, R.E.N.A.L. class, and clinical T stage. The primary endpoint was any Clavien-Dindo (CD) I-V complication within 30 days; secondary endpoints included major complications (CD III-IV), estimated blood loss (EBL), warm ischemia time (WIT), operative time, length of stay (LOS), transfusion rate, margin status, and Trifecta (no 30-day complications, negative margins, ischemia < 25 min).

RESULTS: After applying trial criteria and matching, 99 RAPN and 145 OPN patients were analyzed. Baseline features were broadly comparable except for T stage (59% cT1a, 31% cT1b, 10% cT2-T3). R.E.N.A.L. complexity (intermediate 86%, high 14%) and baseline eGFR (median 88 [71-98]) were similar to OpeRa. Compared to the trial, our cohort included fewer patients with CCI ≥ 2 (15% vs 39%) and ASA III-IV (12% vs. 20%), and younger age (59 vs. 64 years). EBL was higher for OPN (400 vs. 125 mL; $P < 0.001$), while operative time did not differ (159 vs. 165 min; $P = 0.2$). In contrast with OpeRa, WIT was shorter in RAPN (14 vs. 17 min; $P = 0.03$). LOS was significantly shorter with RAPN (4 vs. 6 days; $P < 0.001$) and lower than the trial median. Thirty-day complication rates were comparable (RAPN 44% vs. OPN 49%; $P = 0.8$), as were major complications (3% vs. 7%; $P = 0.4$), both lower than in OpeRa (12% and 8%). RAPN showed fewer intraoperative complications (4% vs. 12%; $P = 0.04$) and transfusions (3% vs. 18%; $P < 0.001$). Positive margins were identical (4%), and Trifecta rates were comparable (49% vs. 45%; $P = 0.6$).

CONCLUSIONS: In an OpeRa-eligible real-world cohort, propensity-matched analysis confirmed similar overall complication rates between RAPN and OPN, but RAPN achieved lower blood loss, fewer intraoperative events, and shorter hospitalization. Differences in comorbidity and tumor stage likely explain part of the observed variation. These findings support RAPN as a safer and less burdensome approach in complex cases, reinforcing its role within multidisciplinary counseling and shared decision-making.

SC72

Comparison of postoperative complications between open and robotic partial nephrectomy: a high-volume single-center propensity-matched analysis

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BACKGROUND: Robotic partial nephrectomy (RPN) has progressively replaced open partial nephrectomy (OPN) as the standard treatment for localized renal tumors, offering comparable oncological outcomes with potentially reduced perioperative morbidity. However, real-world data comparing postoperative complications between the two approaches remain valuable to clarify their safety profiles. This study aimed to compare 30-day postoperative complications after OPN and RPN, classified according to the Clavien-Dindo (CD) classification.

METHODS: We conducted a single-center retrospective study including all patients who underwent partial nephrectomy between January 1990 and December 2022. Demographic, clinical and perioperative variables were collected. To account for potential confounders, a 1:3 propensity score matching (PSM) based on age, sex, Charlson Comorbidity Index (CCI), clinical stage (cT), and tumor size was performed. Incidence of any 30-day postoperative complication represented the primary endpoint, while the secondary endpoint was the rate of major complications (CD ≥ 3).

RESULTS: A total of 1181 patients were included (962 OPN, 219 RPN). Before matching, the robotic cohort harbored a higher proportion of patients with CCI > 2 (24.4 vs 13.8%, $P < 0.001$), and a smaller median tumor size (3.0 vs. 3.3 cm, $P = 0.02$). Conversely, the open cohort exhibited a higher rate of cT3 tumors ($P = 0.017$). No statistically significant differences were recorded in terms of other patients and tumor characteristics. After 1:3 propensity score matching, 837 patients (622 OPN, 215 RPN) were identified with well-balanced baseline characteristics (all > 0.1). Overall complications occurred in 26.0% of OPN and 13.9% of RPN cases ($P = 0.0003$). Major complications (CD ≥ 3) occurred in 4.9% and 2.4%, respectively ($P = 0.164$).

CONCLUSIONS: In this large, single-center series, spanning over 30 years, RPN demonstrated a significantly lower rate of overall postoperative complications at 30 days compared to OPN, with similar rates of serious adverse events (CD ≥ 3). These findings highlight the perioperative safety advantages of the robotic approach and may contribute to refining surgical decision-making and future guideline recommendations.

SC73

Economic sustainability of Hugo RAS versus standard laparoscopy for radical nephrectomy: a comprehensive micro-costing analysis

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BACKGROUND: The growing implementation of robotic systems beyond prostatectomy requires updated evidence on their cost-effectiveness. We aimed to perform a detailed cost-minimization comparison between Hugo RAS and standard laparoscopy for radical nephrectomy (RN), using a micro-costing model.

METHODS: We retrospectively analyzed consecutive radical nephrectomies performed between 2023 and 2024: 45 using Hugo RAS and 62 *via* conventional laparoscopy. Direct costs included operating-room (2.01 €/min), personnel (5.49 €/min; 2 surgeons, 1 anesthetist, 3 nurses), sterilization (2 trays × 103.86 €), and consumables (469.85 € common; +939.4 € for Hugo robotic instruments; +917.87 € for laparoscopic cutting and coagulation devices). Indirect costs included hospital stay (400 €/day), general services (91 €/day), daily laboratory tests (60 €/day), preoperative work-up (100.1 €), and discharge dressing (5 €). Continuous variables were compared using the Wilcoxon rank-sum test, categorical variables with Fisher's Exact Test. Break-even analysis was performed by dividing the annual maintenance cost of the robotic platform (115,900 €) by the per-case cost difference between approaches, identifying the annual case volume required to achieve cost neutrality. A secondary model considered the combined robotic program (RARP + RN).

RESULTS: Median operative time was 200 (180-230) min for Hugo and 180 (155-210) min for laparoscopy ($P=0.02$). Median length of stay was 3 (3-4) vs. 4 (3-5) days ($P=0.01$). Median total cost per case was 4875 € (4600-5100) for Hugo and 5254 € (5020-5490) for laparoscopy ($P=0.03$). Although operative time was ~20 minutes longer with Hugo, the shorter hospital stay (-1 day) led to a net saving of 379 € per case (-7%). The break-even threshold was ~306 RN cases/year if considering nephrectomies alone, and ~90 working days (4.5 months) when integrated with the existing high-volume RARP program, confirming earlier cost neutrality at institutional level.

CONCLUSIONS: Hugo RAS achieved slightly lower total costs than laparoscopy for radical nephrectomy, primarily due to reduced hospitalization. When included within a high-volume robotic program, Hugo demonstrates rapid economic sustainability and cost neutrality across multiple urological indications.

SC74

Experience over complexity: determinants of surgical success in multicentric robot-assisted partial nephrectomy with the Hugo™ RAS System

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BACKGROUND: Despite high success rates in robot-assisted partial nephrectomy (RAPN), the relative contribution of tumor complexity *versus* surgical experience in achieving optimal outcomes remains unclear, particularly with novel robotic platforms. We aimed to identify the determinants of surgical success in robot-assisted partial nephrectomy (RAPN) performed with the Hugo™ RAS System, and to clarify whether tumor complexity or cumulative platform-

specific surgical experience has the greatest impact on composite quality outcomes.

METHODS: Prospectively collected data from 189 consecutive RAPNs performed across five high-volume Italian centres between October 2022 and September 2025 were retrospectively analysed. Trifecta was defined as negative surgical margins, no Clavien-Dindo grade ≥ 3 complications, and $\leq 30\%$ eGFR decline at discharge. Pentafecta additionally required $>90\%$ eGFR preservation and no CKD upstaging at last follow-up. Univariable and multivariable logistic regression analyses were performed to identify predictors of Trifecta and Pentafecta achievement, including tumor size, tumor complexity, and cumulative Hugo-specific surgical experience.

RESULTS: Among 189 patients, 72% harboured T1a tumors and 103/189 (54.5%) were classified as intermediate-to-high complexity masses. All procedures were completed robotically, with no conversions or additional trocar placement. The overall complication rate was 15.9%, while major complications occurred in 4.2% of cases. Median blood loss was 200 mL, and median eGFR change at discharge was -1.4%. Trifecta and Pentafecta were achieved in 80.9% and 61.9% of patients, respectively. At multivariable analysis, cumulative surgical experience was independently associated with both Trifecta (OR 1.03, 95%CI 1.01-1.05; $P=0.001$) and Pentafecta (OR 1.02, 95%CI 1.01-1.03; $P=0.004$) achievement. Notably, increasing experience offset the negative impact of complexity and was associated with progressive improvements in operative efficiency, including reduced docking time, without increasing complications.

CONCLUSIONS: In multicentric RAPN with the Hugo™ RAS System, cumulative platform-specific surgical experience emerged as the main determinant of composite surgical success, showing a stronger and more consistent effect than anatomical complexity. Although larger tumors remain more challenging, experience was the only factor independently associated with both Trifecta and Pentafecta achievement. These findings support a shift from case-selection-driven adoption toward experience-driven programme development, highlighting structured training, volume accumulation, and team standardization as the real keys to safely expanding the indications of Hugo RAPN while maintaining high-quality nephron-sparing outcomes.

SC75

Learning curve of robot-assisted partial nephrectomy for simple and complex renal masses: a cumulative sum method analysis

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BACKGROUND: To evaluate the robot-assisted partial nephrectomy (RAPN) learning curve using the cumulative sum (CUSUM) method based on tumor complexity estimated by the PADUA score.

METHODS: From October 2020 to June 2025, 493 patients underwent RAPN using the da Vinci surgical system. Tumor anatomical complexity was evaluated using the PADUA score. Intraoperative and postoperative complications were stratified using the Satava classification and the Clavien-Dindo grading system, respectively. Continuous variables

were reported as medians with interquartile ranges (IQR). The surgical learning curve of the three main surgeons was evaluated *via* CUSUM analysis based on operative time, with further stratification by PADUA score using a complexity cut-off of 10. A polynomial regression model for the highest-volume surgeon was used to find the mathematical inflection point indicating overall surgical proficiency.

RESULTS: Median age was 65 years (55-71), median BMI was 26 kg/m² (24-29). Most of the patients were in excellent general condition (ECOG PS 0, 272, 62%). A total of 260 patients (53%) received previous abdominal surgery. The median tumor size was 35 mm (25-46) and the most common clinical T stage was cT1a with 306 cases (66.5%), followed by cT1b with 124 cases (27%). Most of the patients had a PADUA score of 7-9 (295, 65%). Transperitoneal access was the most common approach (449, 92%). Median surgical time was 125 min (100-155). Arterial clamp was performed in 389 cases (79%) with warm ischemia time of 13 min (8-18). Satava 1-2 complications occurred in 17 cases (4%). Postoperative complications occurred in 82 patients (18%) within 90 days after surgery, and only 18 patients experienced major complications (Clavien-Dindo >2). Length of hospital stay was 2 days (1-4). Positive surgical margin rate was 5.9% (N=29). CUSUM analysis revealed that surgical proficiency was reached at case 85 based on the third-order polynomial regression model for the highest-volume surgeon. Stratified analysis demonstrated that proficiency was achieved much earlier for less complex cases (PADUA <10), reaching the inflection point at case 45. Whereas highly complex tumors (PADUA ≥10) required an extended, volume-dependent learning phase, with proficiency reached at case 142.

CONCLUSIONS: Learning curve dynamics is strongly modulated by tumor complexity. The rapid acquisition of mastery for standard tumors (PADUA <10) sharply contrasts with the prolonged learning phase required for complex anatomy (PADUA ≥10). This pronounced disparity underscores the critical importance of progressive, complexity-stratified case selection during early robotic training.

SC76

Renal functional following angioembolization after partial nephrectomy

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BACKGROUND: Postoperative hemorrhage is a challenging complication after Partial Nephrectomy (PN). Angiographic Embolization (AE) is a minimally invasive, kidney-sparing treatment that can effectively control active bleeding and pseudoaneurysms. However, its potential impact on long-term renal function is still debated. We hypothesized that patients requiring AE after PN would exhibit similar functional trajectories to matched non-embolized counterparts.

METHODS: Using our tertiary-center prospective PN registry (1997-2024), we identified cT1-2aN0M0 patients with paired kidneys who underwent postoperative AE. Each case was matched 1:5 to non-embolized controls with propensity score matching adjusting for age, baseline estimated Glomerular Filtration Rate (eGFR), comorbidities, ischemia time, and tumor characteristics. Renal function was evaluated using the CKD-EPI formula at baseline, postoperatively, 6 months, 1 year, and last follow-up. Linear regression assessed the association between AE and changes in eGFR over time.

RESULTS: Among 1896 PN patients, 22 (1.2%) underwent AE for postoperative bleeding. After matching, 132 patients were analyzed with comparable baseline features. Median age was 59 years (IQR 51-69), BMI 25.4 (IQR 23.4-27.5), lesion size 3.5 cm (IQR 2.5-4.5), and preoperative eGFR 57.3 mL/min/1.73 m² (IQR 50-75). Median follow-up was 47 months (IQR 22-86). CT findings revealed active bleeding in 8 cases (36%) and pseudoaneurysm in 14 (64%). Fourteen patients (64%) required transfusion. Recurrent bleeding occurred in 5 patients (22%): 2 underwent repeat embolization, 2 surgical revision, and 1 was managed conservatively. AE was not associated with eGFR decline at any timepoint: postoperative (Est -5.38; 95% CI -16.21-5.45; P=0.3), 6 months (Est -8.04; 95% CI -17.53-1.45; P=0.09), 1 year (Est -4.92; 95% CI -15.52-5.68; P=0.3), or last follow-up (Est -2.26; 95% CI -12.03-7.51; P=0.65).

CONCLUSIONS: Postoperative AE after PN is a safe and functionally neutral intervention, with no significant long-term impact on renal function compared to matched controls. These findings highlight the remarkable functional resilience of the contralateral kidney and support AE as an effective, kidney-preserving rescue strategy to manage post-PN bleeding. Future studies may explore whether early AE can further enhance recovery and minimize secondary surgical interventions.

SMART COMMUNICATION (SC77 - SC81)

Chirurgia dell'uretere e del retroperitoneo

SC77

Iatrogenic ureteral injuries after abdominal surgery: a systematic review from EAU endourology

SC78

Robot-assisted management of ureteral strictures: a multicenter experience

SC79

Reaching a unified agreement on success definition in surgery for ureteral stricture: a Delphi consensus on the comprehensive uretero-fecta outcome criteria

SC80

Drugs associated the most with retroperitoneal fibrosis: assessment of the 1969-2025 Food and Drug Administration (FDA) pharmacovigilance database

SC81

Single-port robot-assisted ureterolysis for retroperitoneal fibrosis: a less invasive path to functional recovery

SC77**Iatrogenic ureteral injuries after abdominal surgery: a systematic review from EAU endourology**

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BACKGROUND: To systematically evaluate management strategies and associated outcomes of iatrogenic ureteral injuries, focusing on clinical success, renal unit loss, and the need for subsequent endoscopic or reconstructive procedures.

METHODS: A pre-registered protocol (CRD420251184018) guided a comprehensive search of PubMed and EMBASE databases. Observational studies reporting outcomes of ≥ 20 patients treated for iatrogenic ureteral injury with complete data on followup were included. Risk of bias was assessed using ROBINS-I. Random-effects meta-analysis with PLOGIT transformation was applied, stratifying results by treatment type and timing. Meta-regression examined the association of treatment modality with outcomes adjusting for the timing of reconstruction.

RESULTS: Thirty-four studies were included (1517 patients), all retrospective and characterized by substantial heterogeneity in definitions and follow-up practices. ROBINS-I indicated serious risk of bias in most domains. The pooled clinical success rate was 87% (95% CI: 80-91%), with high heterogeneity $I^2 = 76.0\%$ due to different follow-up protocols, success outcomes, type and timing of management. Studies dominated by reconstructive procedures ($N=15$) had higher success (91% [95% CI, 84-95]), than those primarily using endoscopic techniques ($N=6$; 66% [95% CI, 58-73]). Renal unit loss occurred in 2.3% (95% CI: 1.5-3.6%). No difference in loss of renal unit were found. Additional endoscopic interventions were required in 3% (95% CI: 2-4%) and further reconstructive surgery in 5% (95% CI: 3-9%). Meta-regression showed endoscopic index management was associated with lower odds of success (OR 0.14; 95% CI: 0.05, 0.40) and higher need for further reconstruction (OR 5.64, 95% CI: 1.61, 19.8).

CONCLUSIONS: Across retrospective and heterogeneous studies, reconstructive-dominant management of iatrogenic ureteral injuries was associated with higher clinical success compared with endoscopic-dominant approaches, while renal unit loss remained uncommon. Endoscopic management was feasible in selected cases but was more frequently followed by additional endoscopic or reconstructive interventions.

SC78**Robot-assisted management of ureteral strictures: a multicenter experience**

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BACKGROUND: Ureteral strictures are a challenging condition that may impair renal function and quality of life. Robot-assisted ureteral reconstruction (RAUR) has expanded minimally invasive reconstructive options. The aim of this study was to report a multicenter experience with RAUR,

identify predictors of surgical failure, and compare outcomes between buccal mucosa graft (BMG) and vesical mucosa graft (VMG) ureteroplasty.

METHODS: We retrospectively analyzed patients undergoing RAUR for benign ureteral strictures at three tertiary referral centers between January 2018 and November 2025. Demographic, perioperative, and outcome data were collected. Surgical success was defined as successful stent removal, radiological resolution of obstruction, and symptom improvement without further intervention. Multivariate analysis was performed to identify predictors of failure. A comparative analysis between BMG and VMG ureteroplasty was conducted.

RESULTS: A total of 56 patients were included, with a median stricture length of 3 cm (IQR 2-4). Reconstructive procedures included ureteral reimplantation in 16 patients (28.6%), VMG ureteroplasty in 16 (28.6%), BMG ureteroplasty in 12 (21.4%), ureteroureterostomy in 6 (10.7%), ileal ureter substitution in 3 (5.4%), ureterocalicostomy in 2 (3.6%), and peritoneal flap reconstruction in 1 (1.8%). Overall surgical success was achieved in 83.9% of cases, with a failure rate of 16.1%. Radiological and clinical success rates were 87.5% and 89.3%, respectively. On multivariate analysis, stricture length was the only independent predictor of failure. In comparative analysis, VMG and BMG ureteroplasty showed similar success rates (93.8% vs. 91.7%; $P=1.000$). VMG was associated with significantly shorter operative time compared to BMG (141 vs. 202 min; $P<0.001$), despite longer strictures in the VMG group.

CONCLUSIONS: RAUR is an effective minimally invasive option for ureteral stricture management. Surgical outcomes are primarily influenced by stricture length. BMG and VMG ureteroplasty provide comparable functional outcomes, with VMG offering a potential advantage in operative time.

SC79**Reaching a unified agreement on success definition in surgery for ureteral stricture: a Delphi consensus on the comprehensive uretero-fecta outcome criteria**

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BACKGROUND: There is currently no consensus on how to define treatment success following surgery for ureteric stricture, resulting in inconsistent reporting and limited comparability across studies, which often leads to biased outcomes. Recent research has shown that the definition of success plays a crucial role in determining reported "success rates." With the established use of tri- and penta-fecta outcomes in urologic oncology and the lack of standardized metrics for ureteral surgery, our goal was to develop a trifecta framework for ureteral reconstruction, termed the uretero-fecta. There is currently no consensus on how to define treatment success following surgery for ureteric stricture, resulting in inconsistent reporting and limited comparability across studies, which often leads to biased outcomes. Recent research has shown that the definition of success plays a crucial role in determining reported "success rates." With the established use of tri- and penta-fecta outcomes in urologic oncology and the lack of standardized metrics for ureteral surgery, our goal was to develop a trifecta

framework for ureteral reconstruction, termed the uretero-fecta. There is currently no consensus on how to define treatment success following surgery for ureteric stricture, resulting in inconsistent reporting and limited comparability across studies, which often leads to biased outcomes. Recent research has shown that the definition of success plays a crucial role in determining reported “success rates.” With the established use of tri- and penta-fecta outcomes in urologic oncology and the lack of standardized metrics for ureteral surgery, our goal was to develop a trifecta framework for ureteral reconstruction, termed the uretero-fecta.

METHODS: This Delphi-based consensus process on uretero-fecta outcomes was conducted under the leadership of the Trauma and Reconstructive Urology Working Party of the EAU Young Academic Urologists. A panel of expert reconstructive urologists from international groups, including TURNS, ESGURS and GURS, assessed a list of outcome measures for ureteral stricture surgery using a Likert scale ranging from 1 (not important) to 9 (extremely important). The central question posed to participants was, “What are the key objectives you seek to achieve when performing a ureteral reconstruction for urethral stricture?” In the initial round, participants rated the outcomes, provided comments, and suggested modifications. Only those criteria that received a rating of 7-9 from $\geq 70\%$ of participants and ≤ 3 from $\leq 15\%$ advanced to the subsequent round.

RESULTS: Out of the 108 experts invited to participate, 87 (78.7%) completed the first round, and 66 of the 87 (75.8%) continued on to complete the second round. After round 1, eight items progressed to the next stage, and in round 2, three items met the consensus threshold. The final uretero-fecta criteria for comprehensive reporting of outcomes in ureteral reconstruction include: 1) reservation of renal function. Avoid progressive loss of renal function (evaluated by serum creatinine and/ or nuclear imaging). 2) Absence of stricture recurrence (assessed with pyelogram or uro-CT or ureteroscopy). Long-term ureteral patency without need for re-intervention. 3) Durable symptom relief. Sustained improvement or resolution of preoperative symptoms such as flank pain, recurrent urinary tract infections, or obstructive urinary symptoms.

CONCLUSIONS: By employing a standardized Delphi consensus approach, we have delineated three fundamental uretero-fecta criteria (the ureteral stricture trifecta) for reporting outcomes after ureteral surgery/reconstruction. The adoption of the uretero-fecta as a global benchmark will enhance the consistency and quality of research, promoting robust, multi-center studies and guiding the creation of evidence-based recommendations aimed at improving patient outcomes.

SC80

Drugs associated the most with retroperitoneal fibrosis: assessment of the 1969-2025 Food and Drug Administration (FDA) pharmacovigilance database

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BACKGROUND: Retroperitoneal fibrosis (RPF) is a rare fibroinflammatory disorder characterized by the development of fibrotic tissue around the abdominal aorta, often leading to ureteral entrapment and renal dysfunction. Several phar-

macological agents have been implicated as potential triggers. Despite scattered case reports and limited series, comprehensive quantitative assessments of drug-related RPF signals remain scarce. This study aimed to identify and quantify signals of disproportionate reporting of RPF associated with specific medications using data from a large pharmacovigilance database.

METHODS: The FDA Adverse Event Reporting System (FAERS) was queried from 1969 to 2025 to identify RPF-related adverse event reports. Drugs associated with more than twenty RPF reports were included in a disproportionality analysis; this threshold was arbitrarily defined to focus on medications with a relatively higher volume of reports and to ensure adequate statistical power and reduce noise from underreported associations. For each, the Reporting Odds Ratio (ROR), 95% Confidence Intervals (CI), Proportional Reporting Ratio (PRR), Chi-square values, and P values were calculated. A signal was considered statistically significant when $PRR > 2$, $Chi-square > 4$, and $P < 0.05$.

RESULTS: A total of 1,013 RPF cases were identified. Of these, 392 (38.7%) were linked to twelve drugs, each associated with more than twenty RPF reports. Methysergide showed the strongest association (ROR: 5332.28; 95% CI: 4292.96-6623.21; PRR: 4604.65; Chi-square: 429546.30; $P < 0.0001$), followed by Pergolide (ROR: 923.85; 95% CI: 686.60-1243.09; PRR: 897.76; Chi-square: 40148.64; $P < 0.0001$) and Bromocriptine (ROR: 311.30; 95% CI: 224.78-431.13; PRR: 308.26; Chi-square: 11201.91; $P < 0.0001$). Several widely used medications such as Bisoprolol, Atenolol, and Metformin also showed significant, though less pronounced, associations ($P < 0.0001$). The remaining drugs included Etanercept, Prednisone, Rituximab, Propranolol, and Cyclophosphamide, all of which exhibited significant levels of disproportionate reporting ($P < 0.0001$).

CONCLUSIONS: This analysis identified multiple drugs disproportionately associated with reports of RPF, including some with established safety profiles. Though limited by the observational nature of FAERS data, these findings suggest possible drug-induced patterns deserving clinical attention and further investigation.

SC81

Single-port robot-assisted ureterolysis for retroperitoneal fibrosis: a less invasive path to functional recovery

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BACKGROUND: To evaluate the outcomes of an initial series of single-port robot-assisted ureterolysis (SP-RAU) in patients with retroperitoneal fibrosis (RPF).

METHODS: We prospectively collected surgical and clinical data from all consecutive patients undergoing SP-RAU at our institution between April 2016 and May 2024. The primary endpoint was the achievement of a stent-free status at 12 months.

RESULTS: Overall, 16 patients (21 renal units) underwent SP-RAU with a minimum follow-up of 12 months. All 5 patients with bilateral disease were managed with a staged approach in two separate surgical sessions. RPF was idiopathic in 37% and secondary in 62% of cases. Four procedures

ABSTRACT

(19%) were aborted due to extensive fibrosis or high vascular risk (1 unilateral right, 2 unilateral left, and 1 second-stage left unit). These patients had significantly longer preoperative stent duration (60 vs. 9 months; $P=0.006$). Among the 17 completed procedures, no open conversions, intraoperative complications, or transfusions occurred. Median operative time was 215 min (IQR 195-240) and median blood loss was 10 mL (IQR 10-20). Median length of stay was 11.5 h (IQR 7.8-26), with 52% of patients discharged the same day. At a median follow-up of 25 months (IQR 18-50), complete symp-

tom resolution was achieved in 82% of renal units, while 64% remained stent-free at 12 months. The main limitations are the small sample size, single-surgeon experience, and absence of a comparator arm.

CONCLUSIONS: SP-RAU is a safe and feasible minimally invasive option for managing RPF. It achieves good functional success with minimal morbidity and enables same-day discharge in over half of patients. Larger multicenter studies with longer follow-up are needed to confirm these findings and establish the role of SP-RAU in the management of RPF.

 SMART COMMUNICATION (SC82 - SC96)

IPB - MIST

SC82

Predicting minimal clinically important difference in LUTS after Aquablation: a preoperative factor analysis

SC83

Aquablation *versus* holep for the treatment of large-volume benign prostatic hyperplasia (>100 mL): a comparative study of functional and peri-operative outcomes

SC84

Five-year decisional regret after Aquablation for benign prostatic hyperplasia: prevalence, predictors, and association with long-term functional outcomes

SC85

Long-term outcomes of Aquablation for BPH: a single-center 5-year experience

SC86

Perioperative profile and determinants of procedural complexity during Aquablation: a multicenter cohort

SC87

Patient-reported decisional regret after Aquablation: a prospective single-center study with early and mid-term functional outcomes

SC88

Man *versus* robot: comparative urinary and sexual outcomes of ejaculation-sparing endoscopic photoselective vaporization of the prostate and Aquablation for the treatment of patients with benign prostatic obstruction

SC89

Functional and sexual outcomes of convective

water vapor therapy *versus* waterjet ablation in patients with large-volume prostates (>80 mL): a multicenter study

SC90

Discordance between objective and patient-reported outcomes after Rezūm therapy: implications for defining clinical success

SC91

Rezūm failure

SC92

Efficacy and safety of Rezūm therapy stratified by prostate volume: functional outcomes and sexual preservation from a single-center experience

SC93

Functional and sexual middle-term outcomes following transperineal laser ablation (TPLA) *vs.* TURP for benign prostatic obstruction: a randomized trial

SC94

Transperineal laser ablation (TPLA) for benign prostatic obstruction: a large prospective single-center real-world experience

SC95

Expected outcomes of prostatic artery embolization in elderly and frail patients: clinical anatomy and technical details

SC96

Predictors of pharmacological and surgical retreatment in patients undergone temporary implantable nitinol device (ITIND) procedure for BPO/LUTS: italian, real life, multicenter, extended follow-up study

SC82**Predicting minimal clinically important difference in LUTS after Aquablation: a preoperative factor analysis**

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BACKGROUND: Despite growing evidence supporting Aquablation as an effective and ejaculation-sparing option for symptomatic benign prostatic hyperplasia (BPH), reliable predictors of individual treatment success remain poorly characterized. Identifying preoperative factors linked to meaningful postoperative improvement is essential for refining patient selection and guiding surgical counselling. In this study, we sought to determine which baseline characteristics predict the achievement of a minimal clinically important difference (MCID) in lower urinary tract symptoms (LUTS) at 6 months after Aquablation.

METHODS: We reviewed data from 80 consecutive patients who underwent Aquablation for BPH between January 2023 and April 2025 at a single tertiary center by a single surgeon. All patients were assessed preoperatively and at 1, 3 and 6 months postoperatively using uroflowmetry and the International Prostate Symptom Score (IPSS). Preservation of antegrade ejaculation and urinary continence were recorded at each follow-up visit. MCID was defined as a $\geq 25\%$ reduction in IPSS from baseline. Logistic regression was employed to explore independent predictors of MCID achievement.

RESULTS: Median (IQR) age was 67 years (64-70), with a median prostate volume (PV) of 59 mL (45-79). Surgical complications (any Clavien grade) were recorded in 14 cases (17.5%). Baseline median IPSS was 21 (13-26) and median Qmax 9 mL/sec (7-12). MCID rates were 56.8%, 81.6% and 83.8% at 1, 3 and 6 months, respectively. Patients reaching MCID at 6 months presented with higher baseline IPSS (26 vs. 24, $P=0.01$) and smaller PV (49 vs. 67 mL, $P<0.01$). Antegrade ejaculation was preserved in 81.2% of patients at last follow-up. On multivariable analysis, baseline IPSS remained an independent predictor of MCID after adjusting for PV (OR 1.2, $P=0.01$). ROC analysis identified optimal thresholds of IPSS >21 (AUC 0.75) and PV <72 mL (AUC 0.77). A simple scoring system assigning 1 point for each favourable variable yielded positive predictive values of 33.3%, 85.7% and 94.4% for scores of 0, 1 and 2, respectively.

CONCLUSIONS: Aquablation offers sustained symptom relief with high rates of ejaculatory preservation. Baseline symptom burden and prostate volume independently predict meaningful functional improvement. Patients with IPSS >21 and PV <72 mL are most likely to achieve MCID, with a positive predictive value reaching 94.4% when both criteria are met. These thresholds may support clinical decision-making and help tailor preoperative expectations.

SC83**Aquablation versus holep for the treatment of large-volume benign prostatic hyperplasia (>100 mL): a comparative study of functional and perioperative outcomes**

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BACKGROUND: To compare the efficacy and safety of Aquablation (Aquabeam system) *versus* Holmium Laser Enucleation of the Prostate (HoLEP) in patients with benign prostatic hyperplasia (BPH) and prostate volumes >100 mL, focusing on functional outcomes, perioperative parameters, and complication rates.

METHODS: A retrospective comparative study was conducted on 130 patients treated between 2020 and 2024 for symptomatic BPH with prostate volume >100 mL. Of these, 62 underwent Aquablation and 68 underwent HoLEP. Baseline characteristics, including age (mean 59.4 ± 7.8 years vs. 73.1 ± 6.9 years, $P=0.62$) and prostate volume (mean 108.6 ± 14.2 mL vs. 119.3 ± 16.5 mL, $P=0.41$), were comparable between groups. Outcomes assessed included operative time, catheterization time, hospital stay, International Prostate Symptom Score (IPSS), maximum urinary flow rate (Qmax), post-void residual volume (PVR), hemoglobin drop, transfusion rate, and complications (Clavien-Dindo classification). Follow-up was performed at 1, 3, and 12 months.

RESULTS: Mean operative time was significantly shorter in the Aquablation group (32.3 ± 11.6 min) compared to HoLEP (58.9 ± 15.4 min). Catheterization time was similar between two groups (2.5 ± 0.5 days for Aquablation and 2.3 ± 0.7 days for HoLEP; hospital stay was 2.8 ± 0.6 vs. 2.1 ± 0.9 days. At 12 months, IPSS improved from 21.8 ± 5.2 to 7.2 ± 2.9 in the Aquablation group and from 25.1 ± 5.5 to 6.5 ± 2.7 in the HoLEP group. Qmax increased from 7.1 ± 2.3 to 19.6 ± 5.1 mL/s (Aquablation) and from 6.8 ± 2.0 to 31.2 ± 4.8 mL/s (HoLEP). PVR reduction was similar (-68% vs. -72%). Hemoglobin drop was higher in Aquablation (2.1 ± 0.8 g/dL vs. 1.4 ± 0.6 g/dL), with transfusion rates of 0% in both groups. Ejaculatory dysfunction occurred in 7.3% of Aquablation patients vs. 98.2% in HoLEP. Overall complication rates were 21.0% vs. 24.2%, mostly Clavien I-II.

CONCLUSIONS: Both Aquablation and HoLEP provide significant and comparable improvements in urinary symptoms and flow parameters in prostates >100 mL. Aquablation is associated with shorter operative and a significantly lower rate of ejaculatory dysfunction, at the cost of a higher hemoglobin drop. HoLEP demonstrates slightly greater functional improvement with lower bleeding risk. Procedure selection should consider patient priorities, particularly regarding sexual function and perioperative risk.

SC84**Five-year decisional regret after Aquablation for benign prostatic hyperplasia: prevalence, predictors, and association with long-term functional outcomes**

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BACKGROUND: Aquablation is an established surgical option for benign prostatic hyperplasia (BPH), providing consistent functional improvement. However, long-term patient-reported outcomes, particularly decisional regret, remain insufficiently explored. As a measure of the alignment between expectations and perceived benefit, decisional regret represents a relevant endpoint in contemporary outcome

assessment. This study aimed to evaluate the prevalence and predictors of decisional regret 5 years after Aquablation, and to investigate its relationship with long-term functional outcomes.

METHODS: This prospective, single-arm study included consecutive patients undergoing Aquablation for symptomatic BPH starting in 2018. Functional outcomes were assessed using the International Prostate Symptom Score (IPSS) and the IPSS quality of life item (IPSS-QoL) at baseline and during follow-up up to 5 years. At the 5-year evaluation, patients completed the Decision Regret Scale (DRS). Clinically significant regret was defined as a DRS score ≥ 25 . The primary endpoint was the proportion of patients reporting significant regret. Secondary endpoints included mean DRS score and its correlation with changes in IPSS and IPSS-QoL. Predictors of regret were explored using multivariable logistic regression, and correlations were assessed with Spearman's rho.

RESULTS: Among 73 patients with available long-term follow-up, 52 completed the DRS at 5 years. Mean age was 68 ± 7 years and median prostate volume 68.2 ± 15.7 mL. Significant and sustained improvements were observed in IPSS (Δ IPSS: -18.5 ± 6.2 , $P < 0.001$) and IPSS-QoL (Δ QoL: -3.4 ± 1.2 , $P < 0.001$). The mean DRS score was 17.9 ± 12.6 , with 32.6% of patients reporting significant regret (DRS ≥ 25). Patients with regret showed significantly lower improvements in both IPSS and QoL ($P < 0.05$). A moderate correlation was found between Δ IPSS-QoL and DRS ($\rho = 0.36$, $P = 0.004$). On multivariable analysis, independent predictors of regret included lower QoL improvement (OR 1.8, $P = 0.01$), new onset of LUTS (OR 2.3, $P = 0.02$), and postoperative complications (OR 2.0, $P = 0.03$). The main reported drivers of regret were insufficient symptom relief (23.5%), late relapse of lower urinary symptoms (LUTS) (52.9%), and loss of antegrade ejaculation (23.5%).

CONCLUSIONS: At 5 years, decisional regret after Aquablation is relatively uncommon but not negligible. Regret is primarily driven by suboptimal symptom improvement, loss of antegrade ejaculation and late relapse of LUTS. These findings emphasize the importance of integrating patient-reported outcomes into long-term evaluation and highlight the role of preoperative counseling and expectation management in reducing decisional regret.

SC85

Long-term outcomes of Aquablation for BPH: a single-center 5-year experience

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BACKGROUND: To report long-term functional outcomes and surgical retreatments rate in patients with BPH-related LUTS underwent Aquablation, with a follow-up extended to 5 years in a single-center prospective cohort.

METHODS: From October 2018, consecutive patients with BPH-related LUTS, International Prostate Symptom Score (IPSS) ≥ 10 , maximum urinary flow rate (Qmax) ≤ 12 mL/s, and prostate volume < 80 mL were prospectively enrolled to undergo Aquablation. Demographics, perioperative variables, and postoperative complications (classified according to Clavien-Dindo) were collected. Functional outcomes

were assessed up to 60 months using uroflowmetry, post-void residual volume (PVR), IPSS, IPSS-QoL, Sexual Health Inventory for Men (SHIM), Male Sexual Health Questionnaire for ejaculatory dysfunction (MSHQ-EjD), and Incontinence Severity Index (ISI). Surgical retreatment during follow-up was recorded.

RESULTS: A total of 73 patients reached the 5 years follow-up endpoint. Mean age was 65 ± 6 years and mean prostate volume was 65.2 ± 15.6 mL. Preoperative median (IQR) IPSS and QoL scores were 21 (17-23) and 4 (4-5), respectively, while mean (SD) Qmax and PVR were 8.4 (2.4) mL/s and 76.5 (58) mL. At 5 years, Aquablation demonstrated sustained functional improvement. Mean IPSS improvement was -14.5 ± 3.2 ($P < 0.001$), with corresponding improvement in IPSS-QoL (-3.1 ± 1 , $P < 0.001$). Mean Qmax improved and remained stable over time, reaching 17.3 ± 6.1 mL/s at 60 months, while mean PVR significantly decreased. Sexual function was preserved in the vast majority of patients, with only a small proportion (5 patients, 6.8%) reporting loss of antegrade ejaculation. No cases of de novo erectile dysfunction or urinary incontinence were observed. MSHQ-EjD scores showed a slight, non-significant improvement during follow-up. Surgical retreatment was required in 2/73 patients (2.7%) over the 5-year period.

CONCLUSIONS: Aquablation provides durable and clinically meaningful improvements in urinary symptoms and quality of life up to 5 years. The procedure is associated with a limited need for retreatment and excellent preservation of sexual and urinary function. These findings support Aquablation as a reliable long-term treatment option for BPH-related LUTS.

SC86

Perioperative profile and determinants of procedural complexity during Aquablation: a multicenter cohort

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BACKGROUND: Aquablation is an image-guided, robotically executed treatment for lower urinary tract symptoms due to benign prostatic enlargement. While functional efficacy has been demonstrated in prospective studies, perioperative burden and procedural efficiency remain highly relevant in daily practice, especially for centers approaching adoption of the technique. We therefore aimed to evaluate perioperative outcomes and predictors of operative time in a two-center cohort.

METHODS: We performed a two-center observational analysis of consecutive patients treated with Aquablation. Baseline demographic and clinical variables, perioperative parameters, catheterization time, length of stay, hemoglobin variation, and postoperative complications were collected. Postoperative complications were graded according to the Clavien-Dindo classification. Multivariable linear regression analysis was performed to identify predictors of operative time, including age, preoperative indwelling catheter, Charlson Comorbidity Index, hemostatic transurethral resection, prostate volume, and surgeon. Functional follow-up at 3 and 6 months was analyzed descriptively in patients with available data.

RESULTS: Seventy-four patients were included. Baseline

median (interquartile range) age was 60 years (55-65) and prostate volume was 70 mL (50-80). Median operative time was 50 minutes (40-60), catheterization time was 4 days (3-6), and length of stay was 4 days (3-5). Median preoperative and postoperative hemoglobin were 14.45 g/dL (13.55-15.38) and 13.10 g/dL (12.33-14.15), respectively, with a median hemoglobin drop of 1.00 g/dL (0.40-1.78). Hemostatic transurethral resection occurred in 4/74 patients each (5.4%), while postoperative complications occurred in 11/74 patients (15%). According to Clavien-Dindo classification, grade I, II and III complications were observed in 3 (4.1%), 4 (5.4%) and 4 (5.4%) patients, respectively. On multivariable analysis, prostate volume was independently associated with longer operative time (beta 0.24, 95% confidence interval 0.07-0.41; $P=0.007$), while surgeon was also associated with operative time variability. Among patients with available follow-up at 3 and 6 months, urinary outcomes improved and sexual outcomes remained substantially stable.

CONCLUSIONS: In this two-center real-world experience, Aquablation was associated with a favorable perioperative profile, limited hemoglobin drop, low rates of intraoperative adverse events, and predominantly low-grade postoperative morbidity. Larger prostate volume was independently associated with longer operative time, supporting its role as a predictor of procedural complexity. Functional improvements were maintained in patients with available follow-up.

SC87

Patient-reported decisional regret after Aquablation: a prospective single-center study with early and mid-term functional outcomes

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BACKGROUND: Aquablation is increasingly adopted for the surgical treatment of lower urinary tract symptoms due to benign prostatic enlargement because it offers effective anatomical deobstruction while potentially preserving sexual function. Nevertheless, objective functional improvement does not necessarily translate into complete patient satisfaction, and data on decisional regret after Aquablation are still limited. We therefore assessed early functional results and decisional regret in a prospective single-center series.

METHODS: We performed a prospective single-center analysis of consecutive patients undergoing Aquablation at Center 1 between April 2025 and March 2026. Baseline demographic, perioperative and postoperative variables were collected. Functional outcomes included International Prostate Symptom Score (IPSS), maximum urinary flow rate (Qmax), International Index of Erectile Function-5 (IIEF-5), and Male Sexual Health Questionnaire for Ejaculatory Dysfunction (MSHQ). Decisional regret was assessed using the Decision Regret Scale (DRS), converted to a 0-100 score. Paired preoperative *versus* postoperative comparisons at 3 months were performed using the Wilcoxon signed-rank test in patients with complete follow-up, while 6-month data were analyzed descriptively in the available subgroup.

RESULTS: Fifty-seven patients underwent Aquablation, 31 had available Decision Regret Scale data. Baseline median (interquartile range) age was 56 years (52-62), Charlson Comorbidity Index was 2 (2-3), and prostate volume was 64 mL (46-80), an indwelling catheter was present preoperatively

in 11/31 patients (35%). Decision Regret Scale assessment was collected at 3 months in 15 patients and at 6 months in 16 patients. At 3 months, median IPSS improved from 23 (18-27) to 5.5 (4-15) ($P<0.001$), while Qmax increased from 5.0 (0.0-7.9) to 17.2 (11.4-21.9) mL/s ($P<0.001$). Erectile and ejaculatory function remained stable, with no significant changes in IIEF-5 or MSHQ for Ejaculatory Dysfunction. In the subgroup with available 6-month follow-up, improvements in urinary outcomes were maintained. Median DRS was 25 (10-37.5), and 17/31 patients (54.8%) had a score greater than or equal to 25. Regret appeared higher when assessed at 6 months than at 3 months, with median scores of 32.5 (23.75-40) and 15.0 (2.5-25), respectively ($P=0.053$).

CONCLUSIONS: In this single-center experience, Aquablation provided significant early improvement in urinary symptoms and urinary flow, while preserving erectile and ejaculatory function. Despite these favorable functional outcomes, a relevant proportion of patients reported decisional regret, highlighting the importance of preoperative counseling and postoperative expectation management.

SC88

Man versus robot: comparative urinary and sexual outcomes of ejaculation-sparing endoscopic photoselective vaporization of the prostate and Aquablation for the treatment of patients with benign prostatic obstruction

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BACKGROUND: Man *versus* Robot: comparative urinary and sexual outcomes of Ejaculation-Sparing endoscopic Photoselective Vaporization of the Prostate and Aquablation for the treatment of patients with Benign Prostatic Obstruction.

METHODS: Sexually active BPO patients (pts) undergoing Aquablation or ESa-PVP surgery at two referral centers were investigated. Baseline, perioperative and follow-up data were collected. Validated questionnaires (IPSS, QoL, IIEF5, MSHQ-SF) were administered. Follow-up timepoints were established at 1, 3 and 12 months. The primary endpoint of the study was the rate of antegrade ejaculation preservation at 3 months. A multivariable logistic regression analysis was performed to define predictors of ejaculation preservation. Statistics (software STATA19): χ^2 , Mann-Whitney, logistic regression analysis.

RESULTS: Globally, 182 pts including 80 Aquablation and 102 ESa-PVP were analyzed. Complete questionnaire scores were available for 168 pts. At baseline, ESa-PVP pts were younger (61.5 vs. 67 years, $P<0.001$), with bigger prostate volumes (81 vs. 59 cc, $P<0.001$) and a better quality of ejaculation (MSHQ-SF 14.5 vs. 8.5, $P=0.010$). Conversely, they had similar IPSS values (20 vs. 19, $P=0.755$) and preoperative antegrade ejaculation crude rates to Aquablation pts (75% vs. 86%, $P=0.327$). Median surgery time was shorter for Aquablation (44 vs. 60 min, $P<0.001$), while the length of catheter time (2 vs. 1 days, $P<0.001$) and hospital stay (3 vs. 1 days, $P<0.001$) favored PVP. No significant differences in surgical complications were observed, with a very low rate of high-grade complications on both sides (1.2% vs. 0.9%). The ESa-PVP yielded lower post-operative IPSS scores at 1, 3 and 12 months (3, 2, 3 vs. 11, 7, 6 points, $P<0.001$). Aquablation pts reported higher rates of post-operative antegrade ejacula-

tion (75% vs. 67%, $P=0.3$), with similar MSHQ-SF scores at any timepoint (13, 12, 12 vs. 12, 11, 10 points, $P>0.05$). The multivariable analysis revealed the surgical technique as the only independent predictor of postoperative antegrade ejaculation, favoring Aquablation over PVP.

CONCLUSIONS: Aquablation and ESa-PVP are safe and effective ejaculation-preserving surgical techniques, to be offered to sexually active BPO pts. Aquablation, as a reproducible “robotic” technique, could facilitate the achievement of antegrade ejaculation preservation, while the ESa-PVP offered an optimal compromise between obstruction relief and sexual function preservation, when performed by experienced surgeons.

SC89

Functional and sexual outcomes of convective water vapor therapy *versus* waterjet ablation in patients with large-volume prostates (>80 mL): a multicenter study

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BACKGROUND: Waterjet ablation of prostate (Aquablation) and convective Water Vapor Thermal Therapy (Rezūm) have demonstrated promising functional outcomes in patients with medium sized prostates, but evidence in larger volumes (>80 mL) are lacking. This study aimed to evaluate the efficacy and safety of Rezūm *versus* Aquablation in men with large prostates.

METHODS: We conducted a multicenter comparative study between 01.2023 and 02.2025, including BPH patients with prostate volume (PV) ≥ 80 mL undergoing Aquablation or Rezūm. Patient evaluation was performed at baseline, 3, 6, and 12 months after surgery with uroflowmetry, International Prostate Symptom Score (IPSS) and International Index of Erectile Function (IIEF-EF). Ejaculation presence and urinary continence were assessed at each time point. Post-operative complications were assessed using the Clavien-Dindo (CD) classification. Descriptive statistics and linear/logistic regression models were used to investigate predictors of functional outcomes. Propensity score matching was used to address baseline differences between groups.

RESULTS: After matching, 225 patients were enrolled. Median (IQR) patient's age and PV were 65 (59-69) years and 100 (90-120) mL. In both groups, median IPSS and flow max scores showed statistically significant improvements compared to baseline (all $P<0.01$). The IPSS score was significantly lower in the Aquablation group compared to the Rezūm group at every time point (all $P<0.01$). Eleven (10.4%) patients in the Aquablation group and 9 (8.5%) in the Rezūm group experienced at least one complication CD grade I-II ($P=0.3$). Blood transfusion and surgical hemostasis were reported in 3 cases (2.6%) and in 1 (0.8%) case after Aquablation, while no patients with Rezūm group had bleeding complications. Antegrade ejaculation was higher in Rezūm group at 3 months (96% vs. 79%, $P=0.01$) but was similar between the 2 groups at 6 months (95.7% vs. 87.5%, $P=0.1$) and 12 months (91.1% vs. 85.7%, $P=0.2$) follow-up. Urge urinary incontinence was more frequent after Aquablation than Rezūm (24% vs. 6.9%, $P=0.02$) at 3 months, but this rate was similar between groups at 6 and 12 months. Surgical retreatment with TURP

was required in 2 patients (2.1%) in the Aquablation group at a median of 9 months and in 3 patients (3.3%) in the Rezūm group at 15 months ($P=0.5$). Multivariable linear regression analysis showed that Aquablation was associated with better IPSS scores at 12 months (beta -1.9, $P=0.001$), even after accounting for age, PV and baseline IPSS. Conversely, only age (OR 0.8, $P=0.03$) was associated with antegrade ejaculation at 12 months, whereas the type of the surgical procedure was not.

CONCLUSIONS: Both Aquablation and Rezūm improve urinary parameters in patients with BPH and large prostates. Aquablation demonstrated superior and more rapid symptom relief compared to Rezūm, as reflected by lower IPSS scores, while both procedures effectively preserved antegrade ejaculation.

SC90

Discordance between objective and patient-reported outcomes after Rezūm therapy: implications for defining clinical success

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BACKGROUND: To evaluate the concordance between objective and patient-reported outcomes after Rezūm therapy and to assess the implications of different definitions of clinical success.

METHODS: We retrospectively analyzed patients undergoing Rezūm therapy for benign prostatic hyperplasia. Outcomes were assessed at 12 and 24 months. Changes from baseline were calculated for Maximum urinary flow rate (Qmax), International Prostate Symptom Score (IPSS), and quality of life (QoL). Treatment success was defined as an increase in Qmax ≥ 3 mL/s, a reduction in IPSS ≥ 5 points, and an improvement in QoL ≥ 1 point. Agreement between outcomes was evaluated using paired contingency tables and McNemar's test.

RESULTS: Overall, 159 patients were included. At 12 months, success rates were 79.0% for Qmax, 88.8% for IPSS, and 95.5% for QoL. At 24 months, Qmax success decreased to 73.6%, whereas IPSS and QoL remained stable at 89.9% and 96.8%, respectively. At 24 months, discordance between Qmax and IPSS was observed in 27.7% of patients, and between Qmax and QoL in 24.0%. In discordant cases, symptomatic improvement without objective improvement was more frequent than the opposite (35 vs. 9 for IPSS Score; 37 vs. 1 for QoL). McNemar's test confirmed significant asymmetry for both comparisons ($P=0.000164$ and $P<0.001$, respectively).

CONCLUSIONS: A substantial proportion of patients show discordance between objective and patient-reported outcomes after Rezūm therapy, with a consistent predominance of symptomatic improvement over objective flow changes. Qmax alone is insufficient to define treatment success and may not adequately reflect patient-perceived benefit.

SC91

Rezūm failure

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BACKGROUND: Water vapor thermal therapy (Rezūm™) represents a minimally invasive treatment for lower urinary tract symptoms (LUTS) secondary to benign prostatic hyperplasia (BPH), with the advantage of preserving sexual function. Nevertheless, a relevant proportion of patients experience treatment failure, requiring additional medical or surgical intervention. Identification of predictors of Rezūm failure is essential to improve patient selection and optimize clinical outcomes. This study aimed to identify the factors associated with Rezūm failure.

METHODS: This prospective multicenter observational study included patients undergoing Rezūm therapy for BPH-related LUTS between January 2021 and January 2025. Baseline variables included age, prostate volume, presence of a median lobe, baseline IPSS, quality of life (QoL) score, maximum urinary flow rate (Qmax), PVR, PSA, and history of acute urinary retention (AUR). Treatment failure was defined as persistence or recurrence of moderate-to-severe LUTS (IPSS ≥ 12), need for BPH-related re-treatment (medical or surgical), or prolonged postoperative urinary retention (>30 days). Univariate and multivariate logistic regression analyses were performed to identify predictors of failure.

RESULTS: A total of 140 patients were included, with a median follow-up of 24 months (IQR 18-30). Mean age was 65.8 ± 14.2 , and mean prostate volume was 64.4 ± 16.6 mL. A median lobe was present in 35.2% of patients, and 30.2% had a history of preoperative AUR. Overall, Rezūm failure occurred in 38 patients (27.1%). On univariate analysis, prostate volume >80 mL ($P<0.001$), baseline IPSS ≥ 25 ($P=0.01$), PVR >150 mL ($P<0.001$), presence of a median lobe ($P=0.02$), and prior AUR ($P=0.004$) were significantly associated with treatment failure. On multivariate analysis, prostate volume >80 mL (OR 3.12, 95% CI 1.54-6.31; $P=0.002$), baseline PVR >150 mL (OR 2.74, 95% CI 1.33-5.66; $P=0.006$), and history of preoperative AUR (OR 2.48, 95% CI 1.14-5.39; $P=0.02$) emerged as independent predictors of Rezūm failure. Age, PSA, baseline Qmax, and median lobe presence did not retain statistical significance.

CONCLUSIONS: Nearly one-third of patients experienced Rezūm treatment failure during mid-term follow-up. Larger prostate volume, elevated baseline PVR, and a history of acute urinary retention were independent predictors of treatment failure. Thorough preoperative assessment of prostate size and bladder function is crucial to optimize patient selection for Rezūm therapy and to ensure accurate pre-treatment counselling.

SC92

Efficacy and safety of Rezūm therapy stratified by prostate volume: functional outcomes and sexual preservation from a single-center experience

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BACKGROUND: To evaluate the efficacy and safety of Rezūm water vapor therapy in patients with lower urinary tract symptoms (LUTS) due to benign prostatic hyperplasia (BPH), stratifying outcomes according to preoperative prostate volume measured by transrectal ultrasound (TRUS), with particular focus on functional results and preservation of sexual function.

METHODS: We retrospectively analyzed our institu-

tional database including 177 consecutive patients treated with Rezūm. Patients were stratified into groups based on baseline prostate volume assessed by TRUS (<60 mL, 60-80 mL, >80 mL). Variables included age, IPSS, prostate volume, IIEF, and MSHQ-EjD. Follow-up was performed at 3, 6, and 12 months. Primary endpoints were IPSS changes according to prostate volume groups. Secondary endpoints included prostate volume reduction, sexual function outcomes, and retreatment rates.

RESULTS: The mean age was 63.1 years, with a mean baseline prostate volume of 64 mL. Significant LUTS improvement was observed in all groups. Patients with smaller prostates showed faster IPSS reduction, while larger prostates showed gradual but significant improvement. Mean IPSS decreased from 22.2 to 13.4 at 6 months and 12.5 at 12 months. Prostate volume decreased in all groups. Sexual function was preserved: no significant changes in IIEF, and MSHQ confirmed maintenance of ejaculatory function. Retreatment rates were low.

CONCLUSIONS: Rezūm is an effective and minimally invasive treatment for LUTS due to BPH across different prostate volumes. Larger glands may show slower improvement, but outcomes remain significant and durable. The procedure preserves erectile and ejaculatory function, supporting its use as a safe alternative to more invasive treatments.

SC93

Functional and sexual middle-term outcomes following transperineal laser ablation (TPLA) vs. TURP for benign prostatic obstruction: a randomized trial

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BACKGROUND: Benign prostatic hyperplasia (BPH) has a significant impact on patients' quality of life, affecting both urinary and sexual function. EAU guidelines on male LUTS recommend randomized controlled trials with the referral technique transurethral resection of the prostate (TURP), in order to set new minimally invasive therapies in the therapeutic algorithm. Aim of the study is to compare functional results of transperineal interstitial laser ablation (TPLA) of the prostate with TURP.

METHODS: In this prospective and randomized study, consecutive patients with an indication for surgical treatment of benign prostatic obstruction were enrolled between March 2024 and April 2025. Participants were randomly assigned to one of two treatment arms: Group A, which received TPLA, and Group B, which underwent TURP in a 1:2 ratio. The following parameters were compared: preservation of ejaculation using the Male Sexual Health Questionnaire – Ejaculatory Function domain (EJ-MSHQ) before the surgery and at 6 months post-surgery; improvement in maximum urinary flow rate (Qmax) at 1, 3 and 6 months (Qmax); and symptom relief (International Prostate Symptom Score improvement) at 1, 3 and 6 months.

RESULTS: Seventy-seven patients (27 (33.3%) TPLA vs. 50 (66.7%) TURP) were analysed. No differences in terms of preoperative prostate volume, PSA value, Qmax and post-voided residual (PVR) were observed. TPLA is less efficient in disobstruction, a statistically significant difference between

the treatment groups was found in terms of postoperative Qmax at 6 months (TPLA vs. TURP: 10.3 mL/s vs. 20.0; $P < 0.001$). TPLA achieved 48.3% reduction of symptoms: in terms of IPSS at 6 months, there was a mean decrease of 9.8 after TPLA (95% CI 4.7-13.9), vs. 78% reduction of symptoms in Group B who underwent TURP. The distribution of ejaculatory function assessed by the EJ-MSHQ remained unmodified after TPLA ($P = 0.2$), while a median 50% decrease in EJ-MSHQ score was observed after TURP ($P = 0.001$). Absence of antegrade ejaculation in Group A (TPLA) was reported in 3.7% (1 patient).

CONCLUSIONS: In our study, TPLA providing a relief from bladder outlet obstruction but less than TURP. However TPLA surgery takes a significant symptoms reduction while preserving ejaculation in almost all patients and most of all the complete urinary continence since the catheter removal. In our opinion, these results show that, as with medical treatment, TPLA is a valid option in all patients for whom surgery is not mandatory and who are interested in maximally preserving sexual function.

SC94

Transperineal laser ablation (TPLA) for benign prostatic obstruction: a large prospective single-center real-world experience

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BACKGROUND: Transperineal laser ablation (TPLA) of the prostate is an emerging minimally invasive treatment for lower urinary tract symptoms (LUTS) secondary to benign prostatic obstruction (BPO). This study reports real-world safety, functional, and sexual outcomes in a large prospective single-center cohort.

METHODS: After Institutional Review Board approval, patients undergoing TPLA were prospectively enrolled in a dedicated registry. All procedures were performed in an outpatient setting under local anesthesia. Outcomes were assessed using the International Prostate Symptom Score (IPSS), Quality of Life (QoL), International Index of Erectile Function (IIEF-5), and Male Sexual Health Questionnaire (MSHQ-3 items and bother score) at baseline and at 3, 6, 12 months, and last follow-up. Uroflowmetry parameters, including maximum flow rate (Qmax) and post-void residual (PVR), as well as complication and retreatment rates, were recorded. Treatment failure was defined as the need for any subsequent BPO surgery (endoscopic, open, robotic or MISTs).

RESULTS: A total of 279 patients underwent TPLA between April 2021 and March 2026. Median age was 66 years, median prostate volume was 52 mL, and median follow-up was 13 months. All patient reported outcomes measures (PROMs) significantly improved at all time points. In particular median IPSS decreased from 18 at baseline to 8 at last follow-up ($P < 0.001$), while QoL improved from 4 to 1 ($P < 0.001$). MSHQ-3 score increased from 8 to 13 ($P < 0.001$). Similarly median Qmax improved from 10 mL/s at baseline to 14, 14, 15, and 15 mL/s at 3, 6, 12 months, and last follow-up, respectively. Antegrade ejaculation was preserved in all sexually active patients. Among 25 patients (8.9%) with indwelling catheter preoperatively, 14 (56%) regained spontaneous voiding after TPLA. Of the remaining 11 patients, 3

underwent endoscopic surgery, 1 underwent prostatic artery embolization (PAE), 2 underwent re-TPLA, 1 underwent robot-assisted simple prostatectomy and 4 patients maintained an indwelling catheter. 23 patients (8.2%) required subsequent surgical treatment for persistent LUTS, with 5 patients undergoing re-TPLA, resulting in a treatment-free rate at last follow-up of 91.8%. Overall, 7 patients experienced Clavien-Dindo grade ≥ 2 complications, including urinary tract infections in 5 patients (1.8%) and prostatic abscess in 2 patients (0.7%), both successfully managed with outpatient drainage.

CONCLUSIONS: TPLA appears to be a safe and effective minimally invasive option for men with symptomatic BPO, providing durable improvement in voiding symptoms and quality of life, while preserving ejaculatory function. Further comparative studies with standard surgical and other minimally invasive treatments are needed to define its role in the management of BPO.

SC95

Expected outcomes of prostatic artery embolization in elderly and frail patients: clinical anatomy and technical details

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BACKGROUND: To evaluate the clinical outcomes of prostatic artery embolization (PAE) in elderly and frail patients with benign prostatic enlargement (BPE), focusing on the impact of prostatic artery anatomy and procedural factors on treatment success.

METHODS: We retrospectively analyzed 44 consecutive patients who underwent PAE between January 2021 and December 2024 at a single tertiary center. Clinical success was defined as a reduction of at least 8 points in the International Prostate Symptom Score (IPSS) in patients without an indwelling bladder catheter, or successful catheter removal without recurrence in those with preprocedural catheterization. Baseline clinical features, procedural details, and arterial anatomy according to the University of São Paulo (USP) classification were recorded. Predictors of success were first assessed by univariate analysis and then explored in a multivariable logistic regression model including selected clinical and anatomical variables.

RESULTS: Median age was 79.5 years (IQR 74-83), median Charlson Comorbidity Index was 5.0 (IQR 4-6.2), and median prostate volume was 94 mL (IQR 60-149). Twenty-six patients (59%) had an indwelling bladder catheter before treatment. Overall clinical success was achieved in 56.8% of cases. Among patients without catheterization, median IPSS improved significantly from 25 to 15, corresponding to a median reduction of 10 points ($P < 0.001$). Prostate volume and postvoid residual also decreased significantly after treatment. Bilateral embolization was achieved in 62% of procedures and was the only independent predictor of therapeutic success at multivariable analysis (adjusted OR 3.9, 95% CI 1.1-14.2; $P = 0.03$). Charlson index was associated with outcome on univariate analysis but did not retain independent significance after adjustment. Prostatic artery origin variants according to the USP classification were not independently associated with clinical outcome. Minor complications occurred in 38.6% of patients, one major complication was observed, median

hospital stay was 1 day, and catheter removal was achieved after a median of 20 days.

CONCLUSIONS: PAE provides significant symptom improvement with a favorable minimally invasive profile in elderly and frail men with BPE. Bilateral embolization appears to be the main determinant of clinical success, whereas arterial anatomical variants, although crucial for procedural planning and safe navigation, do not seem to independently affect efficacy once complete embolization is achieved.

SC96

Predictors of pharmacological and surgical retreatment in patients undergone temporary implantable nitinol device (iTIND) procedure for BPO/LUTS: italian, real life, multicenter, extended follow-up study

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BACKGROUND: Lower urinary tract symptoms (LUTS) due to benign prostatic obstruction (BPO) are highly prevalent among aging men. Although transurethral resection of the prostate remains the standard surgical treatment, it may impair ejaculatory function and is associated with perioperative morbidity. The temporary implantable nitinol device (iTIND) has been introduced as a minimally invasive alternative aimed at relieving LUTS while preserving ejaculatory function. We evaluated functional outcomes, rate of pharmacological and surgical retreatment, after iTIND implantation in a real-world Italian multicenter setting.

METHODS: We retrospectively analysed prospectively collected data from 138 patients treated with iTIND at seven institutions between January 2022 and May 2025, followup was actively updated in march 2026 by phone call or visits.

Baseline evaluations included IPSS, IPSS-QoL, Qmax, PVR, and IIEF5, presence of antegrade ejaculation. Perioperative adverse events and both pharmacological and surgical retreatment rates were monitored. Logistic regression was applied to identify predictors of retreatments.

RESULTS: Median age was 52 y (21-84) and median prostate volume was 30 mL (13-80). All procedures were successfully completed. Functional outcomes significantly improved: IPSS decreased from 20 to 10 ($P<0.001$), QoL from 4 to 2 ($P<0.001$), Qmax increased from 8.5 to 13 mL/s ($P<0.001$), and PVR decreased from 52.5 to 20 mL ($P=0.013$). Erectile function remained stable (IIEF5: 24 vs. 26, $P=0.38$), and antegrade ejaculation was preserved in most patients (78% vs. 81%). Early postoperative adverse events were mild and limited. However, with a median follow-up of 22 months (0-49), a higher-than-initially-appreciated rate of retreatment emerged. In the first year 30/138 (21.7%) resumed medical therapy and 16/138 men (11.6%) required surgical reintervention. At the second year follow-up, 52/138 (37.7%) men were under medical therapy and 23/138 (16.7%) have been reoperated. The median times to pharmacological and surgical retreatments were: 13.3 and 12 months. Among drugs, alpha-blockers were the most used 92%; among surgeries, TURP was the most common 52% (TUIP 13%, prostatic urethral lift 13%). In multivariable analyses, worse QoL and preoperative alpha-blocker use were associated with a higher probability of pharmacological retreatment at the second year of follow-up. Baseline PVR was the most consistent preoperative parameter associated with a higher probability of surgical retreatment.

CONCLUSIONS: In a real-world multicenter setting, iTIND provided meaningful improvement in symptoms and urinary function, while preserving erectile and ejaculatory function and allowing outpatient treatment. Nevertheless, extended follow-up showed that medical and surgical retreatment rates are not negligible, preoperative alphablockers use, poor QoL and elevated PVR are predictors of failure. These findings highlight the need to complement functional outcomes with patient-reported measures during the clinical preoperative evaluation and counselling.

 SMART COMMUNICATION (SC97 - SC111)

Tumore della prostata: staging - PET PSMA

SC97

Redefining embark-like patients in the PSMA era: impact of PSMA-PET restaging on disease classification and management

SC98

Enhancing the prediction of adverse pathology in prostate cancer by combining pirads and intraprostatic ⁶⁸Ga-PSMA PET features: the role of P-score

SC99

Identifying candidates for radical prostatectomy and extended pelvic lymph node dissection among prostate cancer patients with PSMA-PET-detected nodal disease (miN1): the combined role of MRI staging and quantitative PSMA parameters

SC100

PSMA imaging-based stratification of men with high-risk prostate cancer candidates for radical prostatectomy: beyond clinical risk factors

SC101

Whole-body MRI and ⁶⁸Ga-PSMA PET/CT for staging in high-risk prostate cancer: impact on stage migration, intention-to-treat and concordance analysis

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Effect of pre operative hormonal therapy on PSMA PET/CT accuracy for lymph node staging in prostate cancer

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Investigating the combined value of PSA at biochemical recurrence and PSMA PET/CT results in high-risk recurrence after radical prostatectomy

SC104

Diagnostic accuracy of preoperative PSMA PET/CT for nodal staging in patients undergoing radi-

cal prostatectomy and extended lymph node dissection (EPLND)

SC105

Prostate index-lesion PSMA PET SUVmax and pathologic nodal metastases after robot-assisted radical prostatectomy

SC106

Immunohistochemical PSMA expression of prostate cancer predicts time to biochemical recurrence after robot-assisted radical prostatectomy

SC107

Lymph node staging with ⁶⁸Ga-PSMA PET/CT in patients with intermediate and high-risk prostate cancer undergoing radical prostatectomy

SC108

⁶⁸Ga-PSMA PET/CT *versus* whole-body MRI (WB-MRI) for staging high risk PCA: detection rate, tolerability, and diagnostic accuracy in surgical high-risk prostate cancer (PCA)

SC109

Comparative diagnostic accuracy of ⁶⁸Ga-PSMA PET/CT and multiparametric MRI in locally advanced prostate cancer: correlation with radical prostatectomy histopathology

SC110

Whole-body MRI (WB-MRI) *vs.* ⁶⁸Ga-PSMA PET/CT for re-staging of high-risk biochemical recurrence (BCR) PCA patients after radical treatment: detection rate and stage migration

SC111

Clinical value of PROMISE v2 criteria on PSMA-PET/CT for treatment selection in high-risk prostate cancer: two years of follow-up in a high-volume center

SC97**Redefining embark-like patients in the PSMA era: impact of PSMA-PET restaging on disease classification and management**

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BACKGROUND: The EMBARK trial demonstrated the benefit of intermittent treatment intensification in prostate cancer (PCa) patients with high-risk, non-metastatic biochemical recurrence (BCR). However, only patients restaged with conventional imaging were enrolled. We hypothesized that PSMA-PET restaging would markedly reduce the proportion of “EMBARK-like” eligible patients and shift many to an oligometastatic stage, with clinical implications for management.

METHODS: We relied on two cohorts of PCa patients treated with radical prostatectomy (RP) at a single center who experienced BCR. The first included 1,722 men restaged using conventional imaging (*i.e.*, computed tomography and bone scan) from 2010 to 2020. The second included 817 men restaged with PSMA-PET between 2016 and 2024. Patients were selected according to EMBARK criteria (PSA doubling time [PSADT] ≤ 9 months and PSA at BCR ≥ 1 ng/mL).

RESULTS: For the conventional imaging cohort, 718 (42%) patients had PSADT ≤ 9 months, and among these, 317 (18%) had PSA ≥ 1 ng/mL. Median PSA was 2.50 ng/mL (IQR 1.36-6.50), and median PSADT was 2 months (IQR 1.34-4.27). Conventional restaging imaging was negative in 194/317 (61%). In the PSMA-PET cohort, pre-restaging PSA was ≥ 1 ng/mL for 245 (30%) patients, and among these, 26 (8%) had PSADT ≤ 9 months. Although PSMA-restaged patients had lower median PSA (1.76 ng/mL; IQR 1.16-3.89) and median PSADT (2.63 months; IQR 1.56-4.63), PSMA-PET detected positive spots in 25/26 (96.2%). Specifically, 16 were M1b (64%); of these, 14 were low-volume, including 10 with a single bone lesion; 4 were M1a (16%), 2 M1c (8%), and 3 mIN1 (12%); only one (3.8%) was mIN0. Among 791 patients who did not meet EMBARK criteria, 268 (34%) had oligorecurrence at PSMA-PET; 46 (5.8%) M1a, 206 (26%) M1, among them, 186 (23%) were low-volume oligorecurrence; 63% received MDT and 6% systemic therapy.

CONCLUSIONS: In the PSMA era, EMBARK-like patients have virtually disappeared. Most men once considered high-risk non-metastatic already harbor metastatic disease at molecular imaging, calling for a fundamental redefinition of ‘high-risk BCR’ and a shift toward PSMA-based management.

SC98**Enhancing the prediction of adverse pathology in prostate cancer by combining pirads and intraprostatic ^{68}Ga -PSMA PET features: the role of P-score**

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BACKGROUND: Multiparametric MRI shows suboptimal staging accuracy in prostate cancer (PCa) patients undergoing radical prostatectomy (RP). The P-score, combining MRI and intraprostatic ^{68}Ga -PSMA-PET features, improves detection of clinically significant PCa, but its value in predicting adverse pathology at RP is unexplored. We evaluated whether the P-score could enhance the accuracy of available models predicting advanced stage and ISUP upgrading in RP candidates.

METHODS: We identified 434 PCa patients staged with MRI and ^{68}Ga -PSMA-PET who received RP at six centers (2017-2025). All patients had positive MRI (PI-RADS score ≥ 3) and ^{68}Ga -PSMA-PET (PRIMARY score ≥ 3). The P-score was assigned according to a previously validated method combining PI-RADS and PRIMARY scores. Outcomes were advanced stage (extracapsular extension [ECE], seminal vesicles invasion [SVI] or lymph node invasion [LNI]) and ISUP upgrading at RP (ISUP 1-3 at biopsy to ISUP ≥ 3 -4 at RP). Multivariable logistic regression (MLR) models were performed for each pairwise combination of P-score and MRI features and adjusted for PSA at diagnosis, MRI-stage and ISUP groups at biopsy. For each model, we calculated the ROC-derived AUC, calibration, and net benefit, and compared these metrics to models including only MRI and clinical features.

RESULTS: Overall, 28 (7%), 187 (43%) and 219 (50%) patients had PIRADS 3, 4, and 5 lesions; 16 (3%), 151 (35%) and 267 (62%) patients had P-score 3, 4 and 5. Median PSA was 8 ng/mL. A total of 242 (56%) and 144 (33%) patients had ISUP 4-5 at biopsy and ECE/SVI at MRI, respectively. 289 (67%), 141 (32%) and 91 (21%) patients had ECE, SVI, and LNI at final pathology. At MLR, patients with P-score 5 had a higher risk of advanced stage (OR: 1.65, 95%CI: 1.09-2.49, $P=0.017$) and ISUP upgrading at RP (OR: 1.26, 95%CI: 1.09-2.02, $P=0.03$) compared to P-scores 3-4. The multivariable model that included P-scores improved the accuracy of an MRI-based tool both for advanced stage (AUC 70% vs. 60%) and for ISUP upgrading (AUC 76% vs. 69%). The model including the P-score depicted also better calibration and higher net benefits.

CONCLUSIONS: The use of combined mpMRI and ^{68}Ga -PSMA-PET parameters such as the P-score improved the prediction of advanced stage and ISUP upgrading in patients undergoing RP compared to models based only on MRI and clinical features.

SC99**Identifying candidates for radical prostatectomy and extended pelvic lymph node dissection among prostate cancer patients with PSMA-PET-detected nodal disease (mIN1): the combined role of MRI staging and quantitative psma parameters**

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BACKGROUND: Prostate cancer (PCa) patients with positive nodes at preoperative PSMA (mIN1) are at higher risk of adverse outcomes after radical prostatectomy (RP) and

extended pelvic lymph node dissection (ePLND). However, selected miN1 patients could be cured by surgery alone. Quantitative PSMA-PET parameters, such as SUVmax of lymph nodes (LN-SUVmax), together with local staging provided by mpMRI might identify miN1 patients at risk of clinical recurrence (CR) after surgery.

METHODS: Overall, 144 miN1 PCa patients treated with RP and ePLND between 2016 and 2024 were identified at six centres. The outcome was CR, defined as novel regional or distant positive spots at follow-up PSMA-imaging. Interpretable artificial intelligence (AI)-based decision tree algorithms predicted 24-month CR and stratified patients by PSMA positive nodal count (1 vs. ≥ 2), LN-SUVmax, biopsy ISUP GG (4-5 vs. 1-3), and MRI stage (ECE/SVI vs. organ-confined). The dataset was randomly split into training (20%) and validation (80%) sets, and model performance was evaluated using the area under the curve (AUC).

RESULTS: After median follow-up of 13 months, 52 and 44 miN1 patients experienced biochemical recurrence (BCR) and CR. Overall, 30 (21%) vs. 69 (48%) patients received adjuvant vs. salvage radiotherapy with androgen deprivation therapy. Two or more positive nodes (HR 4.73, 95%CI:1.05-21.3, $P=0.042$) and ISUP GG 4-5 (HR 7.77, 95%CI:5.4-23, $P=0.048$) predicted CR. At regression tree analysis, patients were stratified into five risk groups according to biopsy ISUP, LN-SUVmax, number of positive nodes, and MRI stage. Patients in the most favourable groups (ISUP 2-3 and LN SUVmax <4 ; ISUP 2-3, LN-SUVmax ≥ 4 and organ-confined disease), had higher 2-year BCR-free survival rates (80% vs. 58%) and lower need for additional treatments (40% vs. 70%) compared to the unfavorable groups. The model showed good discriminative performance in the validation set (AUC: 79%).

CONCLUSIONS: Patients with ISUP 2-3 and LN-SUVmax below 4, as well as those with LN-SUVmax above 4 but organ-confined disease at mpMRI, might be cured by surgery alone, irrespective of the number of positive nodes at PSMA imaging. This risk stratification may guide preoperative counselling and surgical decision-making for miN1 patients.

SC100

PSMA imaging-based stratification of men with high-risk prostate cancer candidates for radical prostatectomy: beyond clinical risk factors

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BACKGROUND: EAU guidelines recommend radical prostatectomy (RP) in high-risk patients as part of multimodal therapy. The introduction of PSMA-PET has resulted in stage migration, with RP increasingly offered to patients with favorable disease due to improved metastases detection. We aimed at stratifying PSMA-staged high-risk patients to identify those who might spare additional therapies after surgery.

METHODS: We identified 703 high-risk PCa patients according to EAU groups with preoperative PSMA-PET treated with RP±extended pelvic lymph node dissection (ePLND) at 14 centres (2016-2025). The study outcome was biochemical failure (BCR: PSA ≥ 0.1 ng/mL 6 weeks after

RP or two consecutive PSA ≥ 0.2 ng/mL during follow-up). Multivariable Cox-regressions tested impact of PSA at RP (<10 , 10-20, >20 ng/mL), biopsy ISUP (1-4 vs. 5), T stage at MRI (iT2 vs. iT3) and miN stage (miN0 vs. miN1) on BCR. A score was assigned to each clinical feature according to Cox-derived coefficients. Patients were stratified into low (0-1 point) vs. intermediate (2-3 points) vs. high (≥ 4 points) risk. Groups' discrimination was tested using Harrel's c-index after Leave-one-out cross-validation. Kaplan-Meier (KM) plots depicted BCR-free survival (BFS) according to risk groups. An interaction analysis tested whether impact of adjuvant therapies on BFS varied according to risk groups.

RESULTS: Median PSA and age at RP were 8.6 (5.8-18) ng/mL and 68 (63-73) years. Overall, 179 (25%) patients harboured biopsy ISUP GG 5. Overall, 218 (31%) and 112 (16%) were iT3 and miM1a. Adjuvant therapies were used in 115 (16%) patients. At multivariable analyses, miN1 represented the strongest predictor for BCR (HR: 2.8, 95%CI:1.8-4.1, $P<0.001$). Cox-derived scores stratified patients in low (N=384, 55%) vs. intermediate (N=226, 32%) vs. high-risk (N=93, 13%). In KM plots, 5-yrs BCR-FS was 85% for low vs. 68% for intermediate vs. 58% for high-risk patients. This stratification scheme depicted good discrimination (c-index: 75%) at internal validation. At interaction test, adjuvant therapy was associated with reduced BCR in high-risk patients (interaction HR: 0.2, $P=0.02$).

CONCLUSIONS: In the PSMA era, RP alone provides excellent outcomes in selected high-risk patients. Our risk stratification model helps identify ideal surgical candidates to guide selective use of adjuvant therapies.

SC101

Whole-body MRI and ^{68}Ga -PSMA PET/CT for staging in high-risk prostate cancer: impact on stage migration, intention-to-treat and concordance analysis

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BACKGROUND: PSMA-PET is currently the gold standard for staging high-risk prostate cancer (PCa) patients. Whole-body MRI (wb-MRI) may represent a potential non-invasive alternative for nodal and distant metastatic assessment; however, supporting evidence remains limited. In this context, we aimed to evaluate stage migration, intention-to-treat modifications and inter-modality concordance between wb-MRI and PSMA-PET in a cohort of very high-risk PCa patients candidate to radical treatments.

METHODS: We conducted a prospective, single-centre study including 113 very high-risk prostate cancer (PCa) patients according to NCCN classification eligible for radical treatment (defined as cT3b/T4 or ISUP grade group 5 or ≥ 4 positive biopsy cores with ISUP ≥ 4). All patients underwent both ^{68}Ga -PSMA PET/CT and wb-MRI within 30 days. Final treatment was defined based on PSMA-PET findings. Descriptive analyses were performed. Stage migration induced by wb-MRI compared to PSMA-PET and intention-to-treat modifications across groups were assessed using Sankey plots. Inter-modality concordance between PSMA-PET and wb-MRI for T, N, and M staging was assessed using Cohen's kappa test.

RESULTS: Overall, median age was 70 years (IQR 65-74) and median iPSA was 10 ng/mL (IQR 6-30), with a median follow-up of 14 months (IQR 8-20). Most patients had ISUP grade group 4 (51%) or 5 (47%). WB-MRI led to stage migration in 27.4% of patients compared to PSMA-PET, with upstaging in 12.3% (14/113) and downstaging in 15% (17/113) of cases, despite largely concordant N0M0 cases. This translated into a potential change in treatment strategy in 13.6% of patients using wb-MRI compared to PSMA-PET, with treatment intensification in 8.8% and de-intensification in 4.8%. Moreover, PSMA-PET and wb-MRI showed substantial inter-modality agreement. T staging showed near-complete concordance between PSMA-PET and wb-MRI, with no meaningful variability for agreement analysis. For nodal staging, N0 disease was observed in 67 (59.3%) vs. 76 (67.3%) patients and N1 in 46 (40.7%) vs. 37 (32.7%) men at PSMA-PET and wb-MRI, respectively ($P=0.06$; $\kappa=0.64$). For metastatic staging, M0 was detected in 67 (59.3%) vs. 76 (67.3%) individuals and M1 in 46 (40.7%) vs. 37 (32.7%) men at PSMA-PET and wb-MRI, respectively ($P=0.04$; $\kappa=0.72$). Subclassification of M1 disease showed comparable distributions for M1a ($P=0.07$; $\kappa=0.64$), M1b ($P=0.04$; $\kappa=0.64$), and M1c ($P=0.4$).

CONCLUSIONS: WB-MRI is a useful imaging technique for staging high-risk PCa, showing substantial agreement with PSMA-PET. However, it may lead to clinically relevant stage migration and potential changes in treatment decisions in a subset of patients. Further studies are needed to identify which patients may benefit most from wb-MRI *versus* PSMA-PET in the staging and treatment decision-making pathway.

SC102

Effect of pre operative hormonal therapy on PSMA PET/CT accuracy for lymph node staging in prostate cancer

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BACKGROUND: The PSMA-PET/CT scan is widely recognized for detecting pelvic lymph node metastasis in prostate cancer (PCa). However, the use of a pre operative androgen deprivation therapy (ADT) – even if not recommended by guidelines – may affect its diagnostic accuracy. This study aimed to evaluate the impact of pre operative ADT on the diagnostic performance of PSMA-PET/CT scan for lymph node staging.

METHODS: This single-center retrospective study included patients who underwent PSMA PET/CT followed by RARP with pelvic lymph node dissection between 2018 and 2025. Patients were stratified according to the use of pre-operative ADT. Only unfavorable intermediate- and high-risk patients according to the D'Amico classification were included. The diagnostic performance of PSMA-PET/CT was evaluated using final pathological nodal status as reference standard. Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), overall accuracy, and agreement using Cohen's kappa coefficient were assessed.

RESULTS: A total of 540 patients with unfavorable intermediate- and high-risk PCa were included. Of these, 457 patients (85%) were untreated, while 83 (15%) underwent

neoadjuvant treatment. Overall, pathological lymph node involvement was observed in 125 of 531 evaluable patients (24%), with a higher prevalence in the treated group (36% vs. 21%, $P=0.003$). In the overall cohort, PSMA PET/CT demonstrated a sensitivity of 47.8% and specificity of 90.6% in untreated *versus* 65.5% and 79.2% in treated patients. PPV was 57.3% vs. 65.5%, and NPV was 86.8% vs. 79.2%, respectively. Overall accuracy was 81.6% in patients without hormonal therapy and 74.0% in the treated group. Agreement with final pathology was moderate in both groups (Cohen's kappa 0.409 vs. 0.447). In the high-risk subgroup, sensitivity was 54.9% without therapy and 66.7% with therapy, while specificity was 89.5% and 84.4%, respectively. PPV was 66.1% vs. 78.3%, and NPV was 84.2% vs. 75.0%. Accuracy was 80.2% in untreated and 76.3% in treated patients, with moderate agreement (Cohen's kappa 0.470 vs. 0.516). In the unfavorable intermediate-risk subgroup, sensitivity increased from 21.1% in untreated patients to 50.0% in those receiving neoadjuvant therapy, while specificity decreased from 91.9% to 68.8%. PPV was 25.0% vs. 16.7%, and NPV was 90.1% vs. 91.7%, respectively. Overall accuracy was 83.9% without therapy and 66.7% with therapy.

CONCLUSIONS: Preoperative ADT affects the diagnostic performance of PSMA PET/CT scan, increasing the sensitivity but reducing the specificity and the overall accuracy. Although the NPV remains relatively high, it decreases after the preoperative treatment, limiting the reliability of a negative scan to exclude lymph node metastases. Therefore, the PSMA PET/CT cannot completely replace pelvic lymph node dissection for accurate nodal staging, particularly in patients receiving preoperative ADT.

SC103

Investigating the combined value of PSA at biochemical recurrence and PSMA PET/CT results in high-risk recurrence after radical prostatectomy

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BACKGROUND: High-risk biochemical recurrence (BCR) after radical prostatectomy is associated with an increased risk of metastatic progression and prostate cancer-specific mortality. Although prostate-specific membrane antigen positron emission tomography/computed tomography (PSMA PET/CT) is increasingly used to guide treatment in this setting, the additional prognostic role of prostate-specific antigen (PSA) at recurrence remains incompletely defined. We evaluated oncologic outcomes in patients with high-risk BCR managed according to a PSMA PET-guided multidisciplinary strategy, focusing on the complementary prognostic role of PSA at first recurrence.

METHODS: We retrospectively analyzed consecutive patients with high-risk BCR after radical prostatectomy discussed within a multidisciplinary tumor board at a tertiary referral center. All patients underwent PSMA PET/CT at recurrence, which guided treatment allocation. Primary endpoints were second biochemical recurrence-free survival and progression-free survival (PFS), both measured from the date of PSMA PET/CT. PFS was assessed exclusively by PSMA

PET/CT. Outcomes were analyzed using Kaplan-Meier estimates, multivariable Cox regression, and LOWESS analysis.

RESULTS: A total of 136 patients were included. At PSMA PET/CT, 35% had negative findings or isolated local recurrence, 18% had pelvic nodal recurrence (miN1M0), and 47% had distant metastatic disease (miNanyM1). Median PSA at first BCR increased across PSMA PET categories, from 0.3 ng/mL in patients with negative/local recurrence to 0.4 ng/mL in miN1M0 disease and 0.7 ng/mL in miNanyM1 disease, supporting an association between biochemical burden and imaging extent of disease. On multivariable analysis, PSMA PET findings were the strongest independent predictors of clinical progression, with hazard ratios of 2.53 for miN1M0 and 5.07 for miNanyM1 *versus* negative/local recurrence. Importantly, PSA at first BCR independently predicted progression beyond imaging findings (HR 1.07, 95% CI 1.00-1.15; $P=0.049$), whereas PSA doubling time did not. Model-based estimates further showed that, among miN1M0 patients, rising PSA values were associated with a 36-month predicted probability of PSMA PET progression that approached that of metastatic disease.

CONCLUSIONS: In high-risk BCR after radical prostatectomy, PSMA PET/CT provides robust prognostic stratification, while PSA at recurrence adds independent prognostic information beyond imaging alone. The combination of PSA level and PSMA PET findings may improve risk assessment in miN1M0 patients. These findings also highlight the need for caution when interpreting intermediate oncologic endpoints in the PSMA PET era.

SC104

Diagnostic accuracy of preoperative PSMA PET/CT for nodal staging in patients undergoing radical prostatectomy and extended lymph node dissection (ePLND)

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BACKGROUND: Accurate preoperative nodal staging remains crucial in the management of high-risk prostate cancer (PCa). While PSMA PET/CT has shown promise for detecting nodal metastases, its diagnostic performance among surgical candidates remains heterogeneous across studies. We aimed to evaluate the sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of preoperative PSMA PET/CT for identifying histologically confirmed lymph-node metastases (pN1) in a contemporary cohort of men undergoing robot-assisted radical prostatectomy (RARP) with extended pelvic lymph-node dissection (ePLND).

METHODS: We retrospectively included patients with intermediate- or high-risk PCa who underwent preoperative PSMA PET/CT followed by RARP and ePLND between August 2022 and April 2024. All scans were interpreted by experienced nuclear medicine physicians. Histopathological confirmation of nodal metastases served as the reference standard. Sensitivity, specificity, PPV, and NPV were calculated on a per-patient basis, and subgroup analyses were performed according to PSA level (<10 ng/mL vs. ≥ 10 ng/mL), ISUP grade (≤ 3 vs. >3), and radiotracer type (^{68}Ga -PSMA-11 vs. ^{18}F -PSMA-1007).

RESULTS: A total of 161 patients were included. Median age was 67 (IQR: 61-72) and median PSA was 6.6 ng/mL (IQR: 5-9). The median number of nodes retrieved was 15 (IQR: 11-20). The mean number of positive nodes was 1.3 (SD: 1.8). Histopathology identified nodal metastases in 30 patients (18.6%). Among pN1 patients, lymph-node metastases were most frequently located in the external iliac (26%) and presacral regions, followed by the obturator (21%) and internal iliac (21%) areas. Bilateral nodal involvement was observed in a minority of cases (5%). Overall, PSMA PET/CT demonstrated a sensitivity of 56.7%, specificity of 94.5%, PPV of 70.8%, and NPV of 90.9%. No statistically significant differences in sensitivity or specificity were observed according to PSA level ($P=0.9$ and $P=0.8$, respectively), ISUP grade ($P=0.09$ and $P=0.7$), or radiotracer type ($P=0.6$ and $P=0.08$).

CONCLUSIONS: Preoperative PSMA PET/CT provides high specificity and NPV for detecting lymph-node metastases in prostate cancer, supporting its integration into preoperative staging algorithms. Its diagnostic accuracy was consistent across radiotracers and ISUP grade groups, indicating robust performance irrespective of tumor aggressiveness or tracer type. These findings support PSMA PET/CT as a reliable staging tool and warrant prospective validation in larger multicenter cohorts.

SC105

Prostate index-lesion PSMA PET SUVmax and pathologic nodal metastases after robot-assisted radical prostatectomy

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BACKGROUND: Accurate preoperative identification of nodal metastases remains challenging in prostate cancer (PCa). Quantitative parameters from PSMA-PET/CT, such as SUVmax, may reflect tumor aggressiveness and improve preoperative staging. We aimed to assess whether PSMA-PET index-lesion SUVmax is associated with pathologic nodal metastases (pN1) after robot-assisted radical prostatectomy (RARP) and extended pelvic lymph-node dissection (ePLND).

METHODS: We retrospectively analyzed patients with intermediate- or high-risk PCa who underwent preoperative PSMA-PET/CT followed by RARP with ePLND. Univariable logistic regressions were first run for each covariate (SUVmax, PSA category, biopsy ISUP grade group, percentage of positive biopsy cores, and extraprostatic extension on PET), reporting odds ratios with 95% CIs. All covariates were then entered into a multivariable logistic model. Model discrimination was assessed using the area under the ROC curve (AUC).

RESULTS: Overall, 151 patients were included. pN1 disease was found in 32 patients (21.2%). Median age was 66 years (IQR: 60-72). In univariate analysis, SUVmax (OR: 1.06, 95% CI: 1.01-1.10, $P=0.010$), positive-core percentage at biopsy (OR = 1.02, 95% CI 1.01-1.04, $P=0.003$), and extraprostatic uptake on PET (OR = 2.67, 95% CI 1.04-6.87, $P=0.042$) were significantly associated with pN1. In the multivariable model, both SUVmax (aOR: 1.06, 95% CI: 1.02-1.13, $P=0.041$) and percentage of positive cores (aOR: 1.02, 95% CI 1.01-1.04, $P=0.045$) remained independently correlated

with nodal involvement. The model achieved an AUC of 0.78 (95% CI: 0.73-0.85).

CONCLUSIONS: Preoperative PSMA PET/CT SUVmax is independently associated with pathologic nodal metastases, alongside biopsy tumor burden. These findings support the potential role of quantitative PET metrics in preoperative risk assessment. Larger multicenter studies are warranted to validate these results and to explore the incorporation of SUVmax into nomograms for lymph-node staging in PCa.

SC106

Immunohistochemical PSMA expression of prostate cancer predicts time to biochemical recurrence after robot-assisted radical prostatectomy

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BACKGROUND: Defining the biological determinants of heterogeneity in prostate-specific membrane antigen (PSMA) expression remains an unmet need with potential clinical implications. We aimed to evaluate whether immunohistochemical PSMA expression of the prostate cancer (PCa) index lesion in prostatectomy specimens predicts time to biochemical recurrence (BCR) after robot-assisted radical prostatectomy.

METHODS: 104 consecutive patients scheduled for robot-assisted radical prostatectomy between June 2021 and December 2022 and staged with ⁶⁸Ga-PSMA PET/CT were selected. Immunohistochemical PSMA expression of PCa index lesion was assessed using the immunoreactive score (IRS) on prostatectomy specimens. For each patient, the index lesion was defined as the dominant tumor focus; in cases with multiple index lesions, the highest IRS value was selected. Multivariable Cox regression was performed to test the predictive value of the IRS of the index lesion for the time to BCR (months), after adjusting for European Association of Urology (EAU) risk groups (unfavorable intermediate vs. high risk).

RESULTS: Median age at diagnosis was 67 years (IQR 63-71), with a median PSA of 8 ng/mL (IQR 6-12). Most patients presented with PIRADS 4-5 lesions on MRI (83/104, 80%), and 62 (60%) patients had ISUP grade group ≥ 3 disease at biopsy. 26 (25%) patients were staged as cN1 at PSMA PET/CT. According to EAU risk classification, 19 (18%) patients were classified as favorable intermediate-risk, 42 (40%) as unfavorable intermediate-risk, and 43 as high-risk. At final pathology, pT3 disease was observed in 38 (36%) patients, lymph node involvement (pN1) in 15 (14%), and positive surgical margins in 37 (36%) cases. PSA persistence was reported in 15 (15%) patients. After a median follow-up of 40 (IQR 31-45) months, 18 (17%) patients experienced biochemical recurrence. At multivariable Cox regression analysis, maximum prostate IRS was independently associated with shorter time to BCR (hazard ratio [HR] 1.21, 95% confidence interval [CI] 1.00-1.48, $P=0.02$). Among EAU risk groups, high risk disease was strongly associated with earlier BCR (HR 22.1, 95% CI 2.9-4.8, $P=0.003$).

CONCLUSIONS: Immunohistochemical PSMA expression of the index lesion of PCa is independently associated with shorter time to BCR after radical prostatectomy.

SC107

Lymph node staging with ⁶⁸Ga-PSMA PET/CT in patients with intermediate and high-risk prostate cancer undergoing radical prostatectomy

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BACKGROUND: Nowadays, indications for lymphadenectomy in prostate cancer (PCa) are based on nomograms. However, a high percentage of patients having radical prostatectomy (RP) and extended pelvic lymph node dissection (ePLND) for localized disease were found to have no lymph node metastasis (LNM) at pathological examination. In the last years prostate-specific membrane antigen (PSMA) PET/CT has emerged as a superior staging modality compared to abdominal CT for nodal staging.

METHODS: We retrospectively evaluated patients with biopsy-proven PCa who underwent PSMA PET/CT staging before undergoing RP with ePLND. PET results were categorized based on the presence of primary tumor (T), lymph node metastasis (N), and distant metastasis (M). We analyzed the correspondence between PSMA PET/CT results and definitive histopathological examination.

RESULTS: patients met inclusion criteria. Median age was 67 years (IQR 62-71), median preoperative serum PSA was 11.6 ng/mL (IQR 7.3-18.9). 59% patients were high risk, 37.6% were intermediate risk, and 3.4% were locally advanced. The most common International Society of Urological Pathology (ISUP) grade group (GG) was 3 (39.2%) after prostate biopsy, with a median of 3 (2-4). PSMA PET/CT showed focal prostatic uptake in 82.9% with a median value of maximum standardized uptake value (SUVmax) of 15.4 [IQR 9.7-24] and detected pelvic lymph node uptake in 18 cases (15.4%) with a median value of SUVmax of 8.7 (IQR, 3.4-26.3). Histopathological examination detected lymph node metastases in 25 patients (21.4%). 17 patients with positive PSMA-PET for lymph node involvement had metastases (94.4%). Only 8 patients with negative PSMA PET/CT had LNM (8%). The median number of removed lymph-nodes was 12 (IQR 9-15). A statistically significant positive correlation emerged between prostate SUVmax and LNM ($P=0.023$), indicating that higher SUVmax values are associated with greater likelihood of lymph node involvement. In univariate analysis, lymph node positivity on PSMA PET/CT was significantly associated with LNM (OR 9.00; 95% CI 2.77-29.22; $P=0.0003$), while preoperative PSA and ISUP at biopsy did not show a statistically significant association. In multivariate analysis, after adjusting for preoperative PSA and ISUP at biopsy, lymph node positivity on PSMA PET/CT was confirmed as the strongest independent predictor of LNM, with an odds ratio of 9.62 (95% CI 2.88-32.14; $P=0.0002$). Neither PSA nor ISUP biopsy grade maintained independent predictive value in the multivariate model. In our series, following pathologic confirmation, sensitivity, specificity, positive and negative predictive values of PSMA PET/CT were 68%, 98.9%, 34.9% and 91.9 %, respectively.

CONCLUSIONS: In our experience, PSMA PET/CT has a high overall diagnostic value for lymph node staging in patients with prostate cancer and emerged as the only predictive variable for lymph node metastases.

SC108

⁶⁸Ga-PSMA PET/CT versus whole-body MRI (WB-MRI) for staging high risk PCA: detection rate, tolerability, and diagnostic accuracy in surgical high-risk prostate cancer (PCA)

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BACKGROUND: PSMA-PET is currently the gold standard for staging high-risk prostate cancer (PCA) patients. Whole-body MRI (wb-MRI) may represent a potential non-invasive alternative for nodal and distant metastatic assessment; however, supporting evidence remains limited. In this context, we aim to evaluate the detection rate (DR), the tolerability and the diagnostic performance of PSMA-PET and wb-MRI for staging high risk PCA.

METHODS: Overall, 113 patients with high- and very high-risk prostate cancer according to NCCN classification eligible for radical treatment were enrolled; a subgroup of 56 patients eligible for surgery as primary treatment was analyzed for diagnostic performance analysis. Each patient underwent PSMA-PET and wb-MRI within 30 days. Final treatment was defined basing on PSMA-PET findings. DR was assessed for both imaging techniques stratifying according to site positive lesions (N1, M1a, M1b, M1c). Equivocal lesions were defined as negative. Diagnostic performance for nodal disease (sensitivity, specificity, VPP, VPN and accuracy) was assessed and ROC curve analysis for N stage was performed using the final pathologic examinations of robot assisted radical prostatectomy and extended pelvic lymph node dissection as reference. Each patient completed a tolerability questionnaire after PSMA-PET and wb-MRI to assess tolerability investigating 5 aspects (noise, claustrophobia, shortness of breath, exam duration and comfort) with a score from 1 to 5. Man-Whitney test was used to compare tolerability of PSMA-PET and wb-MRI for each questionnaire's domain.

RESULTS: PSMA-PET and wb-MRI showed N1, M1a, M1b and M1c disease in 40.7% vs. 32.7%, 26% vs. 19%, 28% vs. 0% vs. 1.8% of patients, respectively. Among patients underwent surgery (N=56), 21 (28%) men had pN1 disease. No significant differences were found in terms of sensitivity, specificity, PPV and NPV of PSMA-PET and wb-MRI for N stage (57.1% vs. 38.1%, 91.4% vs. 91.4%, 80% vs. 72.7%, 78% vs. 71.1%, respectively). ROC analysis revealed comparable accuracy between PSMA-PET and wb-MRI for N stage (AUC: 0.74 vs. 0.64). Patients' questionnaire revealed comparable tolerability for PSMA-PET and wb-MRI concerning perception of claustrophobia, shortness of breath and exam duration (all $P \geq 0.2$); PSMA-PET showed better tolerability compared to wb-MRI for perception of noise and comfort ($P \leq 0.01$). Overall tolerability was slightly higher for PSMA-PET compared to wb-MRI (average score 5.82 vs. 7.56; $P < 0.001$).

CONCLUSIONS: Wb-MRI is an effective imaging technique for staging high-risk PCA with detection rates and diagnostic performance for N1 disease comparable to PSMA-PET. However, PSMA-PET showed better overall tolerability compared to wb-MRI, despite no significant difference concerning perception of claustrophobia, shortness of breath and exam duration.

SC109

Comparative diagnostic accuracy of ⁶⁸Ga-PSMA PET/CT and multiparametric MRI in locally advanced prostate cancer: correlation with radical prostatectomy histopathology

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BACKGROUND: Accurate preoperative local staging of prostate cancer is essential for treatment planning in patients undergoing radical prostatectomy. Multiparametric magnetic resonance imaging (mpMRI) is the standard imaging modality, but its sensitivity for detecting extracapsular extension (ECE) and seminal vesicle invasion (SVI) is limited. This study aimed to compare the diagnostic accuracy of ⁶⁸Ga-PSMA PET/CT and mpMRI for the detection of ECE and SVI, using radical prostatectomy histopathology as the reference standard.

METHODS: This retrospective study included 71 consecutive patients who underwent robot-assisted radical prostatectomy between January 2022 and April 2025 and received preoperative ⁶⁸Ga-PSMA PET/CT, with mpMRI available in most cases. Imaging findings were compared with definitive histopathology. Sensitivity, specificity, positive predictive value, negative predictive value, and overall diagnostic accuracy were calculated for both modalities. Concordance analyses and comparative statistical tests were applied.

RESULTS: Histopathology identified extracapsular extension in 35% of patients and seminal vesicle invasion in 11%. For extracapsular extension, sensitivity was 22% for multiparametric magnetic resonance imaging (mpMRI) and 26% for ⁶⁸Ga-PSMA PET/CT, while specificity was 86% and 100%, respectively. Combined assessment of mpMRI and ⁶⁸Ga-PSMA PET/CT achieved a diagnostic accuracy above 90% for both extracapsular extension and seminal vesicle invasion. ⁶⁸Ga-PSMA PET/CT showed a lower deviation than mpMRI in index lesion size estimation compared with histopathology, without statistically significant difference.

CONCLUSIONS: MpMRI and ⁶⁸Ga-PSMA PET/CT show low sensitivity and high specificity for local staging of prostate cancer when used individually. The combined use of both modalities significantly increases diagnostic accuracy for the detection of ECE and SVI, supporting a multimodal imaging approach to improve preoperative staging, surgical planning, and personalized treatment strategies in prostate cancer.

SC110

Whole-body MRI (WB-MRI) vs. ⁶⁸Ga-PSMA PET/CT for re-staging of high-risk biochemical recurrence (BCR) PCA patients after radical treatment: detection rate and stage migration

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BACKGROUND: PSMA-PET/CT is the current reference standard for restaging prostate cancer (PCA) patients with biochemical recurrence (BCR). We compared whole-body MRI (wb-MRI) and PSMA-PET/CT, evaluating detection rates (DR) and assessing the impact of wb-MRI on stage migration.

METHODS: We analyzed 46 patients with BCR or PSA persistence after radical treatments enrolled in a prospective single-center study. All patients underwent both ^{68}Ga -PSMA PET/CT and wb-MRI within 30 days. Final treatment was defined based on PSMA-PET findings. Detection rates of both imaging modalities were assessed and compared in the overall population and after stratifying according to PSA levels and PSA-doubling time (PSADT). Stage migration induced by wb-MRI compared to PSMA-PET was assessed using Sankey plots.

RESULTS: Median PSA at recurrence was 0.30 ng/mL (IQR 0.21-0.55). At PSA 0.2-0.5 ng/mL, wb-MRI showed higher detection of local recurrence compared to PSMA-PET/CT (15% vs. 12%), with no difference at PSA >0.5 ng/mL (8.3%). DR were comparable for nodal disease (N1), regardless of PSA (5.9% for PSA 0.2-0.5 ng/mL and 17% for PSA >0.5 ng/mL). PSMA-PET/CT showed higher detection for metastatic disease, particularly at PSA <0.5 ng/mL (M1a 8.9% vs. 2.9% and M1b 18% vs. 2.9%, respectively). By PSA-DT, wb-MRI performed better in suspected local recurrence with PSA-DT >12 months (DR 13% vs. 7%), while similar DR were observed for PSA-DT 6-12 months (DR 22%). In patients with rapid PSA kinetics (PSA-DT <6 months), PSMA-PET/CT showed superior detection (DR 40% vs. 30%). Stage migration analysis showed that 17% of patients experienced TNM stage changes. Among patients classified as M1b on PSMA-PET/CT (17.4%), 10.9% were downstaged to N0/M0 by wb-MRI. Among M1a cases (6.5%), 4.3% were downstaged to N0/M0 and 2.2% to N1 by wb-MRI. The single N1 case (2.2%) at PSMA-PET/CT was understaged to N0.

CONCLUSIONS: wb-MRI improves detection of local recurrence at low PSA levels (≤ 0.5 ng/mL) and PSA DT >12 months, whereas PSMA-PET/CT is more sensitive for metastatic disease, particularly in patients with rapid PSA kinetics.

SC111

Clinical value of PROMISE v2 criteria on PSMA-PET/CT for treatment selection in high-risk prostate cancer: two years of follow-up in a high-volume center

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BACKGROUND: PSMA-PET is currently the gold standard for staging high-risk prostate cancer (PCa) patients. The PROMISE criteria were developed to standardize disease

assessment on PSMA-PET/CT. This study aimed to investigate the efficacy of PROMISE v2 criteria in selecting patients for local *versus* systemic treatments and to evaluate oncological outcomes.

METHODS: We retrospectively analyzed data of 469 high risk Pca patients suitable for radical treatments (radical prostatectomy [RP] + extended pelvic lymph nodes dissection [ePLND] +/- adjuvant radiotherapy [aRT] or RT + androgen deprivation therapy [ADT]) who underwent PSMA-PET/CT for staging purpose between May 2017 and June 2025. Treatment allocation (local or systemic) was based on PROMISE v2 criteria after multidisciplinary uro-oncologic discussion. Oncological outcomes were compared in patients receiving radical treatments vs. systemic therapy (ADT +/- ARPI [New androgen receptor pathway inhibitors] +/- chemotherapy), as well as between pN0 and pN1 in patients with miNOM0 at PSMA PET/CT underwent surgery. Kaplan-Meier curves were used to assess biochemical recurrence-free survival (BCR-FS), clinical recurrence-free survival (CR-FS) and treatment failure - free survival (TF-FS).

RESULTS: The median age was 69 (IQR [interquartile range]: 64-74) years old and the median PSA was 8.2 (IQR: 5.6-14.6) ng/mL. According to PROMISE v2 criteria, 65.5% men were miN0, 6.4% miN1, 5.1% miN2, 3.6% miM1a, 16.6% miM1b and 2.8% miM1c. After multidisciplinary evaluation, patients underwent following treatments: 347 (74%) RP + ePLND +/- aRT, 58 (12.4%) RT + ADT, 64 (13.6%) ADT +/- ARPI +/- chemotherapy. At a median follow-up of 29 (IQR: 16-40) months, two patients treated with RT + ADT and 48 (11.9%) underwent surgery developed BCR. BCR-FS at 24 months was significantly different between RP and RT (89.9% vs. 100%, $P=0.03$), due to ADT still ongoing. No difference was found regarding CR-FS at 24 months (96.9% vs. 100%, $P=0.08$). Treatment failure occurred in 47 (11.6%) patients treated with radical treatments and in 11 (17.2%) receiving systemic therapy ($P=0.2$). Second-line treatments included RT (50%), ADT (13.7%), ARPI (17.3%), chemotherapy (15.6%), salvage lymphadenectomy (1.7%), and PARPi (1.7%), with significant differences between groups ($P<0.01$). TF-FS at 24 months didn't differ between radical and systemic treatments (92.9% vs. 88.4%, $P=0.1$). Focusing on miNOM0 patients underwent RP (257), 11.7% men were pN1 at final pathology; no differences were found between pN0 and pN1 in terms of BCR incidence ($P=0.1$) or the BCR-FS at 24 months (88.1% vs. 96.3%, $P=0.1$).

CONCLUSIONS: PROMISE v2 criteria for PSMA-PET/CT allows to properly classify high-risk Pca patients who could benefit from local or systemic treatments and to guide physicians' decision. Extended follow-up is required to determine the impact of PROMISE v2 criteria on long-term oncologic outcomes according to type of treatment.

SMART COMMUNICATION (SC112 - SC126)

Tumore della prostata: sorveglianza attiva e terapia focale

SC112

Favorable Grade Group 1 prostate cancer at confirmatory biopsy: toward personalized active surveillance follow-up strategies

SC113

The diagnostic benefit of perilesional sampling at the time of confirmatory biopsy in patients managed with active surveillance for ISUP-GG 1 prostate cancer

SC114

Urinary PSA and zinc rapid test for identifying progressive disease during active surveillance

SC115

Focal high-intensity focused ultrasound (HIFU) for localized prostate cancer: a retrospective multi-institutional comparison of single-and double-tap techniques

SC116

Hypnosis with virtual reality visors during focal therapy with HIFU focalone platform: a new tool to reduce patient's pain and anxiety

SC117

Transperineal laser ablation of the prostate (TPLA) for favourable intermediate risk prostate cancer: early experience in an outpatient setting

SC118

Mid-term oncologic outcomes of HIFU-based focal therapy for localized prostate cancer: a prospective single-center study

SC119

Prognostic value of preoperative SUV in patients who underwent focal therapy HIFU: early prospective results from a single-center cohort

SC120

Long-term patient-reported functional outcomes after focal therapy for localized prostate cancer: a 4-year single-centre study using validated prompts

SC121

Evaluation of trifecta loss in favorable intermediate-risk prostate cancer: a matched-pair analysis comparing hifu and radical prostatectomy

SC122

Oncological and functional outcomes of salvage robot-assisted radical prostatectomy (RARP) after high-intensity focused ultrasound (HIFU): a multicenter study

SC123

Focal therapy for localised prostate cancer: clinical and imaging predictors of failure in a 4-year prospective cohort

SC124

Focal therapy with transperineal laser ablation for low-intermediate risk prostate cancer: an initial experience

SC125

Focal cryoablation using PROMAP® FT software and Koelis Trinity® system for MRI/US-guided focal therapy: preliminary oncological outcomes with 1 year confirmatory biopsy at 1 year

SC126

AI-driven model for early failure prediction after HIFU integrating immediate post-ablation ultrasound and clinical data

SC112**Favorable Grade Group 1 prostate cancer at confirmatory biopsy: toward personalized active surveillance follow-up strategies**

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BACKGROUND: Active surveillance (AS) is the preferred management strategy for Grade Group 1 (GG1) prostate cancer (PCa). Confirmatory testing, typically biopsy and repeat imaging, is essential to ensure appropriate patient selection. However, men with favorable confirmatory biopsy (cBx) may be candidates for de-intensified surveillance protocols.

METHODS: We retrospectively analyzed 259 GG1 PCa patients who underwent mpMRI and diagnosis with negative or GG1 disease at cBx done within 2 years and at least 1 year of subsequent follow-up. The cumulative incidence of reclassification to GG $\geq$ 2 was estimated using competing-risk analysis. Predictors of reclassification were identified using Fine-Gray regression and regression-tree analyses, stratified by cBx results (negative vs. GG1), PI-RADS score on pre-cBx mpMRI (1-2, 3, or 4-5), and PSA density (PSAd) at cBx. Accuracy of the model was assessed using the c-index at internal validation.

RESULTS: At cBx, median time from diagnosis and PSA were 12 months (IQR 11-16) and 6.0 ng/mL (IQR 4.5-8.0); 115 (44%) vs. 144 (56%) patients had a negative vs. GG1 PCa at cBx. Median follow-up was 30 months and 36 men were reclassified to GG $\geq$ 2 on subsequent biopsies. Negative cBx status independently predicted a lower risk of reclassification (adjusted SHR 0.32, 95% CI 0.13-0.78; $P=0.012$). Men with negative cBx had the lowest 5-year risk of reclassification -8% for PI-RADS 1-3 and 15% for PI-RADS 4-5 – regardless of PSAd. For men with GG1 on cBx, the 5-year risk ranged from 21% (PI-RADS 1-2) to 40% (PI-RADS 4-5). At internal validation, the accuracy of this model was 72% (95% CI 65-81%).

CONCLUSIONS: Negative confirmatory biopsy and low PI-RADS confer a very low risk of subsequent upgrading. These patients can safely undergo de-intensified AS, relying primarily on mpMRI-based follow-up with biopsy only for radiological progression. Conversely, those with mpMRI-visible disease or persistent GG1 on cBx remain at high risk of reclassification and should receive biopsy-based surveillance.

SC113**The diagnostic benefit of perilesional sampling at the time of confirmatory biopsy in patients managed with active surveillance for ISUP-GG 1 prostate cancer**

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BACKGROUND: EAU guidelines recommend performing perilesional biopsy (PLBx) in addition to targeted biopsy

(TBx) when a prostate biopsy is planned. However, the role of PLBx in the setting of active surveillance (AS) is still controversial. We assessed the added value of PLBx for the detection of clinically significant prostate cancer (csPCa) at the time of confirmatory biopsy (CBx).

METHODS: We relied on 204 patients with ISUP grade group 1 (GG1) PCa prospectively enrolled in an AS program with a single MRI lesion who received TBx + SBx at CBx at a referral center between 2018 and 2024. We assessed the added value of PLBx (defined as systematic cores taken from prostate sectors adjacent to the MRI lesion) for csPCa detection (GG $\geq$ 2) in case of negative TBx at CBx, across PIRADS and PRECISE scores. Multivariable logistic regression analyses (MVA) predicted GG $\geq$ 2 PCa at PLBx vs. non-PLBx (namely, systematic cores not included in the PLBx scheme), after accounting for PSA density (PSAD), PIRADS, and PRECISE at follow-up mpMRI. The LOWESS function depicted the probability of csPCa at PLBx vs. non-PLBx over different PSAD values stratifying by PIRADS and PRECISE scores.

RESULTS: Median age and PSAD at CBx were 65 years and 0.13 ng/mL/mL. Overall, 36%, 53%, and 13% patients had PI-RADS 3, 4 and 5 lesions at CBx. Distributions of PRECISE 3, 4 and 5 were 59%, 25% and 16%. The PLBx detection of csPCa in patients with negative TBx was 2%, 5% and 8% in patients with PIRADS 3, 4, and 5. Non-PLBx detection of csPCa was 3%, 2% and 1% in patients with PIRADS 3, 4, and 5. At MVA, PSAD (OR 1.5, 95%CI: 1.05-2.16, $P=0.035$), PIRADS 4 (OR 2.3, 95%CI: 1.50-3.14, $P=0.042$) and 5 (OR 3.2, 95%CI: 2.10-4.00, $P=0.038$) and PRECISE $\geq$ 4 (OR 2.8, 95%CI: 2.10-3.75, $P=0.031$) were predictors of csPCa at PLBx. The benefit of PLBx was evident in PIRADS 4 with PRECISE 4-5 lesions at PSAD values $\geq$ 0.15 ng/mL/mL and in PIRADS 5 regardless of PRECISE and PSAD.

CONCLUSIONS: The diagnostic benefit of PLBx at time of CBx for the detection of csPCa in AS patients varies according to PIRADS, PRECISE and PSAD. PLBx should be considered in PIRADS 4 lesions with PRECISE 4-5 with high PSAD values and in PIRADS 5 lesions. Inpatients with PIRADS 3 lesions, the added value for csPCa remains low regardless of PRECISE and PSAD.

SC114**Urinary PSA and zinc rapid test for identifying progressive disease during active surveillance**

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BACKGROUND: Active surveillance is a standard management strategy for low-risk prostate cancer, aiming to avoid overtreatment while identifying disease progression. However, serum prostate-specific antigen (PSA) kinetics and imaging findings often fail to discriminate progressive from indolent disease. This study aimed to evaluate the performance of a rapid urinary test measuring PSA and zinc in identifying progressive prostate cancer at the beginning of active surveillance.

METHODS: Ninety men with low-risk prostate cancer

enrolled in an active surveillance protocol were included. Follow-up included serum PSA every 3 months, multiparametric magnetic resonance imaging every 6 months, and repeat biopsy at 12 months. All patients underwent a urinary PSA and zinc rapid test at baseline. Disease progression was defined as histological upgrading at repeat biopsy. The ability of serum PSA changes, PI-RADS score variations, and the urinary test to discriminate progressive from indolent disease was evaluated.

RESULTS: Out of 90 patients, 37 (41%) showed disease progression at 12 months. Serum PSA increase was observed in 43% of progressive cases and 28% of indolent cases. PI-RADS score increase occurred in 3% of progressive and 10% of indolent tumors. The urinary PSA and zinc test identified 80% of progressive tumors, while 43% of indolent cases tested positive. Among patients with indolent disease and a negative urinary test at baseline, 97% remained non-progressive after 4 years of follow-up.

CONCLUSIONS: Serum PSA kinetics and imaging findings showed limited ability to distinguish progressive from indolent prostate cancer during active surveillance. The urinary PSA and zinc rapid test demonstrated higher accuracy in identifying progressive disease and in predicting stable cases. This tool may support personalized surveillance strategies, potentially reducing unnecessary repeat biopsies.

SC115

Focal high-intensity focused ultrasound (HIFU) for localized prostate cancer: a retrospective multi-institutional comparison of single- and double-tap techniques

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BACKGROUND: In-field recurrences after focal therapy (FT) with high-intensity focused ultrasound (HIFU) may result from incomplete ablation. Prior studies suggest that energy “dose escalation” could improve local control. This study compared single-tap (ST) and double-tap (DT) HIFU to assess whether increased energy delivery enhances oncological efficacy without compromising safety.

METHODS: We retrospectively analyzed a multicenter cohort of patients with MRI-visible, low- to intermediate-risk PCa treated with focal HIFU (Focal One®) between 2010 and 2025, using either a ST or DT approach (second treatment in the same session). All patients had 1-year follow-up biopsies. The primary outcome was any in-field positive biopsy at 1 year. Propensity-score matching (PSM) (2:1, with replacement) balanced baseline variables: age, PSA, PSA density (PSAD), clinical stage (cT), prostate volume, PI-RADS score, and ISUP grade of the target lesion. Secondary outcomes included salvage treatment (repeat FT, radical prostatectomy, radiotherapy, brachytherapy, or ADT), PSA reduction and complications. Analyses were performed in Python (v3.11).

RESULTS: A total of 156 patients were treated with focal HIFU. After PSM, 26 single-tap (ST) and 87 double-tap (DT) cases were analyzed. Baseline characteristics were well balanced between groups. At 1 year, in-field positive biopsy

occurred in 36.0% after ST and 28.7% after DT (OR 0.72, 95% CI 0.42-1.22; $P=0.22$). Among positives, 47.2% were ISUP 1, 41.7% ISUP 2, 2.8% ISUP 3, and 8.3% ISUP 4. Salvage treatment was required in 62.5% after ST and 21.8% after DT. Weighted logistic regression confirmed lower odds of salvage treatment in the DT group (OR 0.17, 95% CI 0.09-0.30; $P<0.001$). Salvage modalities included radiotherapy (39.5%), radical prostatectomy (29.9%), repeat focal therapy (27.4%), and ADT (1.9%). Median PSA reduction from baseline to 6-12 months was 64.9% for ST and 57.1% for DT ($P=0.60$). Complication rates were low and similar between groups, mostly minor (Clavien-Dindo ≤ 2); grade ≥ 2 events occurred in 16.9% of ST and 6.9% of DT patients, with grade 3 events in 0% and 2.3%, respectively.

CONCLUSIONS: At 1 year, in-field recurrence was lower after DT than ST HIFU, though not statistically significant, suggesting a trend toward improved control that warrants confirmation in larger cohorts.

SC116

Hypnosis with virtual reality visors during focal therapy with HIFU focalone platform: a new tool to reduce patient's pain and anxiety

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BACKGROUND: High-intensity focused ultrasound (HIFU) represents a minimally invasive treatment option for localized prostate cancer, typically performed under anesthesia due to procedure-related discomfort and patient anxiety. However, there is growing interest in reducing the pharmacological burden by integrating non-pharmacological strategies aimed at improving patient experience. Virtual reality (VR)-based hypnosis has emerged as a promising tool to modulate pain perception and anxiety through immersive distraction and cognitive engagement. This study aims to compare standard HIFU with HIFU assisted by VR-based hypnotic support, evaluating its impact on procedural tolerability, anxiety, pain, and overall patient experience.

METHODS: A prospective cohort of patients who underwent HIFU with Focal One® device and VR assistance under spinal anesthesia enrolled from October 2025 to April 2026 at IRCCS-FPO Candiolo Cancer Institute was compared after a match paired analysis with a retrospective series of 250 patients operated from 2018. Anxiety and pain were assessed using visual analog scales (VAS). Patients' perception of the care was evaluated with a Likert-scale.

RESULTS: 10 patients were enrolled in VR Group. After propensity-score matching 10 patients without VR assistance were included. Lower anxiety (1.2 vs. 2.8; $P<0.05$) and pain score (1.4 vs. 2.9; $P<0.05$) in VR Group were recorded immediately after the procedure. Similar findings were reported the day after (1.1 vs. 1.9; $P<0.05$ and 1.2 vs. 2.2; $P<0.05$). As well patients' perception of the care evaluated with a Likert-scale had a median score in favour of VR Group (4.8 vs. 4.2; $P<0.05$).

CONCLUSIONS: Our study suggests that the assistance of VR Hypnosis can decrease the anxiety and pain in patients who underwent focal therapy with HIFU under spinal anesthesia. Larger sample size and a randomized design are required to corroborate our findings.

SC117**Transperineal laser ablation of the prostate (TPLA) for favourable intermediate risk prostate cancer: early experience in an outpatient setting**

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BACKGROUND: Focal therapy for prostate cancer utilizes various energy sources in an “À la Carte” approach based on lesion location. High-Intensity Focused Ultrasound (HIFU) is common, but it is unsuitable for apical and anterior lesions. Transperineal laser ablation (TPLA) addresses this limitation and is potentially feasible in an outpatient setting, similar to its use in benign prostatic hyperplasia. We report our preliminary experience using the EchoLaser system in an outpatient setting for favorable intermediate-risk prostate cancer.

METHODS: Following IRB approval and informed consent, data from consecutive patients undergoing TPLA (September 2024-March 2025) were prospectively evaluated. Procedures were performed outpatient under local anesthesia and conscious sedation. Included patients had a minimum 12-month follow-up. Inclusion criteria: cT $\leq$ T2c; unifocal MRI-visible Grade Group (GG) 2 lesion <1.5 cm; PSA $\leq$ 20 ng/mL; PSA_d <0.25 ng/mL/cc; negative systematic biopsy cores; and anterior/apical location. Exclusions: GG 1 or $\geq$ 3; life expectancy <10 years; suspected extracapsular extension/seminal vesicle invasion; or PIRADS 5/multiple lesions. Real-time TRUS/mpMRI fusion guided transperineal placement of two 21-gauge needles into the targeted lesion. Laser power was standardized at 5 W, employing a 10 mm “pull-back” technique to deliver supplementary energy for larger lesions. Urethral thermal damage was mitigated *via* continuous irrigation through a three-way 18-Fr Foley catheter. Procedural anesthesia consisted of topical lidocaine-prilocaine, perineal infiltration, and bilateral periprosthetic nerve blocks alongside conscious sedation. Following IV methylprednisolone administration, patients were discharged within hours with a 5-day oral antibiotic and analgesic course. Follow-up included PSA testing at 3, 6, and 12 months post-TPLA. Urological assessments were conducted at 6 and 12 months. An mpMRI was scheduled at 9 months, though it was performed earlier if triggered by a rising PSA or a suspicious digital rectal examination (DRE). Treatment failure was defined as a positive targeted biopsy at 12 months according to definition used in the Jupiter register. Targeted biopsies were strictly performed for patients with a PI-FAB score $\geq$ 3.

RESULTS: Ten patients were evaluated. Median age was 71 years (IQR: 63-77), PSA 6.97 ng/mL (5.40-8.00), prostate volume 56 cc (28-60), and PSA_d 0.12 ng/mL/cc (0.11-0.18). The median CCI was 0, ASA score 2, and BMI 24.0 kg/m². One patient had been on active surveillance for 1 year. All patients were discharged within 8 hours of admission. No Clavien-Dindo grade $\geq$ 2 complications occurred. One patient (10%) experienced gross hematuria, managed conservatively by extending catheterization to 11 days (cohort median: 7 days). Oncologically, median PSA declined to 4.28 ng/mL (2.90-6.10) at 6 months and 4.74 ng/mL (2.80-6.00) at 12 months. Two patients (20%) showed suspicious MRI findings (PI-FAB 3); however, subsequent biopsies resulted negative. No patients reported ejaculatory dysfunction or urinary incontinence.

CONCLUSIONS: Our preliminary experience suggests

that TPLA could be a feasible and effective outpatient modality for favorable intermediate-risk prostate cancer, particularly for apical and anterior lesions. However, further prospective studies with larger cohorts and longer follow-up periods are necessary to establish long-term oncological and functional outcomes

SC118**Mid-term oncologic outcomes of HIFU-based focal therapy for localized prostate cancer: a prospective single-center study**

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BACKGROUND: Focal therapy (FT) for localized prostate cancer (PCa) aims to achieve oncologic control while minimizing morbidity compared to radical treatment. Advances in multiparametric MRI (mpMRI) and micro-ultrasound (mUS) have improved lesion detection and treatment planning. We present updated mid-term oncologic outcomes from our FT program based on High-Intensity Focused Ultrasound (HIFU) within a multimodal imaging strategy.

METHODS: This prospective single-center cohort study includes patients treated with HIFU-FT since February 2021 conducted under the institutional protocol “Focal therapy for organ-confined prostate cancer” (ICH-018; Version V1.3, 18 May 2023). Eligible candidates were patients with PSA <20 ng/mL, ISUP Grade Group (GG) $\leq$ 3, and staged with $\geq$ 2 imaging modalities (mpMRI and/or mUS and/or PSMA PET/CT), without evidence of nodal or distant metastases. Follow-up consisted of PSA assessment at 3, 6, 12, 18 and 24 months, mUS at 3 and 12 months, mpMRI and PSMA PET performed before treatment and within 12 months after HIFU. Systematic plus targeted biopsy after 12 months or earlier when clinically indicated. Oncologic failure was defined as the need for radical treatment (surgery or radiotherapy) after HIFU.

RESULTS: A total of 149 patients were treated. Median age was 67 years (IQR 62-72) and baseline PSA was 6.36 ng/mL (IQR 4.81-8.18). Median follow-up was 25 months (IQR 12-36). Baseline biopsy showed GG1, GG2 and $\geq$ GG3 disease in 40%, 53.8% and 6.5%, respectively. Regarding treatment approach, quadrantectomy was performed in 55 patients (36.9%), hemiablation in 20 (13.4%), and focal ablation in 74 (49.7%). No patient underwent whole gland ablation. At 12 months, 102 patients underwent biopsy: 59.9% were negative or GG1, 29.4% GG2 and 12.7% $\geq$ GG3. Oncologic failure occurred in 32.7% (33/102), while 67.3% remained failure-free at 12 months. Among failures, 28.5% underwent surgery, 3.2% surgery plus radiotherapy and 11.1% radiotherapy alone. Among failure-free patients, 15.8% underwent re-HIFU and 41.2% were enrolled in an active surveillance program. Median PSA was 4.37 ng/mL (IQR 1.95-6.12) at 12 months (110 patients), decreasing to 3.65 ng/mL (IQR 1.9-4.7) at 24 months (27 patients).

CONCLUSIONS: HIFU-based FT demonstrated encouraging mid-term oncologic outcomes, with approximately two-thirds of patients free from radical treatment at 12 months. Careful multimodal imaging-based selection and structured follow-up support safe disease control. Ongoing follow-up and longer-term data are needed to further define oncologic durability.

SC119**Prognostic value of preoperative SUV in patients who underwent focal therapy HIFU: early prospective results from a single-center cohort**

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BACKGROUND: Identifying predictors of oncologic failure after focal therapy (FT) remains challenging. PSMA-PET allows quantitative metabolic assessment, and pre-treatment SUV may have prognostic value in patients undergoing HIFU-based FT for localized prostate cancer (PCa). We report prospective outcomes assessing the association between baseline PSMA uptake and post-HIFU oncologic results.

METHODS: This prospective single-center cohort study includes patients treated with HIFU since February 2021 under the institutional protocol "Focal therapy for organ-confined prostate cancer" (ICH-018; Version V1.3, 18 May 2023). All patients underwent baseline PSMA-PET/CT. Follow-up consisted of PSA monitoring every 3-6 months, PSMA-PET/CT within 12 months and around 24 months, and systematic plus targeted biopsy at 12 months or earlier when indicated. Oncologic failure was defined as transition to radical treatment (surgery or radiotherapy) after FT.

RESULTS: A total of 149 patients were included. Median age was 67 years (IQR 62-72), baseline median PSA 6.36 ng/mL (IQR 4.81-8.18), and median follow-up 25 months (IQR 12-36). Baseline PSMA-PET detected the index lesion in 77% of patients, with median SUVmax 6.5 (IQR 4.73-9.69). Regarding treatment approach, quadrantectomy was performed in 55 patients (36.9%), hemiablation in 20 (13.4%), and focal ablation in 74 (49.7%). No patient underwent whole-gland ablation (WGA). At first post-HIFU PET, median SUVmax declined by 18.9%, reaching 5.27 (IQR 0-7.95). A total of 102 patients had reached the 12-month follow-up and therefore underwent biopsy: 57.9% were negative or GG1, 29.4% GG2, and 12.7% GG≥3. Radical treatment-defined failure occurred in 32.7% at 12 months. Quantitative PET parameters were significantly associated with oncologic outcome. Patients who experienced treatment failure showed a higher baseline SUVmax (8.87 vs. 5.41, $P=0.003$) and a higher SUV/ Background (BKG) ratio (3.25 vs. 2.36, $P=0.011$) compared to non-failure cases. At first post-HIFU PET, median SUVmax (7.92 vs. 4.43, $P<0.001$) and median SUV/BKG (2.97 vs. 1.86, $P<0.001$) remained significantly higher in failures. The relative SUVmax decline also differed between groups, with a 10.7% reduction in failure patients versus 18.1% in failure-free patients.

CONCLUSIONS: Higher baseline PSMA-PET SUV values were associated with oncologic failure after focal HIFU therapy. Notably, patients who experienced failure demonstrated a smaller relative reduction in SUV after HIFU. These findings support the potential role of SUV as a prognostic biomarker in FT patient selection and surveillance. Longer follow-up and multicenter validation are required to refine SUV-based risk stratification.

SC120**Long-term patient-reported functional outcomes after focal therapy for localized prostate cancer: a 4-year single-centre study using validated proms**

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BACKGROUND: Focal therapy (FT) with High-Intensity Focused Ultrasound (HIFU) has emerged as a promising organ-sparing strategy for selected men with localized prostate cancer (PCa), aiming to minimize treatment-related morbidity while maintaining disease control. While oncological outcomes are increasingly documented, long-term functional data based on validated patient-reported outcome measures (PROMs) remain limited.

METHODS: We report a 4-year longitudinal evaluation of functional outcomes in a single-centre cohort of patients undergoing HIFU-FT. Men included in the analysis had histologically confirmed, localized PCa (ISUP ≤3) suitable for focal ablation, based on multiparametric MRI and/or PSMA PET/CT and PSA <20 ng/mL. Exclusion criteria comprised patients with anterior or extreme apical lesions and incomplete PROMs data. PROMs were prospectively collected at baseline and at predefined intervals (3, 12, 18, 24, 36, and 48 months), using validated questionnaires: IIEF-5, IPSS, and EPIC-26. The primary endpoints were erectile and urinary function; secondary endpoints included hormonal and intestinal function and correlation between PROM instruments. Statistical analysis was based on Wilcoxon signed-rank test for paired comparisons and Spearman's ρ for correlation coefficients.

RESULTS: A total of 126 men underwent HIFU-FT between 2021 and 2025; 103 completed baseline PROMs, and 83 had at least one follow-up point available. The median age at treatment was 68 years, with a median PSA of 7.4 ng/mL and a median prostate volume of 42 mL. At baseline, patients presented with well-preserved function, reflected in a median IIEF-5 of 18, IPSS of 7, and high EPIC scores across domains. At 3 months, a transient reduction in EPIC sexual score was observed ($P=0.029$), with IIEF-5 and IPSS remaining stable. No significant changes were seen in continence or EPIC urinary scores. By 12 months, all parameters returned to baseline. Over the 4-year follow-up, functional outcomes remained stable, except for a mild but statistically significant increase in urinary irritative symptoms ($P=0.007$). Erectile function, continence, hormonal, and intestinal domains showed no significant long-term deterioration. Strong correlation was observed between IIEF-5 and EPIC sexual scores ($\rho=+0.78$), and moderate inverse correlations between IPSS and EPIC urinary domains.

CONCLUSIONS: HIFU-FT offers a favourable long-term functional profile, with stable preservation of urinary, sexual, hormonal, and intestinal outcomes in most patients. The transient early decline in some domains appears reversible within the first post-treatment year, and no progressive functional deterioration was observed beyond that point. These findings support the role of HIFU-FT as a safe and tissue-sparing option in well-selected patients with localized PCa.

SC121**Evaluation of trifecta loss in favorable intermediate-risk prostate cancer: a matched-pair analysis comparing hifu and radical prostatectomy**

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BACKGROUND: Focal therapy such as HIFU has increasingly emerged as an alternative to robot-assisted radical prostatectomy (RALP) or radiotherapy for localized tumors, given its ability to achieve oncologic control while preserving functional outcomes. This study aims to evaluate and compare trifecta achievement in patients with favorable intermediate-risk prostate cancer who underwent HIFU and RALP.

METHODS: Following Institutional Review Board approval, data from patients undergoing HIFU or RALP at our institution between September 2019 and March 2025 were prospectively collected. Trifecta was defined as cancer control (absence of biochemical recurrence [BCR] according to the Stuttgart/Phoenix criteria, and need for re-treatment), preservation of sexual function, and absence of new-onset urinary incontinence. The cumulative incidence of trifecta loss at 36 months was estimated using the Kaplan-Meier method for patients with ≥ 12 months of follow-up. To address baseline differences, a matched-pair analysis was performed adjusting for age, Charlson Comorbidity Index (CCI), cardiovascular disease history, preoperative IIEF-5 score, baseline continence, PSA, and clinical T stage.

RESULTS: The unmatched datasets included 197 HIFU and 2115 RALP patients (median follow-up 24 months [18-37]). Initially, HIFU patients were significantly older (75.0 vs. 67.0 years, $P < 0.001$), had higher CCI (2.0 vs. 1.0, $P < 0.001$), higher cardiovascular disease prevalence (42% vs. 28%, $P = 0.031$), and lower preoperative IIEF-5 scores (17.0 vs. 22.0, $P < 0.001$). Preoperative PSA and clinical T stage were comparable. Matching yielded a highly comparable cohort of 50 patients (25 per arm), successfully balancing all baseline covariates: age ($P = 0.4$), CCI ($P = 0.6$), cardiovascular disease ($P > 0.9$), IIEF-5 ($P = 0.9$), continence (100% in both groups), PSA ($P = 0.4$), and T stage ($P = 0.3$). At 36 months, RALP patients demonstrated a significantly higher cumulative incidence of trifecta loss compared to the matched HIFU cohort when defining BCR by Phoenix (48.2% vs. 11.1%, $P = 0.002$) and Stuttgart criteria (48.2% vs. 26.2%, $P = 0.043$). When trifecta loss was strictly defined by the clinical need for secondary oncological re-treatment, the difference did not reach statistical significance (48.2% vs. 30.8%, $P = 0.09$).

CONCLUSIONS: In selected patients, HIFU appears to be an oncologically safe procedure providing superior trifecta outcomes – specifically the preservation of erectile function and urinary continence compared to whole-gland treatments like RALP. Further studies are necessary to validate these findings and to establish a standardized definition of oncological failure following focal therapy.

SC122

Oncological and functional outcomes of salvage robot-assisted radical prostatectomy (RALP) after high-intensity focused ultrasound (HIFU): a multicenter study

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BACKGROUND: Focal therapy using techniques such as HIFU is increasingly adopted in the management of localized prostate cancer, a setting in which whole-gland treatments have historically predominated. However, evidence regarding salvage surgery after focal therapy remains limited. This

multicenter study aimed to evaluate the feasibility, as well as the oncological and functional outcomes, of robot-assisted radical prostatectomy in this setting.

METHODS: Seven high-volume centers participated in the study, each retrospectively identifying patients from prospectively maintained databases who underwent RARP following focal therapy with HIFU. Functional and sexual outcomes were assessed using validated questionnaires. Oncological outcomes were evaluated based on the occurrence of biochemical recurrence.

RESULTS: A total of 82 patients who underwent RARP after HIFU were included. The median IPSS and IIEF-25 scores were 8 (IQR 5-14) and 18 (IQR 14-22), respectively. The median preoperative PSA was 4.7 ng/mL (IQR 3.10-6.20), and the preoperative pad-free rate was 96.3%. Neurovascular bundle preservation was performed in 61 procedures (74%), while pelvic lymph node dissection was carried out in 46 cases (56%). Only two perioperative complications were observed, both classified as grade 1 according to the Clavien-Dindo classification. The median postoperative PSA was 0.02 ng/mL (IQR 0.01-0.03), remaining stable at 0.02 ng/mL (IQR 0.01-0.04) at 12 months of follow-up. At 12 months after surgery, the median IPSS and IIEF-25 scores were 10 (IQR 1-14) and 6 (IQR 4-8), respectively. The pad-free rate at one month postoperatively was 57.3%, with 34.6% of patients reporting the use of only one pad per day. Biochemical recurrence at 12 months was observed in four patients (4.87%), all of whom were treated with salvage radiotherapy.

CONCLUSIONS: RARP after HIFU is a feasible and safe procedure despite prior focal therapy, with favorable early oncological outcomes and an acceptable functional morbidity profile.

SC123

Focal therapy for localised prostate cancer: clinical and imaging predictors of failure in a 4-year prospective cohort

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BACKGROUND: Focal therapy (FT) with high-intensity focused ultrasound (HIFU) is promising organ-sparing strategy that aims to preserve function while controlling disease in localized prostate cancer (PCa). However, a proportion of patients ultimately requires radical treatment. We sought to identify clinical and imaging predictors of failure to optimize selection and surveillance.

METHODS: We conducted a prospective, single-centre study on a cohort of patients with localized PCa treated with HIFU since February 2021 (protocol ICH-018, V1.3, 18 May 2023). Staging used ≥ 2 modalities (mpMRI+microUS+PSMA-PET/CT). Follow-up included PSA every 3-6 months, mpMRI and PSMA-PET/CT at 12 and 24 months and systematic targeted biopsy at 12 months or earlier if indicated. Failure was defined as initiation of radical treatment after HIFU (radical prostatectomy and/or radiotherapy; repeat FT was not considered failure). We assessed age, PSA, biopsy ISUP grade group, PSA density (if available), PIRADS score, micro-ultrasound PRIMUS score, index-lesion size and location, prostate volume, and PSMA-PET quantitative metrics (SUVmax; tumour-to-background ratio) as candidate predictors. We compared groups using Mann-Whitney U for continuous variables

and χ^2 /Fisher's Exact Tests for categorical variables. We fitted a multivariable logistic regression for failure at 12 months and a Cox proportional hazards model for time-to-failure; continuous predictors (PSA, PSA density, SUVmax, tumour-to-background ratio, lesion size, prostate volume) were kept continuous. Results are reported as OR/HR with 95% CIs; two-sided $\alpha=0.05$ (complete-case analysis).

RESULTS: We included 149 patients (median age 67 years, IQR 62-72; baseline PSA 6.36 ng/mL, IQR 4.81-8.18) and observed a median follow-up of 25 months (IQR 12-36). Baseline mpMRI identified PI-RADS ≥ 3 lesions in 94.7%. Baseline PSMA-PET detected the index lesion in 77% (median SUVmax 6.5, IQR 4.73-9.69). At the first post-HIFU PET, median SUVmax declined to 5.27 (IQR 0-7.95). At 12 months, we performed biopsy in 102 patients and recorded failure in 32.7%. Patients who failed showed a higher baseline SUVmax (8.87 vs. 5.41; $P=0.003$) and a higher tumour-to-background ratio (3.25 vs. 2.36; $P=0.011$). On the first post-HIFU PET, they demonstrated higher SUVmax (7.92 vs. 4.43; $P<0.001$) and a higher tumour-to-background ratio (2.97 vs. 1.86; $P<0.001$). mpMRI PIRADS did not discriminate failure ($P=0.48$). In multivariable models, biopsy ISUP ≥ 3 , PSA density, baseline SUVmax, and post-HIFU SUVmax independently predicted failure, whereas PIRADS did not.

CONCLUSIONS: Quantitative PSMA-PET metrics at baseline and on surveillance predict failure after Focal therapy, whereas PIRADS alone does not. Incorporating ISUP grade, PSA density and PSMA-PET parameters into selection and surveillance may improve risk-adapted focal therapy. Multicentre studies with longer follow-up should validate these predictors and optimise post-HIFU imaging pathways.

SC124

Focal therapy with transperineal laser ablation for low-intermediate risk prostate cancer: an initial experience

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BACKGROUND: Focal therapy (FT) for prostate cancer (PCa) aims to achieve effective oncologic control while minimizing treatment-related morbidity by selectively ablating the dominant cancerous lesion and preserving surrounding healthy prostate tissue. Several energy modalities are used in FT, including high-intensity focused ultrasound (HIFU), cryotherapy, brachytherapy, focal laser ablation (FLA), vascular-targeted photodynamic therapy, and radiofrequency ablation. However, clinical data on transperineal FLA for PCa remain limited.

METHODS: Between January 2024 and December 2025, 23 patients (either under active surveillance or newly diagnosed with MRI-visible, unifocal, low or intermediate-risk PCa) were prospectively enrolled and underwent focal therapy with Transperineal FLA. Procedures were performed using the Soractel™ EchoLaser EVO system (Elesta S.p.A., Italy) with MRI-ultrasound fusion guidance (Koelis Trinity and ProMap Lite software) for accurate lesion targeting. Similar to Transperineal Laser Ablation for benign prostatic hyperplasia, laser fibers were placed under ultrasound guidance, and the EchoLaser Smart Interface (ESI) enabled pre-treatment visualization and confirmation of fiber positioning, tailored to lesion bidimensional morphology. In addition, for the last five patients in the series, the dedicated Koelis Trinity software was implemented for three-dimensional lesion planning.

Follow-up included serial PSA testing (after 30 days and subsequently every 3 months), multiparametric MRI (after 6-9 months) and biopsy after 9-12 months.

RESULTS: Patients had a median age of 72 years [62.5-76.5], with a median preoperative PSA level of 8.25 ng/mL [7.1-10.9]. Median prostate volume was 64 mL [54-102], and PSA density was 0.15 [0.09-0.21]. The identified lesions had a median PI-RADS score of 4 [3-4]. Median follow-up was 15 months [5-22]. Operative time was 50 minutes [45-60], with a median ablation time of 6 minutes [5-6]. The catheter was removed after a median of 5 days [4-5]. At the last follow-up, PSA levels had decreased significantly to 3.4 ng/mL [2.8-5.1; $P<0.05$]. On postoperative mpMRI, 4 patients (17.4%) showed suspicious lesions, and confirmatory biopsy demonstrated the presence of PCa. Specifically, 2 patients developed PCa outside the treated area (Gleason score 7 [4+3] and 6 [3+3]), while 2 showed persistent disease within the treated area and may therefore be considered treatment failures (Gleason score 7 [4+3] and 7 [3+4]). 4 complications were recorded, all graded as Clavien-Dindo ≤ 3 . These included 3 episodes of lower urinary tract infection, all resolved with antibiotic therapy, and 1 episode of urinary retention.

CONCLUSIONS: FLA appears to be a safe and effective focal therapy option for localized low and intermediate-risk PCa when performed within a structured follow-up protocol. Further studies are needed to refine patient selection and identify predictors of favorable oncologic outcomes.

SC125

Focal cryoablation using PROMAP® FT software and Koelis Trinity® system for MRI/US-guided focal therapy: preliminary oncological outcomes with 1 year confirmatory biopsy at 1 year

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BACKGROUND: Magnetic Resonance Imaging (MRI)-guided focal therapy (FT) enables precise treatment of localized prostate cancer (PCa) while preserving functional outcomes, but is limited by the complexity and cost of in-bore systems. The PROMAP software integrated in the Koelis Trinity platforms used for MRI-Ultrasound (US) fusion prostate biopsy (PBx) enables precise real-time targeting of the index lesion found at MRI to drive focal treatment. In this study, we reported preliminary outcomes of a prospective single-centre series of patients treated with MRI/US guided Focal Cryoablation (FC).

METHODS: Between March 2023 and September 2025, 20 consecutive patients with biopsy-proven unilateral clinically significant PCa (csPCa, defined as ISUP ≥ 2) underwent MRI/US fusion-guided FC using the PROMAP software integrated into the Koelis Trinity® system. PROMAP enabled retrieval of the 3D prostate model and biopsy template generated at initial MRI-US fusion PBx, allowing accurate targeting of the index lesion (adjusted for perilesional positivity) and real-time treatment monitoring. Cryoprobes (1-3, based on lesion size) were placed *via* a transperineal approach, and ablation was performed using 2-3 freeze-thaw cycles (maximum 10 minutes each) under real-time MRI/US fusion guidance. All patients underwent 12-month mpMRI with lesion assessment by PI-FAB score, followed by protocol-based biopsy includ-

ing targeted sampling of the treated area, systematic cores, and biopsy of any new MRI-detected lesions. The primary endpoint was the rate of csPCa at 12 months.

RESULTS: The median age of the cohort was 73 years (IQR 61-83; mean 72.3±7.2). The median pre-treatment PSA was 5.72 ng/mL (IQR 2.6-12.1) and the median prostate volume was 50 mL (range 22-88 mL). On pre-treatment MRI, PI-RADS score was 3 in 4 patients (21%), 4 in 12 (63%), and 5 in 3 (16%). Baseline histology showed ISUP grade 2 in 15 (75%) patients, grade 3 in 4 (20%), and grade 4 in 1 (5%). 3/20 (15%) patients had PCa at re-biopsy: 2 patients showed ISUP grade 1 (1 in the pretreated area and one in the systematic sampling), and 1 patient (5%) had ISUP grade 2 in the treated area. The remaining 16 patients (84.2%) showed no evidence of residual cancer on re-biopsy. Preoperative median (IQR) IPSS and IIEF were respectively 10 (2-18) and 20 (3-23), and remained stable at 12 months.

CONCLUSIONS: MRI/TRUS fusion-guided focal cryotherapy using the Trinity Koelis® system is a technically reproducible and oncologically promising treatment modality for localised prostate cancer. Preliminary 12-month data demonstrated a csPCa-free survival of 95%.

SC126

AI-driven model for early failure prediction after HIFU integrating immediate post-ablation ultrasound and clinical data

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BACKGROUND: High-Intensity Focused Ultrasound (HIFU) is an emerging focal therapy for localized prostate cancer, offering an alternative to radical prostatectomy and radiotherapy while balancing oncological control and functional preservation. However, early treatment failure remains a critical challenge, and tools to support early risk stratification are lacking. We developed a two-stage model integrating immediate post-ablation ultrasound with routinely available clinical variables to predict early recurrence (≤12 months) after HIFU.

METHODS: Seventy-two patients treated with HIFU were analyzed. In Stage 1, a deep-learning model (DenseNet121) analyzed immediate post-ablation ultrasound images to generate a patient-level probability of treatment failure. In Stage 2, this image-derived probability was combined with routinely available clinical variables (age, PSA density, ISUP grade, percentage of positive biopsy cores, and treated volume) in a Support Vector Machine (SVM) to predict early treatment failure. Model performance was evaluated using cross-validation.

RESULTS: The integrated model achieved the highest predictive accuracy, with an area under the receiver-operating characteristic curve of 0.79, compared with 0.75 for the model based on clinical variables alone and 0.65 for the model based on imaging alone. Clinical variables accounted for most of the predictive signal, with the ultrasound-derived probability providing a modest but consistent additional value, particularly in larger treated volumes (≥5.7 cc).

CONCLUSIONS: This two-stage framework combining deep learning and clinical variables improves prediction of early treatment failure after HIFU, supporting point-of-care risk stratification and individualized follow-up.

 SMART COMMUNICATION (SC127 - SC140)

Tumore della prostata: staging

SC127

PSMA-PET staging refines patient selection in oligometastatic prostate cancer: translating RAMPP trial findings into contemporary practice

SC128

Development and validation of a novel risk model for 10-year other-cause mortality in radical prostatectomy candidates: implications for patient selection

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Validation of the cambridge, EAU, and STARCAP prognostic score in predicting biochemical recurrence in contemporary prostate cancer patients treated with radical prostatectomy in the MRI era

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A critical appraisal of PSMA-PET use for primary staging in prostate cancer patients undergoing radical prostatectomy: is molecular imaging always needed?

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Impact of negative primary staging with PSMA-PET *versus* conventional imaging among patients with lymph node invasion after radical prostatectomy

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Not all high-risk biochemical recurrence is the same: patients harboring both EAU BCR risk fac-

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Evaluating whether PSMA-PET can safely guide omission of lymphadenectomy in intermediate-risk prostate cancer: a randomized prospective study

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Solitary PSMA-avid rib lesions on PSMA-PET/CT in high-risk prostate cancer: association with early postoperative outcome

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Whole-body MRI for preoperative staging of prostate cancer: correlation with pathological outcomes after radical prostatectomy

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Whole-body MRI for prostate cancer staging: real-world diagnostic yield from a tertiary referral center

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Detection of clinically significant prostate cancer in the MRI-negative contralateral lobe: is systematic biopsy still necessary?

SC139

PSMA-PET re-evaluation in a multidisciplinary tumor board: impact on staging and treatment of prostate cancer

SC140

Diagnostic accuracy of molecular imaging for lymph node staging in prostate cancer patients: results from two academic centres

SC127**PSMA-PET staging refines patient selection in oligometastatic prostate cancer: translating RAMPP trial findings into contemporary practice**

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BACKGROUND: The RAMPP trial showed an oncological benefit from adding radical prostatectomy (RP) to best systemic therapy (BST) in patients with oligometastatic prostate cancer (omPCa). Since only a minor proportion of men were staged with PSMA-PET, these findings might not be applicable to contemporary cohorts. We aimed to compare the oncological outcomes of RP+BST in omPCa staged with PSMA-PET vs. conventional imaging.

METHODS: We relied on 119 omPCa patients (up to 5 bone metastases) who received RP + PLND + BST. Overall, 66 (55%) staged with conventional imaging (2010-2019) were identified from a single institution dataset; 53 (45%) staged with PSMA-PET (2019-2025) were identified from a multi-institutional cohort. We aimed to evaluate the impact of PSMA-PET on clinical recurrence-free survival rate (CR-FSR) detected with any imaging during follow-up. Given the difference in follow-up duration between the groups, we applied 24 months right censoring. Overlap weighting (OW) was performed to balance the groups for baseline characteristics. Weighted Cox regression models estimated hazard ratios (HRs) for the use of PSMA-PET.

RESULTS: The median number of bone metastases was 2 in both groups. The most common metastatic sites were axial skeleton (70%) and ribs (38%). PSMA-PET patients had a higher prevalence of axial metastases (80 vs. 59%) and a lower rate of costal involvement (27 vs. 48%). PSMA-PET patients had a lower rate of cT2-3 stage (62% vs. 79%), and ISUP GG 4-5 (34 vs. 44%) than those staged with conventional imaging. A total of 54 (37%) and 56 (77%) men had PSA persistence and received adjuvant treatment, respectively, with no differences between the groups. A total of 7 (10%) vs. 25 (33%) experienced CR in the PSMA-PET vs. conventional imaging groups, respectively. The 2-year CR-FSR was higher in the PSMA-PET (86%) than the conventional cohort (67%, $P < 0.01$). The HR for PSMA-PET was 0.54 ($P = 0.046$). These results held true even after stratification according to the number of metastases (≤ 3 vs. > 3).

CONCLUSIONS: In omPCa treated with RP and BST, PSMA-PET staging was associated with superior CR-FSR. PSMA-PET may enhance patient selection by identifying men with truly limited metastatic disease who are most likely to benefit from local treatment intensification. These results suggest that the oncological advantages reported in the RAMPP trial could be even greater in contemporary cohorts staged with modern imaging.

SC128**Development and validation of a novel risk model for 10-year other-cause mortality in radical prostatectomy candidates: implications for patient selection**

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BACKGROUND: Available guidelines recommend radical treatment for prostate cancer (PCa) patients with a life expectancy ≥ 10 years. However, there is a lack of tools predicting other-cause mortality (OCM) in patients considered for radical prostatectomy (RP) according to comorbidity status. We developed a novel risk score for predicting 10-yr OCM specific for RP candidates to provide physicians with a tool aimed at optimizing patients' selection.

METHODS: We relied on 9,445 patients treated with RP at a single centre between 1985 and 2024. Patients receiving neoadjuvant therapies were excluded. Preoperative information on comorbidity status was prospectively collected and age-adjusted Charlson-comorbidity Index (CCI) was calculated. The eXtreme Gradient Boosting (XGBoost) automatic feature selection mechanism selected baseline variables associated with OCM ($N = 21$). A novel risk tool predicting 10-yr OCM was developed within a training set ($N = 6,611$). Discrimination of the novel risk score was assessed and compared with the CCI score within a testing set ($N = 2,834$), using the C-index. Finally, decision curve-analysis (DCA) was used to assess models' net-benefit.

RESULTS: Overall, median age and PSA at diagnosis were 65 (IQR: 60-70) years and 6.5 (IQR: 4.9-9.5) ng/mL. Median follow-up for survivors was 68 months (IQR: 33-120) months and 335 OCM events were recorded. The 10-year OCM vs. CSM-free survival rates were 93% (95%CI: 92-94%) and 97% (95%CI: 97-98%). The following variables were selected for developing a novel risk score predicting 10-yr OCM: ISUP grade group at biopsy, myocardial infarction, diabetes mellitus type, age, hypercholesterolemia, cT stage, PSA at diagnosis, cerebrovascular accident, BMI, smoking status, potus, peripheral vascular disease, hypertension, chronic pulmonary disease, deep venous thrombosis, history of neoplasm, arrhythmia, peptic ulcer, and depression. The novel model exhibited a higher accuracy compared to the CCI at external validation ($N = 2,834$; C-index of 72% vs. 67%) and higher net benefit at DCA.

CONCLUSIONS: We developed a novel procedure-specific risk score for 10-year other-cause mortality in radical prostatectomy candidates which outperforms the CCI and can help guide patient selection by identifying those with sufficient life expectancy for surgery.

SC129**Validation of the Cambridge, EAU, and STAR-CAP prognostic score in predicting biochemical recurrence in contemporary prostate cancer patients treated with radical prostatectomy in the MRI era**

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BACKGROUND: Risk stratification tools routinely used in prostate cancer (PCa) decision making were developed in historical cohorts treated before the introduction of novel imaging (namely, multiparametric MRI). We aimed at vali-

dating the EAU, Cambridge prognostic groups (CPG), and STARCAP risk stratification tools in a contemporary cohort of PCa patients diagnosed with mpMRI-targeted biopsy.

METHODS: We relied on 4,450 PCa patients diagnosed with MRI-targeted with concomitant systematic biopsies receiving RP between 2015 and 2024. The primary outcome was biochemical recurrence (BCR), defined by two PSA values ≥ 0.2 ng/mL. The CPG, EAU, and STARCAP scores were externally validated and the accuracy was assessed using the Harrel's c-index. The CPG-MRI, EAU-MRI, and STARCAP-MRI scores were evaluated by replacing cT-stage with mpMRI findings (cT1-2 with MRI-OC, cT3 with ECE, cT4 with SVI) and systematic ISUP-GG with the highest GG between targeted and systematic biopsy. The C-indexes of the new models were compared to the original ones based on cT at DRE.

RESULTS: A total of 492 (12%), 1,365 (32%), 1,420 (34%) and 959 (23%) men were EAU low, intermediate fav, unfav, and high-risk, respectively; 681 (17%), 1,453 (36%), 948 (24%), 615 (15%) and 303 (7.6%) were CPG 1,2,3,4, and 5, respectively; 1503 (38%), 2293 (57%), and 192 (4.8%) were STARCAP IA-C, IIA-C and IIIA-C, respectively. At median follow-up of 24 months (IQR 13-48), 570 patients experienced BCR. The overall 4y BCR-FSR was 78%. At DRE, 2,766 (65%) men had cT1, 1,334 (31%) cT2, 178 (4.2%) cT3, and 2 (0.1%) cT4. At MRI, 3,715 (82%) had OC, 771 (17%) ECE, and 64 (1.4%) SVI. After mpMRI-derived staging inclusion, 1,746 patients (38%) were reclassified into different risk groups. A total of 1,546 (34%), 2,514 (45%), and 2,689 (59%) were reclassified across CPG, EAU, and STARCAP groups, respectively. The C-Indexes for CPG-MRI, EAU-MRI, and STARCAP-MRI were 72%, 70%, and 70% vs. 67%, 66%, and 65% at DRE, respectively.

CONCLUSIONS: The CPG, EAU, and STARCAP risk groups demonstrated good performance in predicting BCR in a contemporary cohort of patients staged with MRI. The addition of MRI-derived features instead of DRE staging may enhance patient selection and optimize clinical management.

SC130

A critical appraisal of PSMA-PET use for primary staging in prostate cancer patients undergoing radical prostatectomy: is molecular imaging always needed?

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BACKGROUND: PSMA-PET is the most accurate imaging for primary staging in prostate cancer (PCa) and is increasingly used regardless of disease aggressiveness. However, its broad use may offer limited benefit and higher costs. We aimed to assess whether PSMA-PET before radical prostatectomy (RP) impacts decision-making, especially for extended pelvic lymph node dissection (ePLND).

METHODS: We identified 811 PCa patients treated with RP+ePLND at 13 referral centers (2019-2025) who underwent pre-surgery PSMA PET. Rates of EAU risk groups (Favourable- vs. unfavourable-intermediate vs. high-risk) over time were displayed using the estimated annual percent

change (EAPC). The lymph node invasion (LNI) risk was estimated using the Briganti 2019 nomogram. The number of patients needed to test (NNT) with PSMA PET to find nodal metastasis among those with a risk $< 7\%$, in whom the results would prompt an ePLND, was computed. Among intermediate risk patients with a risk $> 7\%$, the number of ePLND potentially spared by applying the novel Briganti 2023 nomogram among PSMA-PET negative patients was assessed.

RESULTS: Overall, 100 (12%) vs. 169 (21%) vs. 542 (67%) patients were intermediate-favourable vs. intermediate-unfavourable vs. high-risk. Rates of high-risk patients ranged from 79 to 59%, with a decrease over time ($P < 0.001$), followed by an increase in intermediate-favourable ($P = 0.02$) and unfavourable patients ($P = 0.03$). The prevalence of mN1 disease at PSMA-PET was 2% vs. 8% vs. 13% in favourable- vs. unfavourable-intermediate risk vs. high-risk patients ($P < 0.001$). The NNT with PSMA-PET to find pN1 PCa was 100 vs. 56 vs. 11 in favourable vs. unfavourable intermediate vs. high-risk patients. Using nomograms developed in patients with mN0 PCa to select ePLND candidates in favourable intermediate-risk patients would not have spared any additional procedures. Conversely, in unfavourable intermediate-risk patients a total of 66 (58%) ePLNDs would have been spared without substantially increasing the rate of pN1 missed (1.8 vs. 3.3%).

CONCLUSIONS: Indiscriminate use of PSMA-PET for staging among RP patients with favorable intermediate-risk PCa is not justified. Molecular imaging should be considered in unfavourable- and high-risk patients, when it would alter management decisions, such as ePLND indication and allow for a more cost-effective use of resources.

SC131

Impact of negative primary staging with PSMA-PET versus conventional imaging among patients with lymph node invasion after radical prostatectomy

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BACKGROUND: The increased use of highly sensitive staging techniques such as PSMA-PET for primary staging, has led to a stage migration in prostate cancer (PCa). However, it is unknown to what extent this selection process has impacted on cancer control outcomes of patients harboring nodal metastasis (pN1) at radical prostatectomy (RP). We hypothesize that pN1 patients with a negative preoperative PSMA-PET (mN0) would exhibit improved cancer control compared to cN0 patients at conventional imaging.

METHODS: A total of 357 pN1 patients treated at 12 centers between 2016-2025 were identified and stratified between mN0 (N=107) and cN0 (N=250). The study outcome was biochemical failure defined as a PSA value ≥ 0.1 ng/mL 6 weeks after surgery or two consecutive PSA ≥ 0.2 ng/mL. Kaplan-Meier (KM) plots depicted biochemical failure-free survival (BFS) according to staging modality (mN0 vs. cN0). Multivariable Cox-regression (MCR) models tested the impact of mN0 stage on biochemical failure; covariates consisted of PSA at diagnosis, RP ISUP grade group (GG; 1-3 vs.

4 vs. 5), pT (pT2/3a vs. pT3b) and number of positive nodes (1-2 vs. ≥ 3). These analyses were repeated among patients with limited nodal burden (1-2 positive nodes, N=242).

RESULTS: Median age and PSA at diagnosis were 66 (IQR: 61-71) years and 10 (IQR: 6-20) ng/mL. At RP, cN0pN1 patients harboured larger nodal burden (≥ 3 positive nodes, 40%) compared to their miN0pN1 counterparts (≥ 3 positive nodes, 15%, $P < 0.001$). In KM plots 5-yr BFS rates were 39% for cN0pN1 vs. 62% for miN0pN1 patients. In MCR models, miN0pN1 status achieved independent predictor status for biochemical failure risk (HR: 0.55, 95%CI 0.36-0.78, $P = 0.001$). Among patients with limited nodal burden, 5-yr BFS rates were 48% for cN0 vs. 68% for miN0 patients. In MCR models, miN0 status achieved independent predictor status for lower biochemical failure risk (HR: 0.61, 95%CI 0.38-0.97, $P = 0.038$).

CONCLUSIONS: pN1 patients with a negative preoperative PSMA-PET (miN0) have better biochemical control than those staged with conventional imaging, including patients with limited nodal burden, supporting more tailored postoperative treatment decisions.

SC132

Does abdominopelvic CT add to pelvic MRI in higher-risk prostate cancer staging? A real-world study

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BACKGROUND: PSMA-PET is the preferred imaging modality for prostate cancer (PCa) staging. However, when it is unavailable or not feasible, guidelines still recommend conventional imaging with contrast-enhanced abdominopelvic computed tomography (CT) and bone scan (BS) before radical treatment. In practice, pelvic multiparametric MRI (mpMRI) is often available at diagnosis. We assessed agreement between MRI and CT, both combined with BS, for nodal and distant staging, evaluated their diagnostic performance for nodal disease using surgical pathology as reference, and investigated the incremental value of CT when pelvic MRI is already available.

METHODS: We retrospectively screened consecutive prostate biopsies performed at our referral centre over 4 years and included men with unfavourable intermediate- or high-risk PCa staged with mpMRI, CT, and BS. Patients were stratified by surgical (radical prostatectomy [RP]) versus non-surgical treatment. PSMA-PET findings were analysed when available. Agreement between MRI and CT was assessed using Cohen's kappa. For nodal staging, diagnostic performance was evaluated against final pathology in RP patients. For distant staging, MRI+BS was compared with CT+BS. We also recorded clinically relevant CT findings. Post hoc, the clinical yield of CT beyond MRI was defined as nodal or metastatic reclassification, or urgent non-PCa-related findings, and expressed as number needed to scan (NNS).

RESULTS: Overall, 323 patients were included; median age was 72 years (IQR 66-77), median PSA was 7.9 ng/mL (IQR 5.5-13.6), and biopsy ISUP grade groups 3, 4, and 5 accounted for 50%, 31%, and 17% of cases. Two-thirds (N=220) underwent RP. MRI and CT identified cN1 disease in 6.8% and 8.1%, with moderate agreement for pelvic nodal

staging ($\kappa = 0.51 \pm 0.09$), lower in RP patients ($\kappa = 0.35 \pm 0.13$). In the RP subgroup, 21% had pN1 disease. Both CT and MRI showed low sensitivity for nodal metastases versus pathology (19.6% and 15.2%), with AUCs of 0.58 and 0.56. Among patients with molecular imaging (N=82), PSMA-PET/CT showed superior performance (AUC 0.86). MRI+BS and CT+BS showed moderate agreement for distant metastasis staging ($\kappa = 0.56 \pm 0.08$). CT provided added value beyond mpMRI in 14% of patients (NNS 7.2, 95% CI 5.6-9.9): it correctly upstaged disease in 1.9%, clarified ambiguous MRI/BS findings in 2.5%, correctly downstaged MRI in 6.6%, and detected urgent non-PCa-related findings in 3.5%; in 3.5%, CT was misleading. In the RP subgroup, the NNS was 9.2 (95% CI 6.7-14.7). Limitations include the retrospective design and lack of central imaging review.

CONCLUSIONS: Pelvic MRI and abdominopelvic CT show only moderate agreement for nodal and distant staging in higher-risk PCa, and both have poor accuracy for detecting pN1 disease. When PSMA-PET/CT is unavailable, the incremental value of CT over mpMRI is limited but clinically relevant, refining management in about 1 in 7 patients; CT therefore should not be omitted.

SC133

Not all high-risk biochemical recurrence is the same: patients harboring both EAU BCR risk factors are more likely to have distant disease and worse progression-free survival

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BACKGROUND: Patients with high-risk biochemical recurrence (BCR) after radical prostatectomy are commonly grouped into a single clinical category, although their risk of metastatic disease and subsequent progression is likely heterogeneous. We assessed whether harboring both risk factors of BCR, (namely International Society of Urological Pathology (ISUP) Grade Group ≥ 4 and prostate-specific antigen doubling time (PSAdt) < 12 months) could identify patients at higher risk of distant disease on PSMA PET/CT and worse progression-free survival (PFS).

METHODS: We retrospectively analyzed patients with high-risk BCR after radical prostatectomy who underwent PSMA PET/CT at recurrence. Two adverse features were considered: ISUP Grade Group ≥ 4 and PSAdt < 12 months. Patients were stratified according to the presence of one vs. two risk factors. The primary analyses assessed the association between risk group and distant disease at PSMA PET/CT, defined as miNanyM1, using logistic regression, and the association with PFS using Kaplan-Meier estimates and Cox regression.

RESULTS: A total of 135 evaluable patients were included, of whom 82 had one risk factor and 53 had two risk factors. Patients with two risk factors showed a more aggressive clinical profile, including a shorter median time to first BCR (68.0 vs. 112.0 months), a lower use of salvage radiotherapy (29% vs. 62%), and more frequent treatment intensification with concomitant ADT (74% vs. 49%) and ARTA (28% vs. 2%). Median ADT duration was longer in the two-risk-factor group (24.0 vs. 18.0 months). Patients harboring both risk factors

were substantially more likely to present with distant disease on PSMA PET/CT than those with one risk factor (69.8% vs. 32.9%). On multivariable logistic regression, the presence of two risk factors was strongly associated with metastatic disease at recurrence (OR 4.71, 95% CI 2.27-10.15; $P < 0.001$). This simple clinical stratification also translated into significantly different oncologic outcomes. On Multivariable Cox regression, patients with two risk factors had worse PFS than those with one risk factor (HR 1.66, 95% CI 1.03-2.67; $P = 0.039$) after adjusting for well-known confounders.

CONCLUSIONS: Not all patients with high-risk BCR after radical prostatectomy carry the same biologic or clinical risk. A simple model combining ISUP Grade Group ≥ 4 and PSAdt < 12 months identifies a subgroup with a markedly higher likelihood of distant disease on PSMA PET/CT, greater treatment intensification, and significantly worse PFS. These findings support a more refined risk stratification within high-risk BCR in the PSMA PET era.

SC134

Evaluating whether PSMA-PET can safely guide omission of lymphadenectomy in intermediate-risk prostate cancer: a randomized prospective study

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BACKGROUND: This study aims to prospectively evaluate whether PSMA-PET can safely guide the omission of PLND in UIR PCa patients undergoing robot-assisted radical prostatectomy (RARP).

METHODS: This is a monocentric, prospective, randomized controlled study conducted in accordance with national regulations. From September 2025 to March 2026, patients with histologically confirmed UIR PCa, localized disease on multiparametric MRI (mpMRI), and negative PSMA-PET/CT for nodal or distant metastases were enrolled. Patients were randomized (1:1) into two groups: RARP with PLND and RARP without PLND. The primary objective was to evaluate biochemical recurrence (BCR), PSA persistence rates. Secondary endpoints included the predictive value of PSMA-PET with pathological nodes involvement, perioperative complications.

RESULTS: 55 patients have been enrolled and randomized. All patients had negative preoperative PSMA-PET/CT. The median followup was 16 months, with a median preoperative PSA of 5.8 ng/mL. Among them, 54% had biopsy Grade Group 2 and 46% Grade Group 3. In the PLND arm, no patient was found to have lymph node invasion (all pN0). Overall BCR-free survival at 10 months after RARP was 94%, with 3 patients experiencing biochemical recurrence. No patient showed PSA persistence after surgery. No intraoperative complications were reported, while perioperative morbidity was higher in the PLND group, consistent with the known risk profile of PLND.

CONCLUSIONS: These preliminary randomized data suggest that omitting PLND in UIR PCa patients with negative PSMA-PET is oncologically safe. The absence of lymph node invasion in the PLND group further supports the high negative predictive value of PSMA-PET. This approach may represent

a paradigm shift in nodal management, allowing reduction of surgical morbidity and healthcare costs without compromising oncological outcomes.

SC135

Solitary PSMA-avid rib lesions on PSMA-PET/CT in high-risk prostate cancer: association with early postoperative outcome

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BACKGROUND: PSMA-PET/CT has a strong recommendation for staging high risk prostate cancer (PCa) patients due to its more sensitive detection of lymph node and bone metastases compared to the traditional work-up with abdominopelvic CT scan and bone scan. However, accurate interpretation of certain lesions, especially rib lesions, remains challenging. Isolated PSMA-avid rib lesions have been reported to be almost always benign in the absence of evidence of metastatic disease elsewhere. This study aimed to investigate the oncological outcomes of high risk PCa patients underwent surgery after being staged as M1b with a single rib lesion at PSMA-PET/CT.

METHODS: Overall, 47 M+ patients at the preoperative PSMA-PET/CT underwent radical prostatectomy (RP) + extended pelvic lymph nodes dissection (ePLND) between May 2017 and June 2025. Type of treatment (radical vs. systemic treatment) was evaluated in a multidisciplinary urooncologic teams according to age, comorbidity and burden of disease at PSMA-PET/CT. Early oncological outcomes of the patients with a single rib lesion were assessed. Univariate analysis was conducted to evaluate the correlation between the presence of a solitary rib metastasis and PSA persistence status after surgery.

RESULTS: The median age was 68 (IQR [interquartile range]: 63 - 72) years old and the median PSA was 6.5 (IQR: 4.8-12.6) ng/mL. According to PROMISE v2 criteria, patients treated with surgery were: 5 (10.6%) M1a, 41 (87.2%) M1b and 1 (2.1%) M1c. 15 (31.9%) M+ patients had one solitary PSMA-avid rib lesion. The pathological T-stage of this group of patients was: 7 (46.7%) T2, 5 (33.3%) T3a and 3 (20%) T3b; the N-stage was: 12 (80%) N0 and 3 (20%) N1. All the patients presented a cribriform histology and the ISUP grade were: 1 (6.7%) ISUP 2, 6 (40%) ISUP 3, 7 (46.7%) ISUP 4 and 1 (6.7%) ISUP 5. Only 4 (26.6%) men experienced PSA persistence after RP + ePLND, with a median PSA value of 0.38 ng/mL (IQR: 0.15-1.15), and 2 of them were pN1 at the final pathology. All the four patients received adjuvant pelvic radiotherapy and, at a median follow-up of 11 (IQR: 2.5-26) months, they didn't experience any biochemical recurrence, probably due to androgen deprivation therapy still ongoing. The median SUVmax of the rib lesions was 2.95 (IQR: 2.4-4.7) in the persistence group and 2.65 (IQR: 1.8-2.9) in the group of patients who didn't experience persistence, with no difference between the groups ($P = 0.3$). On univariate analysis, the presence of a solitary rib metastasis was associated with a reduced risk of postoperative PSA persistence status; however, this association was not statistically significant (OR 0.9, 95% CI 0.2-3.7, $P = 0.9$).

CONCLUSIONS: In high-risk PCa patients staged with PSMA-PET/CT, the presence of a solitary PSMA-avid rib

lesion was associated with favorable early oncological outcomes following surgery. Although not statistically significant, the observed lower risk of PSA persistence suggests that such lesions may not necessarily reflect true metastatic disease and should be interpreted with caution in clinical decision-making.

SC136

Whole-body MRI for preoperative staging of prostate cancer: correlation with pathological outcomes after radical prostatectomy

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BACKGROUND: Accurate staging in prostate cancer (PCa) is essential for optimal risk stratification and treatment planning. Conventional imaging techniques have limited sensitivity for detecting early metastatic disease, while PSMA PET, although highly accurate, is not universally available. Whole-body MRI (WB-MRI) offers a radiation-free, single-step multiparametric alternative for systemic staging; however, its clinical impact in patients undergoing radical prostatectomy remains incompletely defined. This study aimed to evaluate the role of WB-MRI in the preoperative staging of biopsy-proven PCa, mainly in intermediate to unfavorable intermediate EAU risk patients, and its correlation with pathological outcomes after robot-assisted radical prostatectomy (RARP).

METHODS: We retrospectively analyzed 65 consecutive patients with biopsy-proven PCa who underwent WB-MRI between 2024 and 2026. From this cohort, we selected patients who subsequently underwent RARP, with or without pelvic lymph node dissection. Clinical variables included age, body mass index (BMI), initial PSA (iPSA), clinical T stage, ISUP grade group, and EAU risk classification. WB-MRI findings were categorized by anatomical region (bone, lymph nodes, visceral organs) and, when available, compared with other imaging modalities (CT, bone scan, PSMA PET/CT). Descriptive statistics are reported as median (interquartile range, IQR) or frequency (percentage). The study was approved by the institutional ethics committee and conducted in accordance with the Declaration of Helsinki.

RESULTS: Among patients undergoing RARP (N=32), median age was 67.5 years (IQR 62.8-71.3), median BMI was 26.5 kg/m² (IQR 24.7-28.9), and median iPSA was 7.0 ng/mL (IQR 5.15-10.25). Approximately 35% underwent pelvic lymph node dissection based on a validated nomogram. Most patients were classified as intermediate to unfavorable intermediate EAU risk. At biopsy, high-grade disease was common, with ISUP grade group ≥ 3 in approximately 70% of patients. Final pathology showed organ-confined disease (pT2) in 50% and locally advanced disease (pT3-pT4) in 45%. ISUP grade group ≥ 3 at prostatectomy was confirmed in 82%, with evidence of grade upgrading in some cases. Positive surgical margins were observed in 45%. Among patients undergoing lymph node dissection, only one had nodal metastasis at final pathology. Median postoperative PSA was 0.03 ng/mL (IQR 0.014-0.17). Three patients showed persistent PSA after RARP; in these cases, postoperative PSMA PET detected metastatic disease in bone and lymph nodes. Notably, in one patient, both preoperative WB-MRI and PSMA PET were negative.

CONCLUSIONS: In this cohort, predominantly composed of intermediate to unfavorable intermediate-risk PCa patients, WB-MRI provided comprehensive whole-body staging in a single examination and showed good concordance with the low rate of metastatic disease at final pathology. A small number of discordant cases likely reflect the challenge of detecting micrometastatic disease. Overall, WB-MRI appears to be a valuable tool for preoperative systemic staging of PCa, particularly when integrated into a multimodal imaging approach.

SC137

Whole-body MRI for prostate cancer staging: real-world diagnostic yield from a tertiary referral center

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BACKGROUND: Accurate staging is pivotal in prostate cancer (PCa) management, guiding treatment selection and prognosis. Conventional imaging with CT and bone scintigraphy, or even PET/PSMA, may be limited by availability, radiation exposure, and contrast contraindications. Whole-body MRI (WB-MRI) provides a radiation-free, contrast-free, and comprehensive assessment of both soft-tissue and skeletal disease, representing a practical alternative when PET/PSMA is unavailable or delayed, and particularly suitable for patients with chronic kidney disease (CKD) or contrast allergy. This study aimed to evaluate the diagnostic yield and clinical applicability of WB-MRI for initial staging of PCa in a real-world tertiary center cohort.

METHODS: We retrospectively analyzed 65 consecutive patients with biopsy-proven PCa who underwent WB-MRI between 2024 and 2026. Clinical variables included age, BMI, iPSA, cT stage, ISUP grade, PI-RADS score, and EAU risk group. WB-MRI findings were categorized by region (bone, lymph nodes, viscera) and compared, when available, with other imaging modalities (CT, bone scan, PET/PSMA). Descriptive statistics were expressed as median (IQR) or frequency (%). The study received institutional ethics approval and was conducted in accordance with the Declaration of Helsinki.

RESULTS: Median age was 69 years (IQR 63-73) and median BMI was 26.3 kg/m² (IQR 24.2-28.4). Most patients presented with cT2-3 disease (55%) and ISUP grade ≥ 3 (69%); median iPSA was 7.68 ng/mL (IQR 5.26-19). According to EAU classification, 80% of patients were intermediate- or high-risk. Prostate MRI was available in 94% of cases, with PI-RADS ≥ 4 reported in 85%. WB-MRI detected metastatic or suspected metastatic disease in 22% of patients (N=14), predominantly involving bone (100%) and pelvic lymph nodes (98%), with occasional pulmonary involvement (5%). In the subset of patients who also underwent PET/PSMA imaging (12%, N=8), findings were overall concordant for the detection of nodal and skeletal disease. Clinical management following WB-MRI included robotic radical prostatectomy with or without pelvic lymph node dissection in 52% of patients, radiotherapy combined with hormone therapy in 19%, and systemic treatments (chemotherapy and/or hormone therapy) or active surveillance/focal therapy in the remaining cases.

CONCLUSIONS: WB-MRI demonstrated a substantial detection rate of metastatic disease, particularly for bone and

nodal involvement, in a predominantly intermediate- to high-risk population. Its findings showed good agreement with PET/PSMA in the subset of patients who underwent both imaging modalities, supporting its reliability as a comprehensive staging tool. These results suggest that WB-MRI may represent an effective, radiation-free alternative for systemic staging in prostate cancer, although larger prospective studies are warranted to confirm its comparative performance.

SC138

Detection of clinically significant prostate cancer in the MRI-negative contralateral lobe: is systematic biopsy still necessary?

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BACKGROUND: Current European Association of Urology (EAU) guidelines recommend multiparametric magnetic resonance imaging (mpMRI)-targeted biopsy of suspicious prostate lesions combined with perilesional sampling. However, whether systematic biopsy of the contralateral lobe can be safely omitted in the presence of a unilateral MRI-detected lesion remains controversial. A proper pre-operative staging is also important to plan a tailored intervention in terms of dissection and nerve-sparing surgery. This study aimed to assess the presence of clinically significant prostate cancer (csPCa) in the lobe contralateral to mpMRI-visible lesions on pathology and to estimate the potential diagnostic implications of omitting contralateral biopsies.

METHODS: We conducted a retrospective study on a prospectively maintained database including consecutive patients undergoing prostate biopsy for suspected prostate cancer with at least one mpMRI-visible lesion (PI-RADS ≥ 3). All patients underwent a combined biopsy approach including targeted sampling of MRI lesions and systematic cores, with specific inclusion of the contralateral lobe, and robot-assisted radical prostatectomy (RARP). csPCa was defined as ISUP Grade Group ≥ 2 surgical specimen from RARP performed from 2022 to 2025. Data on demographics, imaging, biopsy, and surgery were analyzed. Median, first, and third quartiles were used to describe quantitative variables. Events and frequencies were used to describe qualitative variables. Wilcoxon's rank-sum test was used to assess the correlation between lesion diameter and the presence of bilateral tumor, and the Kruskal-Wallis equality-of-populations rank test was used to assess the correlation between PIRADS lesion grading and the presence of bilateral tumor.

RESULTS: The cohort included 90 patients, with a median age of 67 (62-71) years. Median Charlson's Comorbidity Index was 4 (3-5), median preoperative PSA levels were 7.2 (5.2-11) ng/mL, and 17 (18.9%) were on 5-ARI therapy before biopsy. Median IPSS was 9.5 (5-15), and median IIEF score was 18 (11-23). At mpMRI, median prostatic volume was 47 (34-89) cc, median index lesion diameter was 11 (8-15) mm, 14 (15.5%) were transitional lesions, 24 (26.7%) had PIRADS-3, 55 (61.1%) had PIRADS-4, and 11 (12.2%) had PIRADS-5 lesions. At the specimen's pathology, 81 (90%) showed a bilateral clinically significant tumor. 76 (84.5%) were ISUP-2, and 14 (15.5%) were ISUP-3. At the Kruskal-

Wallis rank test, no correlation was found between PIRADS grading groups, nor between lesion diameter at the Wilcoxon rank-sum test ($P=0.61$).

CONCLUSIONS: According to our results, histological bilateral tumors are largely present in suspected monolateral tumors at imaging. Target fusion biopsy could give an incomplete local staging, leading to oncological negative implications following nerve-sparing surgery. Our results showed no correlation between bilateral tumor and high PIRADS scores and lesion's diameter, highlighting the need for thorough future studies.

SC139

PSMA-PET re-evaluation in a multidisciplinary tumor board: impact on staging and treatment of prostate cancer

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BACKGROUND: Real-world concordance between PSMA-PET readers at non-academic centres and expert readers at academic institutions is unexplored, and the clinical impact of expert second-opinion review on staging and treatment remains unknown. We aimed to assess the impact of PSMA-PET re-evaluation within a multidisciplinary tumor board (MDT) on disease staging and subsequent treatment of newly diagnosed prostate cancer (PC) in a real-world referral network.

METHODS: Retrospective analysis of 168 patients with newly diagnosed PC who underwent PSMA-PET for primary staging (2021-2024) at non-academic centres and were subsequently discussed at our MDT. All scans were re-evaluated by expert nuclear medicine readers, unblinded to clinical-pathological data and to the original report, to reflect routine decision-making rather than a blinded reader-to-reader comparison. Agreement between original and revised scans was tested with Cohen's κ (95% CI) for separate N, M1a, M1b, and M1c stages, overall M stage (M0/M1a/M1b/M1c), overall M classification (M0/low-volume/high-volume), overall disease staging (N0M0/N1M0/NanyM1a/NanyM1b/NanyM1c), and planned treatments (RALP/RT vs. RT+HT vs. RT+HT+ARTA vs. CHT+HT+ARTA). Follow-up data after treatment were tabulated.

RESULTS: The PSMA tracer was 18F-PSMA-1007 in 106 (63%), 68Ga-PSMA-11 in 25 (15%), and unknown in 37 (22%) exams; only 11 (6.5%) external reports were structured. Agreement was substantial for N stage (74 [44%] vs. 59 [35.1%]; $\kappa=0.77$) and M1a (43 [25.6%] vs. 29 [17.3%]; $\kappa=0.65$), but poor for M1b (113 [67.3%] vs. 49 [29.2%]; $\kappa=0.25$) and M1c (8 [4.8%] vs. 2 [1.2%]; $\kappa=0.18$). Overall disease staging showed only slight agreement ($\kappa=0.18$): N0M0, N1M0, NanyM1a, NanyM1b and NanyM1c were reported in 16 (9.5%) vs. 81 (48.2%), 12 (7.1%) vs. 20 (11.9%), 22 (13.1%) vs. 17 (10.1%), 110 (65.5%) vs. 48 (28.6%), and 8 (4.8%) vs. 2 (1.2%) original vs. revised scans, respectively. Management plans (RALP/RT, RT+HT, RT+HT+ARTA, CHT+HT+ARTA) changed from 28 (16.7%), 22 (13.1%), 87 (51.8%) and 31 (18.5%) to 101 (60.1%), 17 (10.1%), 36 (21.4%) and 14 (8.3%), respectively ($\kappa=0.26$). Discrepancies were mainly driven by downstaging of suspected M1b lesions

and translated into clinically relevant shifts from systemic therapy to definitive local treatment.

CONCLUSIONS: Expert MDT re-evaluation of externally performed PSMA-PET scans led to extensive stage migration and substantial changes in PC management. The clinical utility of PSMA-PET at a network level depends not only on access to the technology, but also on reader expertise, structured reporting, and integration within multidisciplinary care pathways.

SC140

Diagnostic accuracy of molecular imaging for lymph node staging in prostate cancer patients: results from two academic centres

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BACKGROUND: Clinical decision-making in prostate cancer relies on standardized risk stratification based on TNM stage and ISUP Grade Group. PSMA PET has emerged as an important tool for staging due to high specificity for nodal disease, although sensitivity remains limited, particularly for micrometastases. This study evaluates the diagnostic accuracy of PSMA PET for lymph node involvement using histopathology after pelvic lymph node dissection (PLND) as the reference standard in a contemporary two-centre cohort undergoing robot-assisted radical prostatectomy.

METHODS: This retrospective multicenter study included 130 patients treated between May 2021 and June 2025 at two academic institutions. All patients underwent preoperative PSMA PET followed by robot-assisted radical prostatectomy with extended PLND using the Da Vinci Xi system. Surgery

was performed by experienced surgeons, and 90-day postoperative complications were recorded.

RESULTS: 130 patients were enrolled, 86.9% were cN0 and 13.1% cN1 on PSMA PET. Final pathology revealed lymph node metastases in 16.2% overall. Among cN1 patients, 35.3% were confirmed pN1, while 64.7% were false positives. Importantly, 13.3% of cN0 patients had occult nodal metastases. PSMA PET showed high specificity (89.9%) but low sensitivity (28.6%). Positive and negative predictive values were 35.3% and 86.7%, respectively. Pathological staging showed pT2 in 31.5%, pT3a in 42.3%, and pT3b in 26.2%. cN1 patients more frequently had advanced disease, including higher rates of pT3b (47.1% vs. 23.0%) and ISUP Grade Group 5 tumors (47.1% vs. 22.1%). The mean number of lymph nodes removed was 20.9, with no between-group differences. However, the number of positive nodes was higher in cN1 patients (1.2 vs. 0.2; $P=0.025$). Regression tree analysis identified clinical T stage as the strongest predictor of occult nodal disease in cN0 patients, with cT3+ associated with high risk despite negative imaging. In organ-confined disease, ISUP Grade Group 5 further increased nodal risk. Perioperative complications occurred in 9.2% of patients, with equal distribution of minor and major events (4.6% each) and no significant differences between groups ($P=0.07$). No major safety concerns were observed.

CONCLUSIONS: PSMA PET demonstrates high specificity but limited sensitivity for lymph node staging in primary prostate cancer, confirming its role in ruling in but not ruling out nodal disease. Clinical T stage and ISUP Grade Group remain key determinants of occult metastases despite negative imaging. Therefore, PSMA PET alone is insufficient for nodal staging, and PLND remains essential in selected high-risk patients. Finally, surgical staging is safe, with low morbidity reflecting contemporary robotic surgery performed by experienced surgeons using modern platforms.

SMART COMMUNICATION (SC141 - SC150)

Tecnologia e training

SC141

First italian surgical case-series with the edge robotic platform: a prospective series across multiple urological procedures

SC142

Robotic surgery across surgical specialties in Italy: a nationwide survey on implementation, training, and satisfaction levels among trainees and young attendings – on behalf of the Italian Multispecialty Society of Young Surgeons (SPIGC)

SC143

Does the transition from Da Vinci to Toumai require an intensive training for the console surgeon? Results for robotic radical prostatectomy from a single multiplatform center

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The learning curve of waterjet ablation of the prostate: a singlecenter analysis of surgical and functional outcomes using cumulative sum analysis

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Robotic training during urology residency: a snapshot of the Italian context

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Early outcomes and technical challenges of medtronic Hugo™ RAS system in urologic procedures: a single-center first-year report after transition from Da Vinci system

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Standardizing Rezūm training with high-fidelity simulation. Can virtual reality bridge generational differences among urologists?

SC148

Robotic surgeon perception questionnaire (RSPQ): development and validation of a tool to assess surgeon satisfaction and perspectives toward robotic surgical systems. A European Association of Urology Robotic Urology Section (ERUS) scientific working group study and collaborators

SC149

Is Toumai MT-1000 adequate for robotic-naïve users? Pre-clinical evaluation from a residential point-of-view in a multiplatform robotic center

SC150

Robot-assisted RIRS with ILY®: outcomes and learning curve from a single-centre study

SC141**First Italian surgical case-series with the edge robotic platform: a prospective series across multiple urological procedures**

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BACKGROUND: To report the first Italian surgical case-series with the EDGE robotic platform, evaluating feasibility, intraoperative performance, and perioperative outcomes across different urological procedures.

METHODS: A prospective observational study was conducted including 26 consecutive patients undergoing robotic surgery with the EDGE platform at a single tertiary referral center, all performed from January to March 2026. All procedures were performed by a single experienced robotic surgeon. Procedures included robot-assisted radical prostatectomy – RARP (N.=19), robot-assisted radical nephrectomy (N.=1), robot-assisted partial nephrectomy – RAPN (N.=4), robot-assisted simple prostatectomy (N.=1), and robot-assisted radical cystectomy (N.=1). Perioperative variables analyzed included estimated console time, estimated blood loss, intraoperative complications, conversion to open surgery, length of hospital stay, postoperative complications (according to Clavien-Dindo classification), and surgical margin status.

RESULTS: All 26 procedures (100%) were successfully completed using the EDGE platform without conversion to open surgery. No intraoperative complications were recorded (0%), and no procedure required interruption or change in surgical strategy. The median dressing time was 5 minutes (IQR 3-7), the median docking time was 4 minutes (IQR 4-6), and the median operative time was 73 minutes (IQR 58-88). Median estimated blood loss was 160 mL (IQR 100-190). Median length of hospital stay was 4 days (IQR 3-5). No major postoperative complications were observed within 30 days (0%). Postoperative minor complications were 4/26 (15%), including one lymphocele, one episode of acute urinary retention, and one febrile event during the postoperative stay after RARP, as well as one case of anemia requiring transfusion in the RAPN cohort. Surgical margin status for RARP was negative in 16/19 cases (84%) while in RAPN in 0/4 cases (100%).

CONCLUSIONS: In this first case-series, the EDGE robotic platform was used in 26 consecutive urological procedures with a 100% completion rate, no intraoperative or postoperative major complications, and no need for conversion to open surgery. Median console time and length of stay were within expected ranges for robotic surgery, even if at the beginning of the learning curve. These findings support the feasibility and safety of the EDGE platform across different urological procedures in the early adoption phase.

SC142**Robotic surgery across surgical specialties in Italy: a nationwide survey on implementation, training, and satisfaction levels among trainees and young attendings - on behalf of the Italian Multispecialty Society of Young Surgeons (SPIGC)**

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BACKGROUND: European institutions have been criticized for insufficient endorsement of standardized robotic surgical education. We report results of a nationwide survey on the status of robotic surgery training and satisfaction across trainees from multiple specialties.

METHODS: A 41 questions survey developed in a Modified-Delphi fashion was distributed to Residents, Fellows, PhD students and Young Attendings/Consultants between February and April 2025. Demographics, program characteristics and exposure were explored. Factors influencing training satisfaction and referral center designation were explored on multivariate regression.

RESULTS: 735 trainees responded. Most were male (63.5%), residents (52.1%), from University Hospitals (53.7%), in General Surgery (44.4%). 61.6% and 88.3% reported console use restricted to senior attendings and insufficient standardized robotic exposure, respectively. On multivariable modeling/modelling, overall satisfaction was not influenced by the specialty, but by simulation software availability (aOR: 1.72, 95%CI 1.22-2.44), dedicated lectures (aOR: 1.72, 95%CI 1.16-2.56), number of procedures/year (aOR: 9.69, 95%CI 5.62-16.70), and the trainee's role (aOR: 2.43, 95%CI 1.29-4.57). Centres with Urology speciality (P<0.001), >400 procedures/year (aOR: 1.92, 95%CI 1.01-4.51), >1 robotic platform (aOR: 1.29, 95%CI 1.07-1.55), and providing robotics fellowships (aOR: 1.43, 95%CI 0.99-2.36) were more likely to reach the minimum requirements for robotic training 'referral centers' definition.

CONCLUSIONS: Our survey highlighted nationwide dissatisfaction among robotic surgery trainees. These findings may guide robotic programs in recognizing unmet educational needs and implementing structured and standardized curricula for robotic surgical training.

SC143**Does the transition from Da Vinci to Toumai require an intensive training for the console surgeon? Results for robotic radical prostatectomy from a single multiplatform center**

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BACKGROUND: Training for new robotic systems is an emerging issue. Some systems, such as the multi-cart Hugo RAS, planned a complete and intensive 3-days training program; other systems, such as the Toumai MT-1000 offer for console surgeons a simple 2-hours training program on dry-lab. To now, studies on the proficiency of training programs on new systems are lacking. The aim of the study is to evaluate if a 2-hours dry-lab training on the Toumai is enough to reach proficiency for Da Vinci users.

METHODS: This is a retrospective single center study on a prospectively collected data base. The study was carried out at a tertiary center equipped with Da Vinci since 2013 and with Toumai since June 2025. Seven Da Vinci surgeons of

different levels of expertise underwent a 2-hours training program with the Toumai. Data from the first 25 Toumai radical prostatectomies were collected. Cases were paired by operator with 25 cases of the same period performed using Da Vinci. Demographical and perioperative data were collected and analyzed. Quantitative data were described using median (first-third quartile). Qualitative data were described using absolute and relative frequencies (percentages). Statistical analysis was performed using Wilcoxon's rank-sum as non-parametric test for quantitative outcomes, while Fisher's Exact Test was performed as association test between qualitative variables. Statistically significant results if $P < 0.05$.

RESULTS: Age (66.4 vs. 66.8 years), body mass index (BMI) (25.6 vs. 25.6 kg/m²), IPSS (13.1 vs. 11.1), median International Index of Erectile Function (IIEF) 5 (15.3 vs. 13.6), worst PIRADS lesion rate at Magnetic Resonance Imaging (MRI) (4.3 vs. 4.2), preoperative PSA levels (9.3 vs. 13.8 ng/mL), prostatic volume (51.8 vs. 55.6 cc), and median preoperative ISUP (2.6 vs. 2.6) were similar between the last Da Vinci and the first Toumai cases, respectively. Overall, estimated blood loss (181 vs. 155 mL) and operative time (194 vs. 204 minutes) do not differ statistically between groups. Postoperative complications rate ($P = 0.24$), positive surgical margins (PSM) rate ($P = 0.6$), and local pathological stage ($P = 0.24$) are similar between groups. Recognized the small case series, no differences were found also stratifying for each single surgeon transitioning from Da Vinci to Toumai.

CONCLUSIONS: The Toumai surgical system recently got the CE mark approval and entered the European market. The fine-made features and its similarity to the Da Vinci are seemingly providing the surgeon with the right confidence to perform radical prostatectomies from the very beginning, without the need for extensive training programs. More studies are needed to confirm these outcomes and define the best training program for each platform.

SC144

The learning curve of waterjet ablation of the prostate: a single-center analysis of surgical and functional outcomes using cumulative sum analysis

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BACKGROUND: Aquablation is a robot-assisted, ejaculation-sparing surgical option for benign prostatic hyperplasia (BPH). While previous studies have demonstrated that approximately 50 cases are required to achieve surgical competence in prostate laser enucleation, objective evaluations of Aquablation learning curve remain limited. The aim of this study was to assess Aquablation learning curve using cumulative sum (CUSUM) method, based on operative parameters and postoperative outcomes.

METHODS: We retrospectively analyzed data from 80 consecutive patients who underwent Aquablation at a single tertiary center by a single surgeon with prior experience in prostate resection and enucleation from January 2024 to July 2025. Patient demographics, including prostate volume (PV) and comorbidities, were recorded. Operative parameters were collected. Patient evaluations were conducted at baseline, 3, 6

months postoperatively, including uroflowmetry and assessment using the International Prostate Symptom Score (IPSS). Ejaculation preservation was assessed. Trifecta was defined as preserved ejaculation, IPSS < 8 , and maximum urinary flow rate (Qmax) > 15 mL/s at 6 months. Descriptive statistics, linear regression analyses, and CUSUM method were applied.

RESULTS: Median (IQR) age and PSA were 67 (64-71) years and 2.3 (1.5-4.3) ng/mL. Median PV and baseline IPSS-total score were 60 (45-78) mL and 21 (14-27). Median operative time was 39 (31-47) minutes, including 11 (8-14) min for planning of ablation tissue, 4 (3.2-5.7) min of ablation time and 16 (10-21) min of coagulation time. Postoperative complications occurred in 18 (22.5%) cases, of which 2 (2.5%) were Clavien-Dindo III. Median IPSS-total score significantly improved at 3-months [7 (5-10)] and 6-months [4 (2-7)] follow-up (all $P < 0.01$). Total IPSS score was lower at 6 compared to 3 months evaluation ($P < 0.01$). Qmax and post-void residual volume were significantly improved at 3-and 6-months follow-up (all $P < 0.01$). Antegrade ejaculation was maintained by 77.5% and 81.2% of participants at 3- and 6-months post Aquablation. Trifecta at 6 months was achieved in 49 (61.2%) patients. CUSUM plots showed that the learning curve reached a plateau after 14 cases for ablation setup time, 21 for coagulation time, and 18 for trifecta rates.

CONCLUSIONS: Aquablation demonstrated a relatively short learning curve, reached after approximately 12-21 cases. The procedure provides significant improvements in urinary symptoms and flow, while preserving ejaculation in most patients, as reflected by a 60% Trifecta achievement at 6 months. Its high degree of automation and standardized planning likely facilitate faster technical proficiency, enabling safe and rapid integration into clinical practice as a reliable, ejaculation-sparing treatment for BPH.

SC145

Robotic training during urology residency: a snapshot of the Italian context

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BACKGROUND: The education and surgical proficiency of residents is an important aspect of surgical training. Surgical training is not standardized and it depends on the quality of the trainer, and there is a lack of programs and objective feedback. In the era of open surgeries this gap has been very difficult to fill, because wet-laboratory training on cadavers, pigs and other animal models are centralized, expensive and with limited access. Furthermore, it is not always possible for assistants to view the operating field, especially for pelvic surgeries, where the operating field is deep and arduous. The advent of robotic surgeries has allowed all surgeons in the operating room to clearly see the surgical steps performed by the first operator and try to repeat them by changing the training models.

METHODS: We conducted a national survey on the diffusion and program of training in robotic surgery among urology residents in Italy.

RESULTS: A total of 144 residents participated in the survey. 47.9% came from Northern Italy, 22.9% from Central

Italy, and 29.1% from Southern Italy. All participants have access to a centre where robotic surgery is performed. Only 72.2% of the residents report ubiquitous access to robotic surgery; in the remaining cases, the reasons for limited access include a limited number of robotic sessions (52.5%), the prioritization of training on general urological surgery (27.5%), and the mandatory choice of a sub-specialty (20%). Only 42.4% of respondents reported the presence of a pelvic simulator or virtual simulator for robotic surgery. Most (95.1%) dedicate less than one hour to training, in 13.1% of cases the training is supervised by an experienced surgeon, while only 11.1% of cases include an evaluation. Modular training is present in 19.4%. In 61.1% of cases, residents have direct training during surgical procedures, without prior theoretical training in less than half of the cases (46.6%). 17.4% of respondents are completing console training, and 39.6% are independent first assistants or are completing training. 26.4% of residents are satisfied with their training in robotic surgery, compared to 36.8% who are dissatisfied, with 14.5% of residents giving a neutral assessment. Favourite training modality is Proficiency-Based Progression Training-PBPT (61.1%), followed by training with animal or silicone models (20.8%) and direct training during surgical procedures (18.1%). 42.4% of residents would like to see PBPT introduced in their training, compared to training with animal models or a virtual simulator (22.9% and 14.6%, respectively).

CONCLUSIONS: Several aspects emerge from this survey. The first one is the absence of a standardized robotic training program, the second is the need for a structured, objective and validated training expressed by residents.

SC146

Early outcomes and technical challenges of medtronic Hugo™ RAS system in urologic procedures: a single-center first-year report after transition from Da Vinci system

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BACKGROUND: To report the 1-year initial experience with the Medtronic Hugo™ RAS system in our department after transitioning from the da Vinci platform. We assess perioperative, functional, and safety outcomes of urologic procedures and describe main limitations in our Medtronic Hugo™ RAS procedures.

METHODS: From February 2025 to February 2026 we prospectively collected data on all robotic urologic procedures performed with Hugo RAS by a team already experienced with da Vinci Xi. Procedures included robot-assisted radical prostatectomy (RARP) [N.=61], radical nephrectomy [N.=14], partial nephrectomy [N.=23], Pieloplasty [N.=3], nephroureterectomy [N.=8], and radical cystectomy [N.=2]. Primary endpoints were docking time, console time, estimated blood loss (EBL), conversion rate, and 30-day Clavien-Dindo ≥ 2 complications. For RARP we evaluated early functional outcomes: continence defined as 0-1 pad/day and potency in preoperatively potent patients. Arm interference and system-related errors were extracted from Medtronic procedural logs, as reported in recent Hugo RAS series.

RESULTS: A total of 111 urologic procedures were completed with Hugo RAS. No conversion to laparoscopy, open surgery, or da Vinci occurred. Median docking time was

9 $\pm$ 2.9 min and median console time was 122 $\pm$ 6 min. In RARP [N.=61], median operative time was 184 min and median EBL was <200 mL. Positive surgical margin rate was 7 %. At 3-month follow-up, social continence was achieved in 92% and potency in 52% of preoperatively potent patients. These rates align with early Hugo RARP cohorts reporting undetectable PSA in 80%, continence in 87%, and erectile function recovery in 51% at 12 months. For partial nephrectomy, trifecta achievement was 62%, comparable to recent propensity-matched data showing no significant differences between Hugo RAS and da Vinci Xi for RAPN. No Clavien-Dindo ≥ 4 events over 30 days. Analysis of system logs showed no arm interference events with the need for Medtronic's assistance during all procedures. The modular configuration required wider port spacing and deliberate angular offsetting to minimize collisions, as noted in other Hugo RAS series.

CONCLUSIONS: Our first-year experience confirms that urologic surgery with Hugo RAS is feasible and safe after da Vinci, with perioperative and early functional outcomes overlapping published benchmarks for both platforms. Docking time is longer than da Vinci due to independent arm carts and separate draping, but declines after approximately 20 cases. Main limitations in our setting were: 1) Reduced workspace for the bedside assistant leading to lower satisfaction and potential for crushes or collisions and 2) Suboptimal ergonomics for the assistant, who experienced restricted access and difficulty providing effective intraoperative help, especially in narrow pelvises. Dedicated training on port triangulation and arm positioning is essential to mitigate conflicts and optimize assistant ergonomics.

SC147

Standardizing Rezūm training with high-fidelity simulation. Can virtual reality bridge generational differences among urologists?

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BACKGROUND: Minimally invasive surgical treatments (MIST) are attracting the interest of both senior and young urologists for the promise of treating benign prostatic hyperplasia (BPH) while reducing hospital burden and complications. While companies try to standardize training for MIST such as Rezūm, there is no consensus on the role of previous endoscopic experience on Rezūm training curve. We aimed to evaluate whether chronological age (≤ 35 vs. >35 yr) is associated with objective technical performance during a fully standardized, high-fidelity Rezūm simulation training and assessment pathway.

METHODS: A prospective, observational simulation-based study was conducted within a national itinerant Rezūm training program across multiple Italian institutions (June 2023-July 2025). Eligible participants were board-certified urologists or senior residents (postgraduate years 4-5) who were Rezūm-naïve and had no prior exposure to the simulator platform; included participants were divided into two cohorts: a) Junior ≤ 35 ; b) Senior >35 yr. Trainees unable to complete the five-scenario pathway were excluded. After completing a mandatory standardized online theoretical module and qualification test, participants underwent a single-pass simulator assessment without free practice, warm-up, repetition, or real-time feedback. The pathway comprised five fixed-order

scenarios of increasing anatomic and cognitive complexity. The primary outcome was the scenario-specific normalized simulator score (0-100). Between-group comparisons were performed for each scenario using two-sided independent-samples testing.

RESULTS: A total of 460 participants from 46 institutions were analyzed (Junior N.=120; Senior N.=340). Mean scores were similar between groups in Scenario 1 (93.38 vs. 93.30; $P=0.97$) and Scenario 2 (89.59 vs. 89.21; $P=0.49$). The Junior cohort achieved higher scores in Scenario 3 (84.98 vs. 80.69; $P=0.0076$) and Scenario 4 (93.55 vs. 91.56; $P=0.047$). The Senior cohort showed a non-significant trend toward higher performance in Scenario 5 (95.55 vs. 93.85; $P=0.056$). Across scenarios, mean scores were comparable, with an 84.98-93.85 range in the Junior cohort and 80.69-95.55 in the Senior cohort.

CONCLUSIONS: In a standardized, objectively scored Rezūm simulation curriculum, chronological age showed no uniform association with technical performance. Between-cohort differences were modest and scenario-dependent, emerging primarily in higher-complexity configurations, supporting the use of complex scenarios as key targets for proficiency-based progression and focused remediation and motivating future studies to establish transfer validity and define device-specific proficiency benchmarks.

SC148

Robotic surgeon perception questionnaire (RSPQ): development and validation of a tool to assess surgeon satisfaction and perspectives toward robotic surgical systems. A European Association of Urology Robotic Urology Section (ERUS) scientific working group study and collaborators

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BACKGROUND: The rapid proliferation of robotic surgical platforms has brought marked technological heterogeneity to minimally invasive surgery. Although clinical and oncologic outcomes are becoming increasingly comparable among systems, the console surgeon's subjective experience – including usability, procedural fluency, ergonomics, workflow integration, and trust – remains insufficiently described and inadequately measured. The objective is to develop and psychometrically validate a comprehensive questionnaire for evaluating surgeons' subjective perceptions of and satisfaction with robotic surgical systems. The questionnaire is neither platform-specific nor procedure-specific and may be used to assess robotic systems across different surgical specialties.

METHODS: The Robotic Surgeon Perception Questionnaire (RSPQ) was developed as a structured instrument composed of

seven sections addressing: 1) technical and operational aspects; 2) performance of key surgical tasks; 3) ergonomics and physical comfort; 4) communication and workflow integration; 5) learning curve; 6) perceived safety and reliability, and; 7) overall system evaluation. To validate the questionnaire, a cross-sectional validation study was designed; a cohort of robotic surgeons was invited to complete the questionnaire with reference to radical prostatectomy performed using the robotic system they primarily use. The questionnaire was administered through a secure web-based platform. Internal consistency was evaluated using Cronbach's alpha and McDonald's omega total based on polychoric correlations. Exploratory factor analysis was conducted to investigate the latent structure of the questionnaire and the coherence of its domains.

RESULTS: Fifty-nine surgeons completed the survey. The overall RSPQ showed excellent internal consistency (Cronbach's alpha 0.96; McDonald's omega 0.97), supporting strong overall reliability within a multidimensional framework. All questionnaire sections also demonstrated high internal consistency (α and $\omega > 0.80$). The ergonomics and physical comfort domain showed a coherent two-factor structure, with both subdimensions demonstrating acceptable internal consistency.

CONCLUSIONS: The RSPQ is a reliable, multidimensional, surgeon-centered instrument for the systematic assessment of surgeons' subjective perceptions of robotic surgical platforms. By capturing multiple aspects of the console experience – extending beyond ergonomics alone – this tool offers a validated framework that can complement objective performance metrics in a period of rapid technological innovation.

SC149

Is Toumai MT-1000 adequate for robotic-naïve users? Pre-clinical evaluation from a residential point-of-view in a multiplatform robotic center

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BACKGROUND: Robotic platforms have revolutionized urological surgery. The Toumai MT-1000 is an emerging robotic system, with early international data suggesting a smooth learning curve for those transitioning from the Da Vinci platform. This study aimed to evaluate the pre-clinical perceptions and experiences of a robotic-naïve cohort using the Toumai system on a hands-on pelvic simulator.

METHODS: We performed a cross-sectional study at a tertiary multi-platform referral center. The study included 19 participants with no prior robotic surgery experience. They assessed the simulator across several dimensions: validity and feasibility (via the Hertz questionnaire), physical discomfort (via the Simulator Sickness Questionnaire), and surgical workload (via the Surgical Task Load Index, or SURG-TLX). Quantitative data were reported using medians and quartiles, while qualitative data were detailed using absolute frequencies and percentages.

RESULTS: The participant cohort had a median age of 29 (28-30), and 21% (N=4) were female. Based on the Hertz questionnaire, 79% of participants (N=15) rated the Toumai system

as easy to use (Likert >3). High approval was also noted for the system's optics (95%, N.=18), instrument movement (68%, N.=13), and depth perception (63%, N.=12). The Simulator Sickness Questionnaire revealed that users found the closed console to be comfortable and adequately immersive, with 15 participants scoring the central touchpad as highly intuitive (Likert >3). Furthermore, 18 participants strongly agreed that the simulation was a valuable practice and an effective training tool for surgical residents. While SURG-TLX domain scores showed expected variability, 74% of users (N.=14) reported that the simulation environment was not distracting.

CONCLUSIONS: According to robotic-naïve evaluators, the Toumai MT-1000 system is reliable and adheres closely to established robotic surgery standards. The platform facilitates tasks intuitively and with minimal musculoskeletal strain on the operator. As the Toumai MT-1000 enters the European market, its user-friendly profile could help expand the reach and benefits of robotic-assisted surgery.

SC150

Robot-assisted RIRS with ILY®: outcomes and learning curve from a single-centre study

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BACKGROUND: To evaluate clinical outcomes of rRIRS performed with the ILY® system, focusing on stone-free rate

(SFR), postoperative complications, and clinically relevant residual fragments, and to assess operative performance and learning curve dynamics.

METHODS: A retrospective, single-centre study included 50 consecutive patients undergoing ILY®-assisted RIRS. Primary outcomes were SFR assessed by postoperative CT and 30-day complications. Secondary outcomes included operative time, robotic covering and docking times, second-look ureteroscopy, and the proportion of patients with residual fragments <4 mm not requiring second-look procedures. Learning curve analysis was performed using generalized additive models and cumulative sum (CUSUM) analysis.

RESULTS: Mean patient age was 55.2±11.7 years, with a mean stone size of 16.4±9.3 mm and volume of 1996±2693.9 mm³. SFR was 66%. Residual fragments <4 mm not requiring second-look ureteroscopy were observed in 13% of patients, while second-look procedures were required in 21%. This proportion was higher in stones <15 mm compared to ≥15 mm (88% vs. 68%) and lower in staghorn calculi (40% vs. 83%). Postoperative complications occurred in 16% of patients and were limited to Clavien-Dindo grade I-II events. Mean operative time was 100±29 minutes. Docking time decreased progressively, with stabilisation after approximately 15-20 cases. CUSUM analysis identified an early change-point followed by performance consolidation.

CONCLUSIONS: Robot-assisted RIRS using the ILY® system is feasible and safe, with outcomes comparable to contemporary series. Assessment of residual fragments <4 mm not requiring second-look ureteroscopy may provide a clinically relevant measure of success. Workflow parameters improve with experience, although their impact on clinical outcomes remains to be clarified.

SMART COMMUNICATION (SC151 - SC159)

Disfunzione erettile, eiaculatoria e andrologia chirurgica

SC151

Evaluation of psychological impact of prostate cancer diagnosis on sexual function: results from a prospective study

SC152

Dual dimensions of care: assessing sexual dysfunction and mood together

SC153

Sexual dysfunctions after open abdominal aortic aneurysm repair and their impact on patient sexual satisfaction

SC154

Corporal flow reserve assessed *via* dynamic penile color doppler duplex ultrasound: translating a cardiological paradigm to evaluate arteriogenic erectile dysfunction

SC155

Real-world evaluation of onset of action and effi-

cacy of a novel sildenafil oral suspension in men with erectile dysfunction

SC156

The use of hyperbaric therapy in patients with vascular erectile dysfunction not responding to IPDE5: randomized double-blind placebo-controlled study, follow-up at 12 months

SC157

Penile neurotization through an innovative somatic to autonomic procedure to treat post prostatectomy erectile dysfunction

SC158

Initial outcomes and couples' satisfaction with rigicon INFLA10

SC159

Determinants of decision regret and quality of life after penile prosthesis implantation: insights from a prospective single-center study

SC151**Evaluation of psychological impact of prostate cancer diagnosis on sexual function: results from a prospective study**

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BACKGROUND: The diagnosis of prostate cancer (PCa) may profoundly affect a patient's psychological health, frequently leading to psychogenic erectile dysfunction (ED). Evaluating these alterations prior to treatment is crucial for an accurate assessment of baseline sexual function, for personalizing surgical strategies, and for identifying patients who could benefit from psychological support. This study aims to investigate the impact of a PCa diagnosis on erectile function (EF) and sexual activity frequency (SAF), in order to improve patient's management.

METHODS: We've conducted a prospective study including patients who underwent Robotic-Assisted Radical Prostatectomy (RARP) at our high-volume institution between June 2023 and June 2025 (Ethical Committee CEAS N.: 3154/18). Collected baseline variables included age, marital status, medication use, smoking habits, educational level, BMI, EAU risk classification, and time interval from diagnosis to surgery. Preoperative evaluation was performed using validated questionnaires (IPSS, BDI, SF-12, and IIEF-15). Erectile dysfunction was defined according to item 15 of the IIEF-15. In addition, patients completed two preoperative Likert-scale (1-5) questions assessing perceived changes in SAF and EF following PCa diagnosis. Based on their responses, patients were stratified into two groups for each outcome (SAF and EF): no change/increase *versus* reduction. Statistical analyses included comparative tests as well as univariate and multivariate logistic regression models, with statistical significance set at $P < 0.05$.

RESULTS: Among 161 patients who underwent RARP, 112 (69.6%) were included in the analysis. The mean age was 66.9 years, and the average interval between diagnosis and surgery was 6.2 months. After PCa diagnosis, 47 patients (42%) reported a reduction in SAF, whereas 65 (58%) reported no change or an increase. Similarly, 50 patients (44.6%) experienced a decline in EF, while 62 (55.4%) reported stable or improved function. Multivariate analysis identified several independent predictors of EF reduction: longer time from diagnosis to RARP (OR: 1.19; $P = 0.04$), marital status (married *vs.* others; OR: 0.20; $P = 0.01$), pre-existing ED based on item 15 (no *vs.* yes; OR: 12.1; $P < 0.001$), and the physical component summary (PCS-12) of the SF-12 questionnaire (OR: 0.92; $P = 0.009$). Regarding SAF, only marital status (married *vs.* others; OR: 0.13; $P = 0.005$) emerged as an independent protective factor against reduction.

CONCLUSIONS: A significant amount of patients reported a decline in both SAF and EF following a PCa diagnosis. Several preoperative variables were found to independently predict these changes. Early identification of at-risk patients may allow clinicians to implement tailored interventions, ultimately improving postoperative outcomes and preserving sexual quality of life.

SC152**Dual dimensions of care: assessing sexual dysfunction and mood together**

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BACKGROUND: Sexual dysfunction in men, regardless of its underlying causes, can significantly impact emotional well-being, often leading to mood disturbances with diverse clinical consequences. This study aims to explore whether different validated questionnaires for assessing sexual dysfunction capture distinct nuances of mood alterations associated with impaired sexual health.

METHODS: Data from the last 570 patients presenting with sexual dysfunction at a single tertiary referral centre were analyzed. All patients underwent comprehensive and homogeneous diagnostic assessment. Comorbidities were scored using the Charlson Comorbidity Index (CCI). Mood deflection was evaluated using the Beck inventory depression (BDI), while sexual function was assessed using both the International index of Erectile function (IIEF), including its five domains (*i.e.*, erectile function [EF], orgasmic function [OF], intercourse satisfaction [IS], overall satisfaction [OS], and sexual desire [SD]), and the Male Sexual Health Questionnaire (MSHQ), comprising four domains (*i.e.*, EF, ejaculatory function [EjF], satisfaction [ST] and SD). For the specific purpose of this study, IIEF-IS and IIEF-OS domains were compared with the ST domain of the MSHQ. Linear regression analyses were conducted to evaluate associations between each sexual function domain and BDI score across both questionnaires.

RESULTS: Median (IQR) age was 48 (36-59) years. Of 570, 412 (72.3%) men reported having a stable sexual relationship. Overall, BMI was 25.1 (23.2-27.5) kg/m²; of all, 94 (16.5%) patients had a CCI score ≥ 1 . Across all four models, lower sexual function scores were significantly associated with higher mood deflection symptoms. Specifically, both the MSHQ-EF ($\beta = -0.31$, $P < 0.001$) and IIEF-EF ($\beta = -0.14$, $P = 0.004$) domains depicted a significant negative association with BDI score. Similarly, satisfaction domains (MSHQ-ST: $\beta = -0.32$, $P < 0.001$ *vs.* IIEF-IS/OS: $\beta = -0.29$, $P < 0.001$) and SD domain (MSHQ-SD: $\beta = -0.49$, $P < 0.001$ *vs.* IIEF-SD: $\beta = -0.86$, $P < 0.001$) demonstrated a significant negative association, which was also observed between MSHQ-EjF and IIEF-OF domains and BDI score ($\beta = -0.12$, $P = 0.02$ *vs.* $\beta = -0.26$, $P = 0.04$). Although effect sizes were modest (R^2 range 0.01-0.07), all associations indicated that worse sexual function profiles were consistently associated with more relevant mood deflection across both questionnaires.

CONCLUSIONS: Current findings confirm that sexual dysfunction exerts a negative influence on multiple dimensions of male sexual health and has a measurable impact on mood. Both instruments demonstrated a comparable ability to detect associations between sexual dysfunction and mood deflection, thereby reinforcing their clinical utility for comprehensive evaluation. This consistency supports their application in clinical practice, including contexts where consideration of sexual orientation is relevant.

SC153**Sexual dysfunctions after open abdominal aortic aneurysm repair and their impact on patient sexual satisfaction**

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BACKGROUND: Erectile dysfunction (ED) and ejaculatory dysfunction (EjD) are frequent sequelae of surgery for abdominal aortic aneurysm (AAA). The most common ejaculatory dysfunction, retrograde ejaculation/anemission, is due to injury to the peri-aortic sympathetic fibers, while ED likely has a multifactorial etiology. Studies evaluating these dysfunctions and their impact on sexual life using validated questionnaires are lacking. The aim of this study was to assess the prevalence of sexual dysfunction after open AAA repair using validated questionnaires for ED, EjD, desire, sexual satisfaction, and subjective distress, and to determine whether these dysfunctions correlate with preoperative or surgical risk factors.

METHODS: Fifty-eight patients (<80 years) who underwent open AAA surgery between 2021 and 2024 completed the IIEF (International Index of Erectile Function) and the MSHQ (Male Sexual Health Questionnaire) preoperatively; in 2024-2025 they were re-contacted to fill the same questionnaires. Medical history, surgical, and postoperative data were recorded; CT angiographies were reviewed by a vascular surgeon to assess the patency of the hypogastric axes. Scores were correlated with age, type and duration of surgery, hypogastric artery obstruction, risk factors for ED, and benign prostatic hyperplasia (BPH). Statistical analysis: Wilcoxon test, Kruskal-Wallis test, linear regression. Software: STATA 13.

RESULTS: Forty-two patients (mean age 71 years; 24 underwent aorto-aortic reconstruction, 18 aorto-iliac) completed follow-up. Thirteen patients (30%) had ED at preoperative IIEF, and 30 (71%) at postoperative IIEF ($P<0.05$); IIEF scores and the ED domain of the MSHQ showed a decrease of 3.3 and 8.3 points, respectively ($P<0.05$). No preoperative variable, including obstruction of a hypogastric axis, nor any surgical variable was associated with worsening erectile function. The ejaculation domain of the MSHQ decreased from 33 to 18 ($P<0.05$), with 61.9% of patients developing de novo EjD. The only variable associated with EjD was the presence of BPH ($P=0.023$), likely due to alpha-blocker therapy. Perceived distress was relevant: 69% of patients reported distress and 31% reported significant distress. MSHQ scores related to desire, frequency of sexual activity, and satisfaction from intercourse decreased significantly ($P<0.05$) by -2.3, -0.9, and -2.4 points, respectively. Regression analysis showed a significant correlation between satisfaction and erectile function ($\beta=1.63$; $R^2=0.537$; $P<0.001$) and between satisfaction and ejaculatory function ($\beta=0.76$; $R^2=0.447$; $P<0.001$).

CONCLUSIONS: This study confirms the impact of AAA surgery on ED and EjD and, for the first time, quantifies the associated distress using validated instruments. The pathogenesis of ED, likely influenced by vascular risk factors, remains controversial and requires further investigation. The reported distress highlights the need for maximal preservation of neural structures and careful andrological counseling.

SC154

Corporal flow reserve assessed *via* dynamic penile color doppler duplex ultrasound: translating a cardiological paradigm to evaluate arteriogenic erectile dysfunction

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BACKGROUND: Coronary Flow Reserve, the ratio of maximal to baseline coronary blood flow, is a validated mark-

er of endothelial and microvascular dysfunction in cardiology. Since penile arteries share similar endothelial pathophysiology with coronary vessels, we translated this concept to assess penile vascular reserve capacity, introducing the Corporal Flow Reserve (CFR). We aimed to investigate the distribution of CFR and its association with arteriogenic erectile dysfunction (ED) in a contemporary cohort of men consecutively undergoing dynamic penile color Doppler ultrasound (CDDU) at a single academic center.

METHODS: Data from 478 men complaining of ED who underwent CDDU were analyzed. Sociodemographic, clinical characteristics, serum hormones, and penile hemodynamic parameters were collected. Peak systolic velocity (PSV) was measured at baseline and 20 minutes after intracavernosal injection of 20 mcg Alprostadil. CFR was calculated as the ratio of PSV at 20 minutes to PSV at baseline for each cavernosal artery. Arteriogenic ED was defined as average PSV <35 cm/s at 20 minutes. Men with venous leak ($RI<85$) who did not achieve maximal erection during CDDU were excluded. Descriptive statistics was used to detail the overall cohort and compare groups (arteriogenic vs. non-arteriogenic ED). ROC curve analysis was performed to determine the optimal CFR cut-off using Youden's index. MVA logistic regression analysis was used to explore the predictive ability of CFR towards arteriogenic ED.

RESULTS: Overall, median (IQR) age was 53 (42.8-61) years. Median IIEF-EF score was 13 (7-21) and CFR was 2.5 (1.8-4). Patients with arteriogenic ED ($N=133$; 27.9%) had significantly lower CFR compared to non-arteriogenic ED (1.5-2.6) vs. 2.8 (2-4.4), respectively, $P<0.001$. Patients with arteriogenic ED were older 59 (50-64) vs. 52 (40-60) years, had higher BMI 26.3 (24.3-29) vs. 25 (23-27.1) kg/m², lower tT 4.7 (3.5-6) vs. 5.5 (4.2-7.3) ng/mL (all, $P<0.05$). At UVA logistic regression analysis, CFR was associated with arteriogenic ED (OR: 0.67 (95% CI: 0.57-0.79); $P<0.001$). The area under the ROC curve for CFR in predicting arteriogenic ED was 0.692 (95% CI: 0.636-0.747), with optimal cut-off of 2.98 (sensitivity 83.5%, specificity 49%). At MVA, CFR remained significantly associated with arteriogenic ED (OR: 0.72 (95% CI: 0.51-0.95), $P=0.04$), after adjusting for age, BMI, diabetes, LDL, arterial hypertension and tT.

CONCLUSIONS: CFR is a novel quantitative hemodynamic parameter that reflects penile vascular reserve capacity. Lower CFR is independently associated with arteriogenic ED even after adjusting for overt cardiovascular risk factors. This study represents the first application of the flow reserve concept from cardiology to andrology, potentially offering a new tool over ED diagnostic work-up.

SC155

Real-world evaluation of onset of action and efficacy of a novel sildenafil oral suspension in men with erectile dysfunction

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BACKGROUND: A rapid onset of action of phosphodiesterase type 5 inhibitors (PDE5is) have been recognized as clinically relevant for men with erectile dysfunction (ED). A new oral suspension formulation (OSF) of sildenafil has been introduced. Real-life effectiveness and timing of onset

of action (TOA) of this new sildenafil OSF has not yet been investigated. We aimed to assess TOA and efficacy of sildenafil OSF in men with ED.

METHODS: Data from 123 consecutive men seeking first medical help for ED evaluated at four Italian sexual medicine academic clinics were analyzed. Health-significant comorbidities were scored with Charlson Comorbidity Index (CCI). Patients were treated with sildenafil 50 mg OSF on demand for 12 weeks. Patients completed a baseline and follow-up International Index of Erectile Function-erectile function (IIEF-EF) domain and a 8-item self-administered questionnaire about TOA and overall treatment outcomes. Treatment response was evaluated using the minimal clinically important difference (MCID) (from baseline IIEF-EF score: mild: +2; moderate: +5; severe: +7) and the Yang's criteria stratification for responders, partial responders, and non-responders. Treatment compliance and treatment-emergent adverse events were assessed. Descriptive statistics tested efficacy rates, patient timing of drug intake and post-dosing TOA. Logistic regression models investigated factors associated with treatment efficacy.

RESULTS: Overall, median (IQR) patient's age and baseline IIEF-EF scores were 58 (50-65) years and 15 (10-18). A stable sexual relationship was reported by 93 (75.6%) and 79 (64.2%) men were naïve for any previous PDE5i. A baseline mild, moderate and severe ED was found in 41 (33.3%), 49 (39.8%) and 33 (26.9%) patients. Sildenafil OSF significantly improved IIEF-EF at follow-up (15 vs. 22, $P<0.001$). Satisfaction of MCID criteria was observed in 85 (69.1%) cases and complete response was achieved in 21 (17.1%) patients according to Yang's criteria for treatment effectiveness. 85 (69%) patients self-reported drug dosing within 1 h of any type of sexual attempt. 33 (26.8%) patients reported a rigid erection sufficient for satisfactory vaginal penetration in up to 30 min post-dosing, with 65 (52.8%) patients reporting a post-dosing TOA within 45 min. Patients with a TOA ≤ 30 min were younger (48 (41-57) vs. 60 (53-67) years, $P<0.01$) and had lower CCI score (0.3 (0.1) vs. 0.8 (0-1), $P<0.01$) than those with TOA >30 min. Multivariable logistic regression analysis showed that higher baseline IIEF-EF scores (OR 1.2, $P<0.001$) were associated with complete response to sildenafil OSF, after accounting for age and CCI. Younger age (OR 0.9, $P<0.01$) was independently associated with TOA ≤ 30 min, after accounting for CCI. ROC curves showed that age ≤ 51 was the best predictor of TOA ≤ 30 min (sensitivity 82.2%, specificity 61%, AUC 0.76).

CONCLUSIONS: One in four men treated with sildenafil OSF for ED achieved satisfactory erection within 30 minutes of dosing. Younger age and lower comorbidity burden were independently associated with faster onset of action. Treatment efficacy was observed in approximately 70% of men.

SC156

The use of hyperbaric therapy in patients with vascular erectile dysfunction not responding to IPDE5: randomized double-blind placebo-controlled study, follow-up at 12 months

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BACKGROUND: Vascular erectile dysfunction (ED) is a clinical challenge when it does not respond to phosphodiesterase 5 (PDE5-i) inhibitors. Hyperbaric oxygen therapy (HBOT) has been used as a regenerative therapy of the microcirculation

due to its ability to induce neoangiogenesis. This study aims to evaluate the effectiveness of HBOT in restoring erectile function following improvement of perfusion of cavernous bodies.

METHODS: We enrolled 30 patients aged 45-65 with severe/moderate ED for at least 6 months. Seventy-three percent of these patients had diabetes mellitus, 67% had hypertension, and 52% had BMI >30 ; 100% of the sample did not respond to PDE5-i. Neurogenic and psychogenic forms of DE were excluded from the study. All patients underwent hormonal status evaluation which showed normal values. Patients were randomly divided into two groups: group A, undergoing HBOT cycle (40 sessions at pressure of 2.5 ATA (Absolute Technical Atmosphere)) and compared with a placebo group (group B) of 10 patients with the same characteristics submitted to 40 sessions of HBOT at pressure of 1.1 ATA. The evaluation of DE was carried out through administration questionnaire IIEF-5 (International Index of Erectile Function) and baseline and dynamic Doppler penis monitoring at time 0 (T0), to 3 (T1), 6 (T2) and 12 (T3) months.

RESULTS: Group A showed a significant increase in the IIEF score, going from an initial score of 10 (T0), in which 83% patients documented the prevailing difficulty at penetration and 17% failed to achieve any erection. 100% did not respond to oral therapies. At the first control at 3 months (T1), a score of 20 was achieved, in which an improvement in penetrating capacities was documented in 82% of cases, 67% of patients were able to achieve erection and 100% of patients responded to treatments with iPDE5. At six months (T2) it was observed with a score of 19 maintaining the same improvements. At 12 months (T3) a reduction of the score to 16 was observed. Specifically, the worsening was identified in a 35% reduction in the ability to achieve an erection and a 23% reduction in penetration, with 100% of the response to therapy with iPDE5 maintained. At the same time, the Doppler study found a clear improvement in basal and dynamic arterial perfusion in group A, while no significant change was found in group B. In patients characterized by prevalent inability to penetrate the basal and dynamic doppler parameters, a significant increase in systolic peak velocity (PSV) was observed >45 cm/s with IR >0.9 at T1 and at T2 while at T3 there was a reduction of IR <0.8 . In patients with difficulty achieving erection at T1 e T2 time, an increase in PSV >35 cm/s was observed with IR <0.85 . At the time T3 these parameters were found to be further reduced. The basal and dynamic doppler parameters of group B did not show significant improvements. Eighty percent of treated patients achieved functional recovery, including sensitivity to previously ineffective PDE5-i drugs.

CONCLUSIONS: Hyperbaric therapy induces an objective improvement, within one year on erectile function in complex vascular patients. The treatment is shown to be effective in improving arterial perfusion with resumption of erectile and penetrating activity, and in others it converts "non-responders" patients into "responders" to pharmacological therapies. The study has shown important validity in non-invasive therapy of erectile dysfunction while constituting a preliminary research pending a wider case study.

SC157

Penile neurotization through an innovative somatic to autonomic procedure to treat post prostatectomy erectile dysfunction

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BACKGROUND: This study investigates a novel surgical approach for erectile dysfunction (ED) following radical prostatectomy. Despite advances in nerve-sparing techniques and penile rehabilitation, post-prostatectomy ED remains highly prevalent, with limited effective and durable restorative options. Regenerative strategies such as nerve grafting have been explored, but results are still inconsistent. We propose a direct somatic-to-autonomic penile neurotization technique aimed at enhancing neural regeneration and improving functional recovery.

METHODS: A prospective single-center clinical trial was conducted in patients with severe ED after radical prostatectomy. Inclusion criteria were men aged 45-70 years, non-smokers, with low comorbidity, ≥ 12 months post-surgery (nerve-sparing or non), and PSA < 0.1 ng/mL. Patients had normal preoperative erectile function (IIEF-5 > 17) and complete post-operative ED (IIEF-5 < 8). A bilateral perineal approach was used to isolate the cavernous bodies and harvest the gracilis motor nerve, identified and confirmed by electrostimulation, preserving the vascular pedicle. The nerve was dissected distally and proximally to achieve adequate length and tunneled subcutaneously to the corpora cavernosa. Bilateral direct neurotization was performed through longitudinal corporotomies, securing the nerve ends within the cavernosal tissue without tension. Postoperatively, Tadalafil 20 mg three times weekly was administered for 24 months. Patients were followed for 24 months using validated functional outcome measures, including IIEF-5, EPIC, SEP and EHS scores.

RESULTS: Fifteen patients underwent surgery, and 12 completed follow-up. The procedure proved safe, with no major intraoperative or postoperative complications (Clavien-Dindo ≥ 3). One patient developed wound dehiscence, which resolved with conservative management. Significant improvements were observed: median IIEF-5 increased from 5 to 10 ($P=0.008$), EPIC from 8 to 17 ($P=0.027$), and EHS from 1 to 2 ($P=0.026$). Overall, 41.7% of patients achieved satisfactory sexual intercourse with pharmacological support, indicating a meaningful functional benefit.

CONCLUSIONS: Direct somatic-to-autonomic neurotization appears to be a safe and promising technique for improving erectile function after radical prostatectomy. Larger comparative studies are needed to confirm efficacy and optimize patient selection.

SC158

Initial outcomes and couples' satisfaction with Rigicon INFLA10

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BACKGROUND: Penile prosthesis is gold standard in patients who do not respond to pharmacotherapy or who prefer a permanent solution. Today, several manufacturers produce penile devices, offering a broad range of models providing personalized solutions. Although the literature supports the safety and efficacy of penile prostheses, data specifically concerning the Rigicon Infla10 remain limited due to its relatively recent introduction. The aim of this study is to provide additional data on the safety and patient outcomes associated with this device.

METHODS: Data were collected retrospectively between March 2024 and August 2025. All patients received a three-piece Rigicon Infla10 Pulse implanted by the same surgeon at

a single center, ensuring procedural consistency. The surgeon already had extensive experience as an implanter with other prosthesis brands. The hydrophilic-coated (HydroShield™) device was routinely immersed in a rifampicin and gentamicin solution prior to implantation. In addition, all patients received the same AUA-recommended antibiotic prophylaxis protocol consisting of vancomycin and gentamicin. Diabetic patients received antifungal prophylaxis too. At 6 months postoperatively, outcomes were assessed using the validated Italian questionnaire Quality of Life and Sexuality with Penile Prosthesis (QoLSPP). The QoLSPP questionnaire evaluates four domains: functional, personal, relational, and social.

RESULTS: A total of 54 (mean age 63 years) patients underwent penile prosthesis implantation during the study period. Among them, 38 patients (71.6%) had previously undergone pelvic surgery (radical prostatectomy, cystoprostatectomy, colectomy), 5 (9.4%) had diabetes mellitus, and 10 (19%) had Peyronie's disease. All diabetic patients underwent implantation only after reaching a glycated hemoglobin (HbA1c) level below 7.5%. The mean follow-up period was 14 months. Regarding postoperative complications, two patients (3.8%) experienced wound dehiscence, and one patient (1.9%) developed a scrotal hematoma. In addition, one patient (1.9%) developed a penile aneurysm six months after implantation; this patient had a prior history of priapism. At six months after implantation, patients were asked to complete the QoLSPP questionnaire. The four domains of the questionnaire were grouped into two macro-categories. Domains 1, 2, and 4, which assess patient-related outcomes, showed a mean total score of 53.5 (satisfaction percentage 89%). Domain 3, which specifically evaluates couple-related satisfaction, showed a mean score of 18 (satisfaction percentage 90%).

CONCLUSIONS: Although the data are very recent and the follow-up period is relatively short, early outcomes indicate that the Rigicon Infla10 provides a high level of satisfaction among couples, together with promising durability and reliability profiles. Further studies are needed to confirm long-term functional outcomes and device longevity.

SC159

Determinants of decision regret and quality of life after penile prosthesis implantation: insights from a prospective single-center study

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BACKGROUND: Penile prosthesis implantation represents the definitive treatment for erectile dysfunction (ED) refractory to pharmacological or lessinvasive therapies. This study aimed to evaluate quality of life and decision regret following penile prosthesis implantation and to identify factors associated with significant regret.

METHODS: We analyzed prospectively collected data from consecutive patients undergoing penile prosthesis implantation at a single tertiary referral center. All patients underwent detailed preoperative assessment, including medical history and physical examination. Perioperative and post-operative variables were recorded. At follow-up, quality of life and sexual satisfaction were assessed using the Quality

ABSTRACT

of Life and Sexuality with Penile Prosthesis Questionnaire (QoLSPPQ), covering four subdomains: functional, personal, relational, and social. Decision regret was evaluated using the Decision Regret Scale (DRS), with significant regret defined as >25%. Logistic regression analyses were performed to identify predictors of significant regret.

RESULTS: Overall, 86 patients were enrolled with a median age of 62 years and a median BMI of 25,5 kg/m². Most patients placed the tricomponent prosthesis 77/86 (90%) while only 9/86 (10%) placed a malleable prosthesis. Overall 13 patients presented a complication (15%). In terms of patient reported outcomes median regret was 24% and 28/86 presented a significant regret (33%). On QoLSPPQ,

median functional score was 22, median personal score was 17, median relational score was 17 and median social score was 12. On binary logistic regression analysis the risk of regret was 18 times higher (OR=18,11; P<0,05) in patients presenting a complication, and 6 times higher in patients (OR=6,11; P<0,05). When looking at the QoLSPPQ, functional and relational subdomains were predictors of regret while personal and social were not.

CONCLUSIONS: Penile prosthesis implantation provides satisfactory outcomes and a low complication rate. However, approximately one-third of patients experience significant decision regret, mainly associated with postoperative complications and poorer functional and relational satisfaction.

 SMART COMMUNICATION (SC160 - SC175)

Calcolosi urinaria - trattamento endoscopico e prevenzione

SC160

Post-ureteroscopic ureteral stricture: risk factors and management outcomes. A single-center retrospective study

SC161

Ergonomic strain during retrograde intrarenal surgery: a prospective observational study

SC162

Prospective clinical implementation of a web-based machine learning tool for risk stratification in flexible ureterorenoscopy (GUARD-URS web app)

SC163

Do endourological procedures affect sexual function? A prospective cohort study

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The butterfly position: effective clinical experience of the easy new position for all endourological interventions

SC165

Unchecked vacuum wall pressure could be dangerous: an in-vitro experimental study on the effects of increasing negativewall pressure on aspirative ureteral access sheaths

SC166

Global patterns of laser availability and energy modulation in endourology: results from an international pace survey

SC167

Is the use of the flexible ureteroscope in ureteral stones better than semirigid? Result of a case series

SC168

Stone-free rate (SFR) after retrograde intrarenal surgery using single-use digital vs. Reusable analog ureterorenoscopes in a tertiary care center

SC169

Phytotherapeutic prophylaxis for reducing bio-film formation and encrustation on ureteral stents: preliminary findings from a randomized placebo-controlled trial

SC170

Intraoperative augmented reality glasses in retrograde intrarenal surgery (AR-RIRS): a case series evaluating safety and feasibility

SC171

Infectious complications after flexible ureteroscopy for renal stone disease: a prospective single-surgeon study

SC172

Thulium vs. holmium laser in endourological stone management: a multicentric comparative analysis of stone-free outcomes

SC173

Outcomes of combined suction devices in retrograde intrarenal surgery: a single centre experience

SC174

Determinants of renal function loss in cystinuric patients: a multicenter cohort study

SC175

Holmium *versus* thulium laser lithotripsy: comparative outcomes in a real-world endourological cohort

SC160**Post-ureteroscopic ureteral stricture: risk factors and management outcomes. A single-center retrospective study**

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BACKGROUND: Benign ureteral stricture is a challenging urological condition that often requires repeated interventions and may impair renal function. Comparative real-world data on endoscopic *versus* surgical management remain limited. We aimed to compare outcomes of these approaches and identify factors associated with treatment success.

METHODS: We conducted a retrospective case-control study of adults undergoing ureteroscopy (URS) for urolithiasis at a tertiary center (Policlinico A. Gemelli, Rome) from January 2020 to December 2024. Patients who developed ureteral stricture (cases, N.=15) were compared with stricture-free controls (N.=39). A complementary outcomes analysis included patients undergoing endoscopic (N.=12) or surgical reconstruction (N.=15) during the same period. Primary endpoints were: 1) stricture development after URS; 2) treatment failure, defined as the need for reintervention or radiologic or endoscopic evidence of persistent obstruction at the last follow-up.

RESULTS: 69 patients were included. Among 54 URS patients, 15 (27.8%) developed stricture. Cases and controls were comparable for age (median 59.5 vs. 57.0 years), sex (60% vs. 49% male), Charlson comorbidity index, stone diameter, and eGFR (91.5 vs. 99.0 mL/min/1.73m²). At univariable analysis, stone impaction, visible ureteral mucosal edema, and a non-zero PULS (Post-ureteroscopy Lesion Scale) score were significantly associated with stricture. Laser lithotripsy, ureteral access sheath, preoperative JJ stent, and stent dwell time did not differ significantly. Of 27 patients treated for stricture, 12 (44%) received endoscopic management and 15 (56%) underwent surgical reconstruction; post-endourological strictures accounted for 52% of cases. Overall, 6 patients (22%) experienced failure, with a 33% reintervention rate after endoscopic treatment *versus* a 13% failure rate after surgical reconstruction. Reconstructions were robotic in 12/15 (80%), open in 2 (13%), and laparoscopic in 1 (7%). Mean operative time was 267±79 min, median hospitalization was 12 days, and mean blood loss was 196±149 mL. Fellowship-trained surgeons performed all procedures. Intraoperative complications occurred in 1 patient (7%), and postoperative complications of any Clavien-Dindo grade occurred in 7 (47%). Among failed surgical cases, one required reintervention and one had persistent stricture at 9-month follow-up.

CONCLUSIONS: Stone impaction and visible ureteral mucosal edema during URS were independently associated with post-ureteroscopic ureteral stricture, whereas patient- and instrument-related factors did not differ significantly. An elevated PULS score in stricture cases reinforces its prognostic value. Surgical reconstruction showed a lower failure rate than endoscopic management, with robotic surgery the predominant approach. Larger prospective multicenter studies are warranted to validate these findings and establish evidence-based follow-up protocols.

SC161**Ergonomic strain during retrograde intrarenal surgery: a prospective observational study**

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BACKGROUND: Despite its minimally invasive profile for the patient, retrograde intrarenal surgery (RIRS) may impose a substantial physical burden on the operating surgeon. We aimed to assess the ergonomic burden of RIRS by characterizing the distribution and severity of post-procedural musculoskeletal discomfort and exploring its association with selected operative and case-related factors.

METHODS: This single-center prospective observational study included 42 consecutive RIRS procedures performed between January and December 2023 at a high-volume endourology center. Surgeon-reported discomfort was collected immediately after each procedure using an adapted post-procedural assessment form based on the Italian version of the Cornell Musculoskeletal Discomfort Questionnaire (CMDQ-I). Discomfort severity was graded across 10 predefined anatomical regions on a 5-point ordinal scale. Continuous variables were summarized as mean±standard deviation for descriptive purposes, and exploratory associations between ordinal discomfort scores and operative variables were assessed using Spearman's rank correlation coefficient and the Mann-Whitney U Test.

RESULTS: Musculoskeletal discomfort was common across multiple anatomical regions. The neck was the most affected region, with a mean discomfort score of 3.7±0.9 and at least moderate symptoms reported after 83.3% of procedures, followed by the lower back (3.5±1.1; 73.8%) and shoulders (3.3±0.8; 71.4%). Wrist/hand discomfort was also frequent (3.1±0.8; 61.9%). Procedure duration was positively correlated with lower back discomfort ($p = 0.54$, $P < 0.001$) and neck discomfort ($p = 0.46$, $P = 0.002$). Fluoroscopy time was positively correlated with wrist/hand discomfort ($p = 0.48$, $P = 0.001$). Maximum stone diameter ($p = 0.36$, $P = 0.02$) and body mass index ($p = 0.31$, $P = 0.04$) were also positively correlated with lower back discomfort. Procedures lasting more than 90 minutes were associated with higher lower back discomfort scores than shorter procedures (4.1±0.9 vs. 3.1±1.0; $P < 0.001$).

CONCLUSIONS: RIRS is associated with frequent post-procedural musculoskeletal discomfort in the operating surgeon, predominantly involving the neck, lower back, and shoulders. Longer procedures were associated with greater axial discomfort, whereas longer fluoroscopy time was associated with greater wrist/hand discomfort. These findings provide procedure-level data and support the integration of ergonomic considerations into routine RIRS practice and training.

SC162**Prospective clinical implementation of a web-based machine learning tool for risk stratification in flexible ureterorenoscopy (GUARD-URS web app)**

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BACKGROUND: Following the external validation of an ensemble machine learning (ML) model for predicting out-

comes after ureteroscopy, the next step toward clinical utility is real-world implementation. We aimed to evaluate the clinical feasibility and predictive concordance of the GUARD-URS (General Ureteroscopy Assessment of Risk for Disease) web application in a prospective cohort of patients undergoing flexible ureteroscopy (fURS).

METHODS: Between January and March 2026, the validated ML tool was integrated into the preoperative workflow for 39 adults patients at a single institution. Patients undergoing ureteroscopy for other diagnosis (e.g. malignancy), treated with other procedures or not giving permission to record data were excluded. Preoperative variables – including demographics, stone characteristics, and inflammatory markers – were entered into the interface to generate risk scores for postoperative infectious risk, encompassing sepsis and fever. Clinical decisions were supported by the app's risk stratification: for low risk patients, only perioperative antibiotic prophylaxis was administered, while intermediate and high risk patients received a closer monitoring and additional antibiotic therapies as deemed appropriate by the surgeon. Outcomes were recorded prospectively to assess the concordance between ML predictions and observed postoperative complications.

RESULTS: patients were consecutively screened by the GUARD-URS app and underwent fURS. Mean age was 59.0±16.6 years, with a prevalence of male patients (59.0%). The majority of patients had a single stone on the right side (46.2%), with a mean diameter of 11.18±7.21 mm. The cohort presented with a high baseline of complexity: 30.8% had treated positive urine cultures, 30.8% presented with elevated creatinine, and 74.4% were pre-stented. The GUARD-URS app identified 3 patients (7.7%) at high risk for sepsis (risk >5%) and 4 patients (10.3%) at high risk (>20%) for postoperative fever. The majority (92.3%) were categorized as low risk for overall infectious complications. Mean operative time was 58.9±6 minutes. Postoperative complications occurred in 10.3% of cases (3 fever, 1 AKI). No major septic events (Clavien-Dindo IV-V) were observed. The ML tool demonstrated a 94.9% concordance rate (N=37) with observed clinical outcomes, accurately reflecting the low incidence of major infectious complications despite the high-risk baseline of the cohort.

CONCLUSIONS: Prospective implementation of the ML web application is feasible and demonstrates high concordance with real-world clinical outcomes. By providing reliable, individualized risk assessments, the tool assists clinicians in identifying high-risk patients and reinforcing evidence-based perioperative management in fURS.

SC163

Do endourological procedures affect sexual function? A prospective cohort study

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BACKGROUND: Endourological procedures for urinary stone disease are considered safe and effective; however, recent attention has shifted toward potential postoperative sequelae, particularly regarding quality of life and sexual health. Sexual function may be affected by factors related to the intervention as well as by the presence of ureteral stents, which are responsible for urinary symptoms, hematuria, and pain. This prospective cohort study aims to evaluate, through

validated questionnaires, the impact of upper urinary tract endourological procedures on urinary and sexual function in both men and women, with the goal of improving patient counselling and clinical management.

METHODS: A prospective cohort study was conducted at a tertiary-care hospital in Foggia between November 2025 and January 2026. Forty-seven sexually active patients undergoing ureteroscopy (URS), retrograde intrarenal surgery (RIRS), or percutaneous nephrolithotomy (PCNL), with ureteral stent placement at the end of the procedure, were enrolled. Sexual function was assessed using the International Index of Erectile Function-5 (IIEF-5) in men and the Female Sexual Function Index (FSFI) in women. Lower urinary tract symptoms (LUTS) were evaluated using the International Prostate Symptom Score (IPSS) for males and the ICIQ-FLUTS for females. Questionnaires were administered before surgery and between 45 and 60 days after stent placement. Pre- and postoperative differences were analyzed using the Wilcoxon signed-rank test, while a multivariate logistic regression analysis was performed to identify independent predictors of sexual activity during the stent indwelling period.

RESULTS: The mean age of the patients was 55.8±12.4 years; 44.7% were men and 55.3% were women. LUTS significantly worsened after the intervention: the IPSS in males increased from 8.3±4.9 to 16.0±6.2 (P=0.002), while the ICIQ-FLUTS in females increased from 7.1±4.3 to 14.7±6.1 (P=0.002). Sexual function showed a significant decline during the stent indwelling period: the IIEF-5 score decreased from 20.1±3.2 to 16.1±4.0 (P=0.007), and the FSFI score decreased from 24.5±4.8 to 18.8±5.6 (P=0.031). Dyspareunia and loss of libido were reported by 19.1% of patients, while 42.6% maintained sexual activity during the stenting period. On multivariate analysis, age emerged as an independent predictor of reduced sexual activity (OR 0.84 per year; 95% CI 0.75-0.94; P=0.002), whereas sex, BMI, and type of procedure were not significantly associated.

CONCLUSIONS: Endourological procedures for the treatment of upper urinary tract stones, followed by ureteral stent placement, are associated with a significant worsening of LUTS and a reduction in sexual function in both sexes. Besides patient age appear to influence these outcomes more than the surgical technique. These findings highlight the importance of including sexual health assessment in preoperative counselling and postoperative management to improve patients' quality of life.

SC164

The butterfly position: effective clinical experience of the easy new position for all endourological interventions

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BACKGROUND: In endourological surgery, the position of the patient is fundamental. The need to have the kidney exposed in the best possible way and the fact of having domination over the entire urinary tract has led to the development of different positions for the patient over time. Our objective is to describe a new, easy, reproducible and effective position that can be used for all endourologic interventions. We will describe our personal experience.

METHODS: We describe the Butterfly position. We col-

lected data about surgery performed from 1st October 2022 and 31 August 2025 in Butterfly position. We evaluated the presence of position-related adverse events and rate of successful procedures in terms of the procedure completed in the position. We have collected any problems described by the operator regarding the position during surgery. The surgeries were performed by 4 endourologist, two expert (n. 1 and n. 2), e two beginner (n. 3 and n. 4).

RESULTS: The “Butterfly position”, was created and used for the first time in October 2022. It is characterized by the patient in supine position with the thighs abducted and the legs adducted, “drawing” a butterfly. To best position the patient, it is advisable to use vacuum insufflation mattress, distributing pressure points and avoiding decubitus. It is possible, at the surgeon’s discretion, to rotate the patient’s hip by 15°-20° while maintaining the same “butterfly” position of the lower limbs. The surgeon in Butterfly position can work always seated. In the period described we performed 1332 endourological surgery in spinal anesthesia in Butterfly position in our Hospital (112 ECIRS, 35 PCNL, 786 RIRS, 132 Ureteroscopies, 267 stent positioning). The average time from the start of the surgery to the end of spinal anesthesia was 78 seconds. There were no adverse effect related to the position. All 1332 surgery started and ended in Butterfly position successfully. The surgery were divided by surgeon: Expert n. 1: 968 procedures; expert n. 2: 189 procedures; beginner n. 3: 102 procedures; beginner n. 4: 73 procedures. Beginner n. 3 described difficulties to reach the stone in 6 ureteroscopies. Beginner n. 4 described difficulties in 2 ureteroscopies and in 3 case for finding the ureteral orifice.

CONCLUSIONS: In our experience, the “Butterfly position” is effective in all endourological interventions. The endourologist works seated comfortable, and there is a fast simultaneous collaboration between nurse and surgeon which reduces operating times. Furthermore, the Butterfly position allows you to have a work surface between the patient’s legs, saving space and facilitating the preparation and passage of instruments. The position is easy and fast to prepare, is easy reproducible. We found no negative aspects of the Butterfly position and there are no significant limitations.

SC165

Unchecked vacuum wall pressure could be dangerous: an in-vitro experimental study on the effects of increasing negative wall pressure on aspirative ureteral access sheaths

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BACKGROUND: Many variables have been assessed in order to maintain complications as low as possible in Retrograde Intrarenal Surgery (RIRS). But there is a variable that is rarely assessed by endourologists: negative operating room outlet pressure, which voids onto the aspirative ureteral access sheath (aUAS). In this in-vitro, experimental study we are going to hypothesize whether if this variable is relevant or not.

METHODS: In this experimental study we used a renal silicone model Pro Delphus. We introduced a 11-13Fr 46cm

length aUAS trough the ureter paired with a 7.5Fr ureterorenoscope. In-vitro intrarenal pressure (IRP) was recorded with a pressure wire. Four phases were established: irrigation, suction, blockage and deblockage inside the aUAS inner channel. For each phase, IRP was recorded under different combinations of irrigation height (40 cmH₂O, 100 cmH₂O) and negative pressure (-100 mmHg, -375 mmHg). The primary outcome is speed of change of IRP (mmHg/s). Secondary outcome is extreme value (mmHg) in each phase. Four unique experimental conditions were tested. Three measurements were performed for each condition, for a total of 16 groups. Data were analyzed using descriptive statistics, and comparisons among groups were conducted using one-way ANOVA followed by Tukey’s HSD post hoc test. A significance level of P<0.05 was considered statistically significant.

RESULTS: The primary outcome showed that in the blockage phase 100 cmH₂O irrigation led to faster pressure increases than 40 cmH₂O (mean diff.=0.1274 and 0.2143 mmHg/s, P=0.0296 and 0.0014 respectively). In the deblockage phase, irrigation at 100 cmH₂O combined with stronger suction (-375 mmHg) resulted in a significantly faster drop in IRP compared to -100 mmHg suction. This was consistently observed across multiple group comparisons, with differences of -7.67 mmHg/s (P=0.0024), -10.55 mmHg/s (P=0.0003), -9.09 mmHg/s (P=0.0048), and -12.43 mmHg/s (P=0.0005). In the secondary outcome, in the blockage phase 100 cmH₂O irrigation produced higher pressure peaks than 40 cmH₂O (mean diff.=7.97 mmHg, P=0.0246, mean diff.=8.83 mmHg, P=0.0142, mean diff.=18.37 mmHg, P=0.0001). And finally in the deblockage phase -375 mmHg suction resulted in significantly lower extreme pressure values than -100 mmHg (mean diff.= -28.17 mmHg, P=0.025; mean diff.= -34.10 mmHg, P=0.0089; mean diff.= -38.63 mmHg, P=0.0042).

CONCLUSIONS: We can conclude that negative outlet wall pressure could really matter in RIRS procedures using aUAS. We demonstrate that it reaches more extreme and faster pressure changes in an in-vitro kidney model. This should raise awareness about mandatory pressure measurement during RIRS, and also about taking the negative outlet wall pressure into account as an important variable in further studies.

SC166

Global patterns of laser availability and energy modulation in endourology: results from an international pace survey

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BACKGROUND: The technological landscape of laser lithotripsy is rapidly evolving with increasing diffusion of Thulium Fiber Laser (TFL) alongside the established Holmium: YAG platform. However, real-world data on global availability, adoption patterns, and energy modulation strategies remain limited.

METHODS: An international, cross-sectional web-based survey was conducted among urologists involved in urolithiasis management (May 2025-February 2026). The 34-item questionnaire explored laser availability, clinical use, selec-

tion strategies, and technical settings for ureteral and renal lithotripsy. Multivariable regression analyses were performed to identify predictors of TFL availability and determinants of laser parameter modulation.

RESULTS: A total of 210 urologists from 29 countries participated. Holmium:YAG was available in 94% of centers and remained the most commonly used platform (79%). TFL was available in 47% of institutions and routinely used in 82% of these, while Thulium:YAG showed lower adoption (14%). Multi-platform availability was the strongest predictor of TFL presence (OR $\approx$ 224, $P<0.05$). Most surgeons did not tailor laser selection according to stone location (79.5%) or composition (62.5%). Renal lithotripsy was associated with significantly higher frequency, energy, and power compared to ureteral procedures (all $P<0.001$), reflecting a structured escalation of energy delivery. TFL users adopted a distinct high-frequency/low-energy strategy, with higher maximum renal frequency (30 vs. 20 Hz, $P<0.05$) and lower minimum energy (0.4 vs. 0.5 J, $P<0.05$) compared to Holmium-only users. Laser platform was the only independent predictor of renal frequency and power modulation.

CONCLUSIONS: Holmium:YAG remains the global standard, while TFL is increasingly adopted as an adjunct technology with high utilization once available. Current practice shows limited personalization of laser choice based on stone characteristics. Energy modulation is primarily driven by anatomical setting and laser platform, with TFL promoting a high-frequency/low-energy approach, suggesting a technology-driven shift in lithotripsy strategy.

SC167

Is the use of the flexible ureteroscope in ureteral stones better than semirigid? Result of a case series

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BACKGROUND: Historically, the treatment of ureteral stone has been performed through the use of a semi-rigid ureteroscope. From 2023 we have been regularly using the flexible ureteroscope instead of the semi-rigid one. The aims of this study are to evaluate the efficacy and safety of using the flexible ureteroscope in the treatment of all ureteral stones and then the comparison with the use of the semi-rigid ureteroscope.

METHODS: We collected data about the use of semirigid ureteroscope (Wolf 8.5 Fr) in ureteral stone from december 2022 to december 2024 and about the use of flexible ureteroscope (Olympus P7, Innovex Single use 9 fr and 7.5 fr; always urethral sheath) from june 2023 and june 2025. Thulium Laser Revolix HTL 150W was used for all procedures. All the cases collected did not have ureteral stents before surgery. Procedures were done by two expert endourologists. Retrograde Intra Renal Surgery (RIRS) were excluded. We evaluated the duration of procedure, the success of surgery (as to reach and treat stone), the presence of complications, the stone size and the stone free rate. Stone free rate was defined as the absence of stone or the presence of stone <2 mm at the radiological control 3 months after surgery. Welch's *t*-test was used to evaluate statistical differences between times. Z test was used to assess the differences between successfully procedures, between complications and stone free rate.

RESULTS: We collected data about 148 semirigid and 198 flexible ureteroscopies. The mean duration of surgery was 33 minutes for semirigid and 26 minutes for flexible. The difference was found to be statistically significant ($t \approx 4.94$, $P<0.00001$). Surgery was successful in 129/148 semirigid (87%) and 193/198 flexible (97%), ($z = -3.49$, $P<0.001$). Twenty two patients had complications after semirigid ureteroscopy (14%). Complications were: fever 15 patients (68%), severe sepsis 2 patients (9.5%), urethral lesion 1 patient (4.5%), hematuria 4 patients (18%). 9 patients had complication after flexible ureteroscopy (4%). Complications were always fever. The difference was significant in favour of the flexible group ($z \approx 3.17$, $P<0.01$). The mean stone size was 8.2 mm for the semirigid group and 8.4 mm for the flexible group. The stone free rate was 131/148 (88%) for the semirigid group and 185/198 (93%) for the flexible group ($Z \approx -1.53$, $p \approx 0.13$).

CONCLUSIONS: The use of a flexible ureteroscope with a ureteral sheath in the treatment of ureteral stones is safe and effective. It is more effective and has a lower complication rate than the use of a semi-rigid instrument. A key-point is the use of urethral sheath that maintains the intrarenal pressure low. Furthermore, in case of accidental push-up in the kidney of the stone, there are no anatomical limitations for the treatment with the flexible instrument.

SC168

Stone-free rate (SFR) after retrograde intrarenal surgery using single-use digital vs. Reusable analog ureterorenoscopes in a tertiary care center

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BACKGROUND: To compare the SFR at the end of the follow-up between single-use digital (SUD) and multi-use analog flexible ureterorenoscopes (fURS) in patients who were preoperatively stented with DJ catheters that underwent RIRS.

METHODS: Data from 71 consecutive patients who received a DJ stent between August 2021 and March 2025 were analyzed: MUA, N.=24; SUD, N.=47. Comparison of demographic data, stone characteristics, surgical details, and postoperative outcomes was performed. SFR was defined as the absence of reintervention after postoperative CT ≤ 3 months. Cox regression, adjusted for stenting time and other covariates (sex, stone size, density, UAS use, and scope type), was conducted to identify predictors of reduced SFR.

RESULTS: Groups were similar for demographics, stone size-10 mm, IQR 7-14; $P=0.46$ - density - 860 HU; $P=0.44$ - and operative time - 71 min; $P=0.55$. SFR was higher with SUD-91%, N.=43 - compared to MUA -67%, N.=16; $P=0.02$. On Cox analysis, the use of MUA emerged as an independent predictor of lower SFR-HR 6.1, 95% CI 0.98-38.2; $P<0.05$ - whereas the use of ureteral access sheath was protective-HR 0.06, 95% CI 0.006-0.51; $P=0.01$. SFR decreased more steeply for MUA-86%, 81%, 62.7% at 69, 142, 272 days-compared to SUD-97%, 95.4%, 92.7%.

CONCLUSIONS: In DJ-stented patients, SUD fURS achieved higher and more sustained SFRs compared to MUA, suggesting superior long-term outcomes in RIRS.

SC169**Phytotherapeutic prophylaxis for reducing biofilm formation and encrustation on ureteral stents: preliminary findings from a randomized placebo-controlled trial**

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BACKGROUND: Ureteral stents are frequently associated with biofilm formation and mineral encrustation, which may impair device performance and increase morbidity. The potential role of adjunctive phytotherapeutic prophylaxis in limiting these processes remains unclear. This study aimed to assess whether a standardized phytotherapeutic formulation, administered in addition to standard antibiotic prophylaxis, could reduce stent encrustation compared with placebo.

METHODS: We conducted a prospective, single-centre, randomized, placebo-controlled trial between September and December 2024 in adult patients undergoing double-J stent placement for obstructive uropathy. Patients with a positive preoperative urine culture or significant immunosuppression were excluded. Participants were randomized to receive either phytotherapy (Renalit Combi Colic®) or placebo; both groups received the same intraoperative antibiotic regimen followed by 5 days of postoperative antibiotic prophylaxis. At stent removal, encrustation was assessed using a 0-5 macroscopic score for proximal and distal segments and by scanning electron microscopy (SEM), measuring encrustation thickness in μm . Because indwelling time varied among patients, a preplanned sensitivity analysis normalized SEM thickness to dwell time. Analyses were performed per protocol on available samples. Group differences were assessed using Student's *t*-test, as appropriate, and Fisher's Exact Test for categorical variables.

RESULTS: Of 62 screened stents, 47 were included in the final analysis: 17 in the phytotherapy group and 30 in the placebo group. Urolithiasis was the most common indication for stenting (46.7%). The most frequent macroscopic encrustation scores were 1 at the proximal end (27.7%) and 2 at the distal end (25.5%). No statistically significant between-group differences were observed in SEM-measured encrustation thickness, either distally ($P=0.206$) or proximally ($P=0.141$), nor in macroscopic encrustation scores at the distal ($P=0.300$) or proximal segment ($P=0.976$). However, mean SEM thickness values were consistently lower in the phytotherapy arm than in the placebo arm, both distally (611 ± 138 vs. $721 \pm 538 \mu\text{m}$) and proximally (497 ± 113 vs. $584 \pm 316 \mu\text{m}$).

CONCLUSIONS: In this preliminary randomized study, adjunctive phytotherapy showed encouraging potential in reducing ureteral stent encrustation, with a consistent numerical trend toward lower encrustation across all assessed endpoints, including dwell-time-adjusted analyses. Although statistical significance was not reached, these findings support the possibility of a clinically relevant effect. Larger studies, together with more comprehensive biofilm-oriented analyses, are needed to better define the therapeutic value of this approach.

SC170**Intraoperative augmented reality glasses in retrograde intrarenal surgery (AR-RIRS): a case series evaluating safety and feasibility**

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BACKGROUND: Retrograde intrarenal surgery (RIRS) is widely used for the management of renal lithiasis but remains associated with significant ergonomic challenges due to the need to simultaneously monitor multiple displays, including endoscopic and fluoroscopic screens. This fragmented visual setup increases cognitive workload and may negatively affect surgeon posture and performance. Augmented reality (AR) technology, through head-mounted displays, enables real-time integration of multiple visual inputs into a single, surgeon-centered field of view. This study aimed to evaluate the safety and feasibility of AR-assisted RIRS (AR-RIRS).

METHODS: A case series including 10 patients undergoing elective RIRS with AR assistance was conducted. Preoperative data included demographic characteristics, comorbidities, and stone features (size, volume, and density). AR visualization was achieved using a head-mounted display (Apple Vision Pro) that wirelessly projected endoscopic and fluoroscopic images into the surgeon's visual field, allowing dynamic repositioning. Standard RIRS technique was maintained, with predefined bailout criteria in case of technical failure. Primary endpoint was safety, assessed by 30-day complications (Clavien-Dindo). Secondary endpoints included operative time, fluoroscopy exposure, technical performance, and surgeon-reported usability. Data were analyzed descriptively.

RESULTS: The cohort was predominantly male (80%), with a median age of 44 years and low comorbidity burden (median CCI 0). Median stone diameter was 13.5 mm and median volume 216.5 mm³. All procedures were completed successfully using AR without need for bailout. Median operative time was 53 minutes, fluoroscopy exposure 1370.5 Gy·cm², and irradiation time 78 seconds. No intraoperative complications occurred. No postoperative complications (Clavien-Dindo ≥ 2) were observed. All patients were stone-free at follow-up. The AR system demonstrated stable performance, with no critical latency or hardware failures. Surgeons reported improved visualization workflow and reduced need for head movement.

CONCLUSIONS: AR-assisted RIRS is safe and feasible, allowing effective integration of multiple imaging modalities into a unified visual field without compromising surgical outcomes. Further studies are warranted to assess long-term benefits, like intraoperative ergonomics and workflow efficiency, and to validate these findings in larger cohorts.

SC171**Infectious complications after flexible ureteroscopy for renal stone disease: a prospective single-surgeon study**

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BACKGROUND: Postoperative infectious complications remain a clinically relevant concern after flexible ureteroscopy (FURS), including in patients with negative preoperative bladder urine cultures (UCs). Microbiological discordance between bladder and upper urinary tract samples may contribute to under-recognition of infectious risk. We assessed the clinical value of systematic intraoperative UCs obtained at predefined stages of FURS.

METHODS: We relied on a prospectively collected dataset of 238 consecutive FURS procedures for renal stone disease conducted by a single experienced surgeon performed (2024-2025). UCs were obtained preoperatively and intraoperatively at standardized time points, including bladder urine at the start of the procedure, renal pelvic urine before laser lithotripsy, and renal pelvic urine after lithotripsy. The primary endpoint was postoperative infectious complications, classified as any infection and severe infection (sepsis/septic shock according to international definitions). Associations between culture-positivity patterns and outcomes were evaluated using Fisher's Exact Test and univariable logistic regression.

RESULTS: Among 952 UCs analyzed, 79% were negative overall. A total of 136 patients (57.1%) had negative cultures at all sampling time points. De novo intraoperative culture positivity occurred in 7.1% of patients with negative preoperative UCs. Pre-laser intraoperative UC positivity was significantly associated with postoperative infectious complications, with rates of any infection and severe infection of 27% and 23%, respectively. In univariable analyses, pre-laser intraoperative positivity (either renal pelvic or bladder urine) was associated with an increased risk of any infection (OR 6.14, 95% CI 1.43-24.3; $P=0.01$) and severe infection (OR 8.87, 95% CI 1.53-51.8; $P=0.011$) in reference to the all negative UC group. In contrast, isolated preoperative or post-laser UC positivity was not significantly associated with infectious outcomes.

CONCLUSIONS: Intraoperative UCs obtained before laser lithotripsy represent the strongest predictor of postoperative infectious complications following FURS for renal stone disease. Preoperative bladder UCs alone showed limited predictive value. Intraoperative pre-laser sampling may improve infectious risk stratification during FURS and may aid timely antibiotic treatment in case of postoperative infectious complication.

SC172

Thulium vs. holmium laser in endourological stone management: a multicentric comparative analysis of stone-free outcomes

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BACKGROUND: To compare perioperative outcomes and stone-free rates between thulium and holmium laser technologies in endourological stone management, and to evaluate whether laser type independently predicts treatment success.

METHODS: A retrospective bicentric analysis was performed including 572 consecutive patients undergoing endourological treatment for urolithiasis, from November 2023 to March 2026. Patients were stratified according to laser technology: Dornier Holmio 30W (N.=262) and Real-pulse Thulium-yag (N.=310). Demographic, perioperative, and stone-related variables were analyzed. Continuous variables were compared using Mann-Whitney U Test, while categorical variables were assessed using Chi-square Test with odds ratios (OR) and 95% confidence intervals (CI). A multivariable logistic regression model including laser type, stone size, procedure type, and stone location was performed.

RESULTS: A total of 572 patients were included. Median age was 57 years (IQR 18), with no differences between groups ($P=0.932$). Median stone size was 11 mm (IQR 6.8),

and median stone density was 1200 HU (IQR 296). Overall, 159/572 patients (27.8%) achieved stone-free status. Patients treated with thulium laser presented with significantly larger stones compared to the holmium group (median 16 vs. 10 mm; $P<0.001$). Operative time (95 vs. 60 minutes; $P=0.009$) and lithotripsy time (33 vs. 25 minutes; $P=0.004$) were also significantly longer in the thulium cohort. No significant differences were observed in age ($P=0.932$) or stone density ($P=0.133$). Procedure distribution differed between groups, with a higher proportion of combined procedures (ULT + RIRS) in the thulium cohort (22.8% vs. 3.1%), while holmium cases were predominantly ULT (64.9%). Female patients accounted for 37.4% in the holmium group and 48.2% in the thulium group. Despite increased case complexity, the stone-free rate was significantly higher in the thulium group (34.5% vs. 19.8%; OR 2.13, 95% CI 1.45-3.12; $P<0.001$). On multivariable analysis, thulium laser remained independently associated with higher stone-free rates (OR 1.79; $P=0.015$), while ureteral stone location was also a significant predictor ($P=0.010$). No other variables were independently associated with outcomes.

CONCLUSIONS: Thulium laser was associated with significantly higher stone-free rates compared to holmium laser, despite being used in more complex cases characterized by larger stones and longer operative times. This association remained significant after multivariable adjustment, suggesting a potential intrinsic advantage of thulium technology. The influence of center-related factors and case selection should be considered, and prospective studies are warranted to confirm these findings.

SC173

Outcomes of combined suction devices in retrograde intrarenal surgery: a single centre experience

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BACKGROUND: To evaluate the efficacy and safety of combined suction devices during retrograde intrarenal surgery (RIRS), reporting the experience of a high-volume single center. Specifically, the study aims to assess stone-free rate (SFR), operative time, and complications associated with the use of suction-enabled flexible ureteroscopes and suction ureteral access sheaths.

METHODS: A retrospective analysis was performed on 68 RIRS procedures in patients with renal stones (mean diameter 1.8 ± 0.7 cm) treated at Clinica Mediterranea, Naples, between February 2025 and January 2026. All procedures were carried out using disposable suction-enabled flexible ureteroscopes (SeeGen – UROFINO Disposable Flexible Ureteroscope with Suction – 6.6 Fr, dual channel) in combination with a suction ureteral access sheath (ClearPetra Ureteral Access Sheath, sizes ranging from 11-13 Fr $\times$ 35-46 cm). Lithotripsy was performed using a Revolix Hybrid Thulium laser (LISA Laser). A dusting technique with continuous active suction of fragments and stone dust was applied. Data collected included patient characteristics, stone size and location, operative time, SFR (defined as absence of fragments >2 mm on CT scan at 1-month follow-up), and complications graded according to the Clavien-Dindo classification.

RESULTS: The overall stone-free rate was 85%, with higher rates observed in stones ≤ 20 mm (approximately 89%)

compared to those >20 mm (approximately 74%). The mean operative time was 50±15 minutes. The use of suction devices improved intraoperative visibility and reduced intrarenal pressure, resulting in enhanced efficiency of stone fragmentation and fragment clearance. The overall complication rate was 13%, predominantly low-grade (Clavien I-II), including postoperative fever (6%) and renal colic (4%). Major complications (Clavien ≥III) were uncommon (approximately 3%), in line with current literature. The mean length of hospital stay was 1.3 days.

CONCLUSIONS: The combined use of suction-enabled flexible ureteroscopes and suction ureteral access sheaths in RIRS demonstrated high stone-free rates, reduced operative times, and an excellent safety profile, with minimal and predominantly minor complications. These findings are consistent with recent systematic reviews and meta-analyses on suction devices, confirming their role in improving stone clearance and reducing infectious complications compared to conventional non-suction techniques. This single-center experience supports the routine adoption of suction technology in clinical practice.

SC174

Determinants of renal function loss in cystinuric patients: a multicenter cohort study

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BACKGROUND: Although surgical management is essential in controlling stone burden in cystinuric patients, its impact on long-term renal function remains a concern – particularly in patients who require repeated procedures. Identifying modifiable and non-modifiable risk factors for renal function deterioration is crucial for optimizing outcomes in this challenging population. We aimed to evaluate the determinants of renal function decline in a multicenter cohort of cystinuric patients.

METHODS: We conducted a retrospective cohort study including all cystinuric patients followed at two tertiary referral centers. Patients were included if they had baseline and follow-up serum creatinine values allowing for estimated glomerular filtration rate (eGFR) assessment and at least 2 years of follow-up. The primary outcome was deterioration in renal function, defined as a decline in CKD classification. A logistic regression model was used to identify independent determinants of renal function decline.

RESULTS: Data from 70 cystinuric patients have been analyzed; 51 (72.9%) maintained or improved renal function, while 19 (27.1%) experienced a decline in eGFR during follow-up. Patients with declining renal function had a higher comorbidity burden: 21.1% had CCI >3 compared to 3.9% in the stable group. Baseline stone burden was high in both groups: over 70% had stones >2 cm, and roughly one-third had bilateral stones. A greater proportion of patients with renal decline had complete staghorn calculi (52.6% vs. 38%). Patients in the decline group were more likely to have undergone standard PCNL (57.9% vs. 27.5%), whereas those with stable function more frequently had URS/RIRS alone. Rates of iterative URS, surgeries per year, ureteral strictures, and stone-free status did not significantly differ. There were

no significant differences in age at diagnosis, ASA classification, BMI, or baseline eGFR between groups. Adherence to medical therapy was lower in patients with declining function (26.3% vs. 49%), and fewer of them received regular nephrology follow-up. At MVA, standard PCNL and CCI were associated with CKD stage decline. After applying Firth penalization, only standard PCNL remained an independent and statistically significant determinant of renal function decline (aOR 3.75; P=0.039). Mini-PCNL showed no significant association (aOR 1.52; P=0.67). Adherence to medical therapy demonstrated a protective effect (aOR 0.32).

CONCLUSIONS: After long-term follow-up, approximately one out of four patients experienced renal function deterioration. Prioritizing the least invasive procedure whenever feasible in combination with strategies to optimize adherence to medical therapy and control of comorbidities, is essential to preserve renal function in this complex patient population.

SC175

Holmium versus thulium laser lithotripsy: comparative outcomes in a real-world endourological cohort

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BACKGROUND: To compare baseline characteristics, perioperative features, and postoperative stone-free outcomes between holmium and thulium laser lithotripsy in a real-world endourological cohort, and to identify independent predictors of stone-free status.

METHODS: A retrospective comparative analysis was performed on 1065 patients undergoing endourological treatment for urolithiasis. Laser type was classified as Dornier Holmio 30W (N=668) or Real-pulse Thulium-yag (N=397), between January 2024 to March 2026. Demographic, stone-related, perioperative, and postoperative variables were collected. Continuous variables were analyzed using the Mann-Whitney U Test, while categorical outcomes were compared using Chi-square/Fisher's Exact Test with odds ratios (OR) and 95% confidence intervals (CI). A multivariable logistic regression model including laser type, stone diameter, operative time, renal location, ureteral location, and laterality was performed to assess independent predictors of postoperative stone-free status.

RESULTS: A total of 1065 patients were included; 62.7% were treated with holmium laser and 37.3% with thulium laser. In the overall cohort, median age was 56 years (IQR 18), median BMI 26.6 kg/m² (IQR 3.3), median stone diameter 18 mm (IQR 11.5), and median stone density 949 HU (IQR 384). Hypertension was present in 39.3%, diabetes in 12.5%, and a prior urinary tract infection history in 36.0%. Most patients had a single stone (72.2%), and the majority were classified as ASA II (53.9%). Baseline age was comparable between holmium and thulium groups (57.17±14.64 vs. 56.82±14.30 years; P=0.990), as were BMI (27.44±14.88 vs. 27.44±10.25 kg/m²) and operative duration (73.41±47.59 vs. 72.99±39.66 min; P=0.481). However, patients treated with thulium had significantly larger stones (mean diameter 17.03±11.36 mm vs. 14.11±7.09 mm; P=0.041). Stone density tended to be higher in the holmium cohort (1226.85±421.56 vs. 1120.72±395.26 HU; P=0.055). Stone volume was markedly greater in the thulium group on descriptive analysis, con-

sistent with treatment of more complex stones. On multivariable analysis (N.=197), the model was significant (Omnibus $\chi^2=29.13$, $P<0.001$; Nagelkerke $R^2=0.183$). Operative time was the only independent predictor of postoperative stone-free status (OR 0.985, $P<0.001$), whereas laser type was not independently associated with outcome (OR 1.268, $P=0.583$). Stone diameter, renal location, ureteral location, and laterality were also not independently significant.

CONCLUSIONS: In this real-world endourological cohort, thulium laser was preferentially used for larger and

apparently more complex stones, yet postoperative stone-free rates were comparable to those achieved with holmium laser. After adjustment, laser type was not an independent predictor of stone-free status, whereas longer operative time was associated with a lower likelihood of treatment success. These findings suggest that procedural complexity may have a greater impact on stone-free outcomes than laser technology alone, although the interpretation of postoperative outcomes is limited by the substantial proportion of missing follow-up data.

Tumore della prostata: chirurgia I

SC176

Enhancing the awake robotic surgery experience: virtual reality during neuraxial anesthesia for single-port radical prostatectomy reduces anxiety and maintains optimal comfort

SC177

PSMA radioguided surgery for predicting tumor location, positive surgical margins and local staging in prostate cancer patients undergoing RARP with EPLND: final results of a prospective phase 2 study

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Single-port vs. multi-port robot-assisted radical prostatectomy: intra- and perioperative outcomes from an institutional cohort

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Enhancing the awake robotic surgery experience: virtual reality during neuraxial anesthesia for single-port radical prostatectomy reduces anxiety and maintains optimal comfort

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BACKGROUND: To quantify anxiety, pain perception, tolerability, and patient-reported experience associated with virtual reality support during extraperitoneal single-port robot-assisted radical prostatectomy (SP-RARP) performed under combined spinal-epidural anesthesia.

METHODS: A prospective cohort study included 14 consecutive patients undergoing extraperitoneal SP-RARP under combined spinal-epidural anesthesia with immersive virtual reality support. Patients selected a virtual scenario preoperatively and used the device throughout the procedure when tolerated. Anxiety was measured using the State-Trait Anxiety Inventory-State (STAI) questionnaire before admission, before surgery, immediately after surgery, and at 24 hours. Pain and anxiety perception were assessed using a 10-point Visual Analog Scale (VAS). Usability and satisfaction were evaluated using the Health Information Technology Usability Evaluation Scale (Health-ITUES).

RESULTS: Thirteen of 14 patients (92.9%) completed the entire procedure wearing the virtual reality headset. One patient (7.1%) required removal due to intolerance. Complete isolation from the external environment was reported in 12 patients (85.7%). Median STAI score increased from 40 before admission to 54 before surgery, and decreased to 46 immediately after surgery and 34 at 24 hours. Median VAS anxiety score decreased from 66 preoperatively to 49 intraoperatively and 47 postoperatively. Median intraoperative pain score was 0/10, and no patient required additional analgesia. Median overall satisfaction score was 9/10; 12 of 14 patients (85.7%) reported high satisfaction (score ≥ 8), confirming a positive overall experience. Lower ratings were observed in 3 patients (21.4%), mainly related to suboptimal headset comfort and incomplete acoustic isolation, without affecting completion of the procedure.

CONCLUSIONS: Virtual reality support during combined spinal-epidural anesthesia was feasible in 92.9% of patients and was associated with a reduction in perioperative anxiety and absence of intraoperative pain. High satisfaction scores confirm good patient acceptance of this approach, supporting its role in improving the patient experience during awake SP-RARP.

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PSMA radioguided surgery for predicting tumor location, positive surgical margins and local staging in prostate cancer patients undergoing RARP with ePLND: final results of a prospective phase 2 study

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BACKGROUND: Although previous studies suggested a role for PSMA-Radioguided Surgery (PSMA-RGS) in identifying lymph node invasion (LNI) in prostate cancer (PCa) patients undergoing radical prostatectomy (RP), the role of PSMA-RGS to predict tumor location and local staging is unknown. We aimed to assess the performance of PSMA-RGS in identifying index lesion (IL), positive surgical margins (PSMs) and extra-prostatic extension (EPE) in patients undergoing robot-assisted RP (RARP) with extended pelvic lymph node dissection (ePLND), within a phase 2 prospective study (NCT04832958).

METHODS: Among 81 patients enrolled with intermediate or high-risk cN0cM0 PCa, 62 underwent PSMA-RGS between June 2021-October 2024 and represented the study cohort. All patients received a preoperative PSMA PET. ^{99m}Tc-PSMA I&S was administered intravenously the day before surgery followed by SPECT/CT. A drop-in gamma probe was used for in-vivo and ex-vivo measurements. The IL, PSM and EPE locations were assessed according to sextant uptake values at ex-vivo measurement. PSA, ISUP-GG at biopsy, clinical tumor stage, IL and MRI stage were recorded. A correlation analysis was performed for each outcome. Multivariable logistic regression analysis (MVA) was used to predict each outcome. Models' discrimination was assessed using the c-index, to compare a model including MRI and clinical variables vs. a model including RGS sextant uptake + MRI and clinical variables, evaluating the value of adding PSMA-RGS to MRI in predicting each outcome.

RESULTS: Overall, 17 (27%) and 45 (73%) patients had intermediate- and high-risk PCa. Overall, 20 (32%) patients had nodal uptakes at PSMA PET, and 21 (34%) patients harbored nodal metastases at final pathology. Overall, 17 (27%) patients had PSM, moreover 36 (58%) and 20 (32%) patients had extracapsular extension and seminal vesical invasion at final pathology. The correlation analyses confirmed the association between sextant uptake at RGS and IL (0.25, $P=0.001$) and PSM (0.21, $P=0.007$), but not with EPE (0.07, $P=0.4$). At MVA the sextant uptake at RGS was a predictor of IL location (OR: 1.43, 95%CI: 1.05-1.96, $P=0.02$) and PSM (OR: 1.70, CI: 1.14-2.55, $P=0.01$), but not of EPE (OR: 1.06, CI: 0.86-1.58, $P=0.1$). The PSMA-RGS model exhibited better discrimination vs. MRI model in predicting IL and PSM, with c-index of 71% vs. 65% for IL, 71% vs. 67% for PSM, respectively. Conversely, PSMA-RGS did not improve accuracy for EPE (c-index 59%) when incorporated in the MRI model.

CONCLUSIONS: PSMA-RGS may provide valuable intraoperative information for local staging in patients undergoing RARP with ePLND. Specifically, PSMA-RGS may enhance surgeons' ability to accurately identify tumor location during RARP, thereby improving margin control, to balance oncological with functional outcomes.

SC178

PSMA radioguided surgery for lymph node metastases detection in prostate cancer patients undergoing RARP with ePLND: final results of a prospective phase 2 study

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BACKGROUND: PSMA Radio-Guided Surgery (PSMA-RGS) might assist physicians for the intraoperative identification of lymph node metastases (LNMs) in prostate cancer (PCa) patients undergoing extended pelvic lymph node dissection (ePLND) during robot-assisted radical prostatectomy (RARP). We aimed to report the final results of a phase 2 prospective study (NCT04832958) evaluating the accuracy of PSMA-RGS for the detection of LNMs at time of RARP.

METHODS: Overall, 81 patients with intermediate- or high-risk cN0cM0 PCa with a risk of LNI >5% according to Briganti nomogram were enrolled. Among those, 62 patients underwent PSMA-RGS between June 2021 and October 2024 and represented the study cohort. All patients received a preoperative PSMA-PET. 99mTc-PSMA I&S was administered intravenously the day before surgery. A drop-in gamma probe was used for in-vivo measurements. All positive lesions (count rate ≥ 2 compared to background) were excised and an ePLND was completed. Accuracy of both PSMA-RGS and PSMA PET for LNMs was assessed.

RESULTS: Overall, 17 (27%) and 45 (73%) patients had intermediate- and high-risk PCa. Overall, 20 (32%) patients had suspicious LNMs at PSMA-PET and 21 (34%) patients harbored LNMs. Overall, 496 nodal regions were dissected, of which 52 (10%) harbored LNMs. At per-patient analysis, RGS vs. PSMA PET showed sensitivity, specificity, PPV and NPV of 76% vs. 67%, 85% vs. 61%, 70% vs. 50%, and 83% vs. 83%. PSMA-RGS detected 2 additional pN1 patients (high-risk patients) that would have been missed by PSMA PET. The use of PSMA-RGS vs. PSMA PET to select ePLND candidates would have spared 48% vs. 68% ePLNDs compared to treating all patients at the cost of missing 5 (16%) pN1 patients with PSMA-RGS (maximum diameter of LNM: 3 mm) and 7 (17%) pN1 patients with PSMA-PET. In mN1 patients, RGS identified 3 additional nodal regions with LNMs which would have been missed by using PSMA PET, with sensitivity and specificity of 56% vs. 49% and 84% vs. 76%. PSMA-RGS identified 6 more positive nodal regions compared to preoperative PSMA-PET. Moreover, it identified 2 positive nodal regions at the left common iliac station, outside of the standard template, which were missed by PSMA-PET. However, PSMA-RGS failed to detect 3 regions identified by PSMA PET. Overall, the use of RGS vs. PSMA PET in mN1 patients would have spared 84% (N=100) vs. 77% (N=91) regions dissected, at the cost of missing 15% (N=18) vs. 19% (N=21) positive regions.

CONCLUSIONS: PSMA-RGS could lower the rate of false negatives at preoperative PSMA PET in high risk disease and identify patients with micrometastatic pN1 disease that would have been otherwise missed by preoperative imaging. Moreover, it could help to extend the template of ePLND in mN1 patients where preoperative PSMA PET underestimates the nodal burden.

SC179

Neuroaxial *versus* general anesthesia during single port robot-assisted radical prostatectomy: a comparative analysis of perioperative outcomes

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BACKGROUND: Single Port robot-assisted radical prostatectomy (SP RARP) is traditionally performed under general anesthesia (GA). However, neuroaxial anesthesia (NA) may represent a feasible alternative in selected patients, potentially reducing perioperative morbidity and opioid use. This study aims to compare the feasibility, safety, and perioperative outcomes of RARP performed under NA *versus* GA.

METHODS: A prospective comparative analysis was conducted including patients undergoing SP RARP between May 2024 and March 2026. Patients were stratified into two groups according to the anesthesia protocol performed during surgery. Exclusion criteria for NA included BMI >30, significant pulmonary disease, obstructive sleep apnea, or contraindications to NA. Demographic, intraoperative, and postoperative variables were collected, including operative time, estimated blood loss (EBL), need for conversion to GA, intraoperative complications, postoperative pain control (VAS score), opioid consumption, time to ambulation, length of stay, and complications (Clavien-Dindo classification).

RESULTS: A total of 102 patients were included (NA=23; GA=79). Baseline characteristics were comparable between groups (age: 65.8 $\pm$ 3.7 vs. 67.1 $\pm$ 2.1 years; BMI: 27.4 $\pm$ 2.8 vs. 25.3 $\pm$ 4.1 kg/m²; P=NS). All procedures in the NA group were successfully completed without conversion to GA. No additional ports or open conversions were required in either group. Operative time was 109.3 $\pm$ 10.3 vs. 105.5 $\pm$ 15.7 min (P=NS), and EBL was 210.2 $\pm$ 34.1 vs. 188.2 $\pm$ 13.5 mL (P=NS) in NA vs. GA groups, respectively. No intraoperative complications were recorded. Transient patient movement was observed in 8.6% of NA cases, without impacting surgical performance. Postoperative pain scores at 3 hours were significantly lower in the NA group: 2 (2-3) vs. 3 (2-4) (P=0.04), with reduced opioid requirement (17.3% vs. 63.2%; P=0.001). Early recovery parameters favored NA, including shorter time to ambulation (12.3 $\pm$ 1.2 vs. 20.4 $\pm$ 2.1 hours; P=0.02) and reduced length of stay (2 [1-3] vs. 4 [3-5] days; P=0.03). Overall complication rates were similar (8.6% vs. 11.3%; P=0.23), with all the complications graded as Clavien-Dindo grade I or II and no anesthesia-related adverse events reported in the NA group.

CONCLUSIONS: Neuroaxial anesthesia during SP RARP is a feasible and safe alternative to general anesthesia in selected patients. It provides comparable intraoperative outcomes with potential advantages in postoperative recovery and reduced opioid use. Larger studies are warranted to confirm these findings and better define patient selection criteria.

SC180

Single-port robot-assisted radical prostatectomy: early outcomes and learning curve from a two-center experience

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BACKGROUND: To evaluate perioperative, pathological, and early functional outcomes of Single-Port Robot-Assisted Radical Prostatectomy (SP-RARP) performed using a standardized extraperitoneal approach in two high-volume tertiary referral centers.

METHODS: An observational analysis was conducted on

prospectively maintained institutional databases including patients who underwent SP-RARP between October 2024 and December 2025 at two tertiary centers. 68 patients underwent SP-RARP. All patients had low- or intermediate-risk prostate cancer according to European Association of Urology guidelines and were treated without pelvic lymph node dissection. All procedures were performed using a standardized extraperitoneal approach. Variables analyzed included operative time, estimated blood loss, length of hospital stay, complications, readmissions, pathological findings, and early functional and oncological outcomes.

RESULTS: Mean operative time was 169.4 ± 29.6 minutes, with a progressive reduction from 185.0 ± 27.5 minutes in the first 30 cases to 155.2 ± 20.5 minutes in the last 30 cases. Mean estimated blood loss was 168.8 ± 118.7 milliliters. No intraoperative blood transfusions were required. Mean length of hospital stay was 3.5 ± 1.1 days. Readmission occurred in 2 out of 68 patients (2.9%) due to fever. Pathological analysis showed organ-confined disease (pT2) in 67% of patients and locally advanced disease ($\geq$ pT3) in 12%. Positive surgical margins were observed in 12 out of 68 cases (17.6%), with a margin length less than 1 millimeter in 66.7% of these cases. Prostate-specific antigen at approximately 45 days postoperatively ranged between 0.001 and 0.1 nanograms per milliliter. Early urinary continence ranged between 0 and 1 pad per day. Erectile dysfunction was reported in 29 patients at first postoperative evaluation and in 8 out of 34 patients assessed at 6 months.

CONCLUSIONS: SP-RARP performed *via* an extraperitoneal approach is a safe and reproducible technique, with favorable perioperative outcomes, no need for blood transfusion, and low readmission rates. Early pathological and functional outcomes are comparable to those reported for multi-port approaches. The progressive reduction in operative time reflects the presence of a learning curve.

SC181

Can the “plus-one” accessory trocar support a safe transition to single-port rarp?

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BACKGROUND: Transitioning from multi-port (MP) to single-port (SP) robot-assisted radical prostatectomy (RARP) represents a key step in surgical innovation. While the SP platform offers improved cosmesis and reduced invasiveness, it also introduces challenges in exposure and intraoperative margin control, particularly during early experience. An accessory trocar (“plus-one”) has been proposed to enhance exposure and support margin control during this transition. This study evaluated whether extraperitoneal SP-RARP with a 12-mm accessory trocar achieves comparable oncologic and perioperative outcomes to the preceding MP-RARP series.

METHODS: A retrospective, single-surgeon, single-center study included extraperitoneal SP-RARP “plus-one” and MP-RARP cases. The primary endpoint was to compare intraoperative frozen section (FS) positivity across groups. Secondary endpoints included final positive surgical margin (PSM) rate, operative time, estimated blood loss (EBL), length of stay, and readmission rate. Statistical analyses were performed using Mann-Whitney and Fisher’s Exact Tests.

RESULTS: Overall, 115 procedures were included (92 MP, 23 SP). Baseline patient characteristics were comparable between groups. Median age was 63.5 years for MP and 63.0 years for SP ($P=0.8$). Preoperative PSA was 6.0 vs. 6.5 ng/mL ($P=0.7$), and prostate volume was 41 vs. 45 mL ($P=0.2$). Path ISUP grades 2-3 were 90% in MP and 78% in SP ($P=0.6$). Pathologic stage $\geq$ pT3 was observed in 19% of MP and 5% of SP cases ($P=0.2$). Intraoperative frozen section positivity was markedly lower with SP than with MP (4% vs. 33%; $P=0.006$). A similar trend was observed for final positive margins (4.5% vs. 15%), although this difference did not reach statistical significance ($P=0.4$). Operative time was longer for SP cases (median 176.0 min vs. 163.0 min; $P=0.045$) with EBL comparable between the groups (median 100 mL vs. 150 mL, $P>0.05$). SP group showed an earlier discharge (2 [2-2] days vs. 5 [4-7] days; $P<0.001$), with no differences in readmission rates (4% vs. 3%, $P>0.9$).

CONCLUSIONS: In this early single-surgeon experience, the extraperitoneal SP-RARP performed with an accessory “plus-one” trocar represented a safe and feasible transition from the multi-port approach. With well-balanced baseline characteristics between groups, intraoperative frozen section positivity was significantly lower in SP-RARP, suggesting that adequate margin control was maintained even during the initial learning phase. Despite slightly longer operative times, surgical safety and oncologic results were maintained, suggesting that SP-RARP plus one can be safely implemented even in the early phase of the learning curve.

SC182

Extraperitoneal vs. transvesical single-port robot-assisted radical prostatectomy: preliminary perioperative, oncological, and early functional outcomes

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BACKGROUND: Single-port (SP) robot-assisted radical prostatectomy (RARP) has broadened the minimally invasive setting for localized prostate cancer, with extraperitoneal (EP) and transvesical (TV) access emerging as the most promising approaches thanks to peritoneal-cavity sparing, shorter length of stay (LOS), and improved pain control. Comparative evidence between the two remains limited and mostly derived from high-volume North American series. The current study compares perioperative, oncological and early functional outcomes of SP EP *versus* SP TV RARP at a European tertiary referral center.

METHODS: We retrospectively reviewed 176 consecutive patients who underwent SP RARP with the da Vinci SP platform at our institution. Patients were stratified by approach: EP (N.=159, 90%) and TV (N.=17, 10%). Baseline characteristics, perioperative variables, pathological findings, and early functional outcomes were collected. Continuous variables are reported as median (Q1-Q3); comparisons used Wilcoxon rank-sum, Fisher’s Exact or Pearson’s Chi-square Tests, as appropriate.

RESULTS: Cohorts were balanced for age (64 vs. 62 years; $P=0.092$), BMI (25.3 vs. 24.6; $P=0.2$), prostate volume

(44 vs. 42 mL; $P=0.3$) and EAU risk classification ($P=0.4$). Operative time was slightly longer in TV group (224 vs. 210 minutes; $P=0.4$). Bilateral nerve-sparing was performed in the entire TV cohort (100 % vs. 87% in EP; $P=0.5$), while pelvic lymph node dissection was performed exclusively in the EP group (17%). Slightly higher positive surgical margins rate was observed in TV group (16% vs. 24%; $P=0.7$), but PSA persistency was higher in EP group (3.4% vs. 0%; $P>0.9$). Assistant port was used almost in all TV cases, while in less of half of EP cases (plus-one 94% vs. 40%; $P<0.001$). LOS was virtually the same in both cohorts (2 [2-4] days). We recorded a higher number of postoperative complications in TV groups (47 % vs. 29 %; $P=0.12$), with a statistically significant higher rate of Clavien-Dindo 2 events (35% vs. 8.8%; $P=0.013$). Despite the marked population imbalance and lack of statistical significance, TV showed a consistent trend toward superior early functional recovery: 0-1 pad continence at 1 and 6 months reached 86% vs. 67% ($P=0.3$) and 100% vs. 86% ($P=0.7$). This impact was not assessed for potency recovery at 1 month, where erectile dysfunction was 71% vs. 64%, respectively for TV vs. EP groups. Conversely ED at 12 months was 0% vs. 39% respectively for TV vs. EP groups.

CONCLUSIONS: The current study is impaired by population size, which most of the time led to a lack of statistical significance. However, the trends reported suggest that both SP EP and TV RARP proved feasible and oncologically safe, with comparable margin status and PSA persistency. Despite the limited TV cohort, a consistent trend toward superior early continence and potency recovery emerged; conversely, complication rate favoured EP, likely reflecting an ongoing learning curve.

SC183

Extraperitoneal urologic robotic surgery with Da Vinci Single Port platform: results of “SP-URO” trial

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BACKGROUND: The adoption of da Vinci Single Port (SP) robotic platform is progressively expanding across major medical centers for a variety of urological surgical procedures. This study reports preliminary data from a single center on SP robot-assisted radical prostatectomy (RARP), simple prostatectomy (RASP), and partial nephrectomy (RAPN) performed using an extraperitoneal approach, with the aim of assessing the feasibility and safety of these procedures.

METHODS: The “SP-URO” study was approved by the regional ethics committee (Practice No. 362/2024) and included all patients who underwent SP surgical procedures at IRCCS-FPO Candiolo Cancer Institute starting from June 2024. RARP and RASP were carried out *via* an extraperitoneal approach using a suprapubic incision to access the Retzius space. For RAPN, an incision was made slightly above the Petit triangle, with the patient positioned in a full flank position to reach the retroperitoneal space. A “plus one” trocar was typically placed to assist the surgeon. Demographic, disease-specific, and perioperative data were collected. Any conversion to alternative surgical techniques or the need for robot

redocking was documented. Postoperative complications were classified according to the Clavien-Dindo system.

RESULTS: A total of 153 patients were included: 84 underwent SP-RARP, 30 SP-RASP, and 39 SP-RAPN. The mean BMI was 27.43 (± 3.57), and the median age-adjusted Charlson Comorbidity Index (aaCCI) was 4 (IQR: 3-4). For prostate procedures, the mean prostate volume was 41.23 mL (± 15.18) for RARP and 142 mL (± 30.45) for RASP. In RAPN cases, the median PADUA score was 8 (IQR: 7-8). The mean operative time was 107.6 minutes (± 28.72) for SP-RARP, 112.01 minutes (± 31.18) for SP-RASP, and 98.21 minutes (± 30.64) for SP-RAPN. No intraoperative complications or conversions to other surgical approaches were observed. Only one SP-RAPN case required robot redocking. A single postoperative complication was reported, consisting of a myocardial infarction. The median time to first flatus was postoperative day (POD) 1 (IQR: 1-1), and the median hospital stay was 2 days (IQR: 2-3). Catheter removal occurred at a median of POD 4 (IQR: 4-5) for SP-RARP and POD 4 (IQR: 3-5) for SP-RASP.

CONCLUSIONS: Extraperitoneal surgery using the SP robotic platform appears to be both feasible and safe. Additionally, this approach seems to promote a faster recovery of bowel function and a reduction in hospital length of stay.

SC184

Does surgeon experience matter in single-port radical prostatectomy? A comparative analysis of perioperative, oncological, and functional outcomes

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BACKGROUND: The aim of this study was to compare perioperative, oncological and functional outcomes between a highly experienced single surgeon (who had performed more than 2000 multiport robot-assisted radical prostatectomies [RARP]) *versus* less-experienced surgeons (who had performed less than 500 multiport RARP) in patients undergoing RARP using Da Vinci Single Port (SP) Platform.

METHODS: A retrospective analysis was performed on 93 consecutive patients undergoing SP RARP. Patients were divided into two groups according to surgeon experience: high-experience surgeon (N.=46, 49%) *versus* low-experience surgeons (N.=47, 51%). Baseline characteristics, intraoperative variables, pathological outcomes as well as postoperative functional results were compared. Continuous variables were expressed as median and interquartile range and categorical variables as number and percentage. Statistical significance was set at $P<0.05$.

RESULTS: Patients treated by young surgeons were older (66 vs. 62 years, $P=0.002$), with higher body mass index (26.37 vs. 24.53, $P=0.008$) and larger prostate volume (49 vs. 39 milliliters, $P=0.008$). Operative time was significantly longer in the young surgeons' group (246 vs. 186 minutes, $P<0.001$), and time to catheter removal was also longer (6 vs. 5 days, $P=0.034$), while length of hospital stay was similar (2 days in both groups, $P=0.9$). Lymph node dissection was performed more frequently by the high-experience surgeon

(26% vs. 6%, $P=0.010$). Positively surgical margins were comparable (11% vs. 13%, $P=0.5$), as well as prostate specific antigen persistence (2.5% vs. 4.5%, $P>0.9$). No intraoperative complications were reported in either group. Postoperative complications occurred in 22% and 26% of patients in high-experience *versus* low-experience surgeons, respectively ($P=0.7$). Urinary continence rates were similar at 1 month (0-1 pad use: 66% vs. 72%, $P=0.7$) and at 6 months (80% vs. 86%, $P=0.9$). Erectile function recovery at 6 months with or without pharmacological support was lower in the young surgeons' group (64% vs. 73%, $P=0.030$), while no significant difference was observed at 12 months ($P=0.2$).

CONCLUSIONS: Surgical experience significantly influenced operative time and perioperative management, with shorter procedures and earlier catheter removal in the high-volume surgeon group. However, oncological outcomes, complication rates as well as urinary continence were comparable between the two groups. Overall, radical prostatectomy with Da Vinci Single Port Platform performed by lower experience surgeons achieved outcomes similar to those of a high-experience surgeon, despite less favorable baseline patient characteristics.

SC185

Impact of prostate volume on intraoperative and postoperative outcomes after robot-assisted radical prostatectomy using the Da Vinci Single-Port platform

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BACKGROUND: To evaluate intraoperative and postoperative outcomes in patients undergoing robot-assisted radical prostatectomy (RARP) for localized prostate cancer (PCa) using the Da Vinci Single-Port (SP) robotic platform according to prostate volume (PV).

METHODS: We identified 176 patients with localized PCa treated with RARP using the Da Vinci SP platform at our tertiary referral center. Patients were stratified according to PV (≥ 50 mL vs. <50 mL). Descriptive analyses of patients' baseline characteristics, intra-operative and post-operative outcomes were performed. Continuous variables are reported as median (Q1-Q3); comparisons used Wilcoxon rank-sum, Fisher's Exact or Pearson's Chi-square Tests, as appropriate.

RESULTS: Among 176 RARP SP patients, 56 (32%) had PV ≥ 50 mL. Patients with PV ≥ 5 mL were older (67 vs. 63 years; $P<0.001$) and exhibited a higher prevalence of preoperative erectile dysfunction (32 vs. 14%; $P=0.009$). EAU risk classification was comparable between the two groups ($P=0.8$). Assessment of intraoperative outcomes showed longer operative times in patients with PV ≥ 50 mL (238 vs. 200 min; $P<0.001$), while no significant differences were observed in the use of an assistant trocar ($P=0.3$), nerve-sparing modality ($P=0.2$), positive surgical margins on intraoperative frozen section analysis ($P=0.8$), or intraoperative complications ($P=0.2$). Postoperative outcomes analysis revealed comparable rates of length of stay ($P=0.6$), time to catheter removal ($P=0.1$), complications ($P=0.2$), Clavien-Dindo complication classification ($P=0.5$), PSA persistency

($P=0.7$) and urinary incontinence rates at 1 month (30 vs. 33%, $P=0.7$) and 6 months (16 vs. 9%, $P=0.8$). The rate of non-potent patients at 1 month was higher in patients with PV ≥ 50 mL (80 vs. 57%; $P=0.017$), whereas sexual potency at 6 months was comparable between the two groups (57 vs. 32% $P=0.4$).

CONCLUSIONS: The Da Vinci SP platform provides a safe and feasible option for radical prostatectomy regardless of PV. Although patients with PV ≥ 50 mL were older, had longer operative times, and showed a higher rate of early post-operative erectile dysfunction, no significant differences were observed in intraoperative complications, postoperative complications, length of stay, time to catheter removal, PSA persistency, urinary continence, or mid-term sexual function recovery. Larger PV may increase surgical complexity without negatively affecting overall perioperative outcomes.

SC186

The impact of prostate size on single port robot-assisted radical prostatectomy surgical outcomes

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BACKGROUND: Robotic-assisted radical prostatectomy (RARP) has transformed prostate cancer surgery, with prostate size influencing surgical outcomes in multiport RARP. However, its impact on Da Vinci's single-port (SP) RARP remains unclear. This study evaluates the effect of prostate size on surgical outcomes in SP-RARP.

METHODS: We conducted a multicenter analysis of patients undergoing SP-RARP between 2018 and 2024. Our primary endpoint was to assess the impact of prostate size on SP-RARP surgical outcomes, including operative time, estimated blood loss (EBL), nerve-sparing status, margin status, and intraoperative/postoperative complications. Logistic regression models assessed the independent impact of prostate size (calculated at final pathology) on these outcomes.

RESULTS: 343 patients were included; the median prostate size was 46 g (IQR 37-52). Of these, 114 patients had a prostate size of ≤ 40 g, 175 of 41-69 g, and 54 of ≥ 70 g. Larger prostates were associated with significantly prolonged operative time (265 vs. 301 vs. 306 min, $P<0.001$), increased EBL (100 vs. 100 vs. 150 mL, $P=0.012$), and lower nerve-sparing rates (79% vs. 64% vs. 44%, $P<0.001$). Non-focal positive margins occurred in 23% of cases, with no significant differences across size groups ($P=0.6$), nor for intraoperative ($P=0.2$) nor for postoperative complications ($P>0.9$) rates between prostate size groups. In multivariable logistic regression, prostate size remained an independent predictor of prolonged operative time above median ($P=0.012$), increased EBL above median ($P=0.007$), and lower nerve-sparing ($P=0.002$). No significant association was found with margin status ($P=0.092$) or postoperative complications ($P>0.9$).

CONCLUSIONS: Prostate size impacts intraoperative complexity in SP-RARP but does not increase complication or margin rates. These findings support the feasibility and safety of SP-RARP across a broad range of prostate sizes, consistent with trends reported for multiport RARP.

SC187**Impact of lymphadenectomy on perioperative outcomes in single-port robot-assisted radical prostatectomy: a single-center experience**

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BACKGROUND: Single-port robot-assisted radical prostatectomy (SP-RARP) is an emerging minimally invasive approach for the treatment of localized prostate cancer. However, the impact of lymphadenectomy on perioperative outcomes in this setting is still unclear. The aim of this study is to compare perioperative outcomes and complication rates in patients undergoing SP-RARP with and without lymph node dissection (LND).

METHODS: A retrospective analysis was conducted on 176 consecutive patients who underwent SP-RARP at a single referral center. Data were prospectively collected and retrospectively analysed. Complications were graded according to the Clavien-Dindo classification. Patients were divided into LND (15%) and non-LND (85%) groups. Variables analysed included age, body mass index (BMI), prostate volume, operative time, length of stay (LOS), time to catheter removal, surgical margin status, prostate-specific antigen (PSA) persistence, intraoperative and postoperative complications and readmission. Results are reported as median and interquartile range or frequencies and percentages.

RESULTS: Median age was 64 years in both groups. No significant differences were observed in BMI (25.3 vs. 25.3; $P=0.8$) or prostate volume (44 vs. 42 mL; $P=0.8$). Operative time was significantly longer in patients undergoing LND (239 vs. 205 minutes; $P=0.002$). LOS was comparable (2 vs. 2 days; $P=0.5$), as was time to catheter removal (5 vs. 5 days; $P=0.7$). Positive surgical margins were similar between groups (15% vs. 17%; $P>0.9$). PSA persistence was observed in 8.3% versus 2.2% ($P=0.2$). Intraoperative complications occurred in 3.7% of LND patients versus 1.3% of non-LND patients ($P=0.4$), including bleeding requiring transfusion, conversion to multiport, and gas embolism. However, these complications were not directly linked to the LND procedure. Postoperative complications were higher in the LND group (52% vs. 27%; $P=0.010$), with more Clavien-Dindo grade $\geq 3a$ events (19% vs. 1.3%; $P=0.001$). Common complications included subcutaneous emphysema, fever, and lymphocele. Hospital readmission occurred in 10 patients (5.7%) and was higher in the LND group (14.8% vs. 4.0%; $P=0.048$), mainly due to lymphocele and thromboembolic events.

CONCLUSIONS: SP-RARP is a safe and feasible procedure. Lymphadenectomy is associated with increased operative time, postoperative complications, particularly major ones, and readmission rate, without differences in early oncological outcomes. Careful patient selection is warranted.

SC188**Single-port vs. multi-port robotic-assisted radical prostatectomy: a time-adjusted descriptive comparison of intraoperative anesthesiologic parameters**

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BACKGROUND: Single-port (SP) robotic-assisted radical prostatectomy (RARP) is an emerging alternative to the conventional multi-port (MP) technique. While surgical outcomes have been studied, anesthesiologic implications remain less explored. RARP poses relevant anesthesiologic challenges due to the combined effects of pneumoperitoneum and steep Trendelenburg positioning. This study aims to describe intraoperative anesthesiologic parameters in SP RARP, with a descriptive comparison to MP RARP.

METHODS: Between October 2024 and January 2026, we compared 16 SP-RARP and 15 MP-RARP cases carried out during the same time period to evaluate potential differences between the two approaches. Perioperative nociception was assessed by analyzing intraoperative remifentanyl consumption ($\mu\text{g/kg/min}$), administered *via* target-controlled infusion (Minto model) and guided by Nociception Level (NOL) Index monitoring, together with early postoperative pain scores (VAS at 30 and 60 minutes) and the requirement for rescue analgesia. The respiratory impact of pneumoperitoneum and patient positioning was evaluated by monitoring peak inspiratory pressure, dynamic compliance, and minute ventilation at baseline and during surgery. All procedures were performed by the same surgical and anesthesiology team. To account for variability in surgical duration, drug consumption and physiological parameters were normalized per hour of operative time. Results are reported as median with interquartile range (IQR).

RESULTS: 31 patients were enrolled for the anesthesiologic comparison: SP-RARP $N=16$ (51.6%) and MP-RARP $N=15$ (48.4%). Groups were comparable for age (67.75 ± 5.24 vs. 67.80 ± 5.08 years; $P=0.98$), BMI (25.25 ± 2.33 vs. 26.80 ± 2.45 kg/m^2 ; $P=0.09$), eGFR (81.50 ± 16.69 vs. 86.27 ± 12.07 mL/min ; $P=0.39$) and ASA class (ASA II: 87.5% vs. 86.7%; $P=1.00$). Diabetes mellitus was more frequent in MP (0% vs. 26.7%; $P=0.043$). Operative time (190.1 ± 35.3 vs. 191.0 ± 52.8 min; $P=0.96$) and pneumoperitoneum time (164.4 ± 36.6 vs. 162.9 ± 50.9 min; $P=0.93$) were similar. At 30 min in PACU, VAS was lower in SP (2.5 [2.0-4.5]) vs. MP (5.0 [5.0-6.0]; $P=0.020$). At 60 min, VAS did not differ ($P=0.077$). Rescue analgesia was required in 25.0% (SP) vs. 86.7% (MP) ($P=0.003$), with higher rescue morphine in MP ($P=0.002$). Intraoperatively, total Remifentanyl (370 [305-428] vs. 1067 [975-1184] mcg; $P<0.001$) and infusion rate (0.022 [0.020-0.025] vs. 0.062 [0.056-0.076] mcg/kg/min; $P<0.001$) were lower in SP. Cet remained lower in SP at all timepoints (T0-T4, all $p\leq 0.007$). Baseline Ppeak and Cdyn were similar. During pneumoperitoneum, Ppeak was higher in MP at T1-T4 (all $p\leq 0.003$; overall group effect $P=0.001$). Cdyn was higher in SP (group effect $P=0.007$), with significant differences at T1 ($P=0.008$) and T4 ($P=0.006$). PaCO_2 did not differ at any timepoint (all $P>0.05$). VE/IBW was higher in MP at T2 ($P=0.001$), T3 ($P<0.001$), and T4 ($P=0.011$).

CONCLUSIONS: In SP-RARP, the extraperitoneal approach confers measurable anesthesiologic and nociceptive advantages without compromising perioperative or early oncological outcomes.

SC189**Single-port vs. multi-port robotic-assisted radical prostatectomy: intra- and perioperative outcomes from an institutional cohort**

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BACKGROUND: Single-port (SP) robotic prostatectomy may reduce surgical invasiveness and enhance recovery. Comparative real-world data, especially from single-surgeon experiences that eliminate inter-operator variability, remain limited. We report our initial SP-RARP experience *versus* a multi-port (MP) cohort, focusing on intra- and peri-operative outcomes.

METHODS: This retrospective study was conducted at a tertiary referral centre and included patients undergoing extraperitoneal SP-RARP and MP-RARP between January 2022 and October 2025. All procedures were performed by a single experienced robotic surgeon in his first experience with the SP platform. The primary endpoint was to compare intra- and peri-operative outcomes between techniques; the secondary endpoint was the rate of positive intra-operative frozen sections. Wilcoxon rank-sum and χ^2 /Fisher's Exact Tests were applied.

RESULTS: A total of 115 patients were included (23 SP and 92 MP). Baseline characteristics were highly homogeneous between groups: median age 63 vs. 63.5 years ($P=0.8$), PSA

6.5 vs. 6.0 ng/mL ($P=0.7$), and prostate volume 45 vs. 41 mL ($P=0.2$), respectively. Median operative time was slightly longer in the SP group (176 vs. 163 minutes; $P=0.045$), with comparable estimated blood loss (150 vs. 120 mL; $P=0.6$). SP was associated with markedly reduced drain use (39% vs. 100%; $P<0.001$) and shorter length of stay (median of 2 vs. 5 days; $P<0.001$), although catheterization time was longer (median of 7 vs. 5 days; $P<0.001$). No intra-operative complications occurred in the SP cohort vs. 2.2% in MP ($P>0.9$), and readmission rates were similarly low (4.3% vs. 3.3%; $P>0.9$). Positive frozen section findings requiring margin refinement were significantly lower in SP patients (4.3% vs. 33%; $P=0.006$).

CONCLUSIONS: In this single-surgeon series, SP-RARP and MP-RARP showed comparable intra- and peri-operative outcomes. The SP approach was associated with shorter hospital stay and reduced drain use, albeit with slightly longer operative and catheterization times. These findings, obtained during the initial implementation of the SP platform in a controlled mono-operator setting, support its feasibility and reproducibility.

IPB: terapia medica e chirurgia robotica

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Trends and incidence of reported events associated with Da Vinci single-port: an analysis of the Food and Drug Administration's manufacturer and user facility device experience database

SC190

Nocturnal Bladder Capacity Index assessment in the management of nocturia in patients with LUTS related to benign prostatic hyperplasia

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BACKGROUND: Nocturia is a frequent and clinically relevant symptom in men with BPH, driven by heterogeneous underlying mechanisms. The Nocturnal Bladder Capacity Index (NBCI) is a validated diagnostic tool that enables differentiation between nocturnal polyuria (NP) and reduced nocturnal bladder capacity (NBC), thereby supporting mechanism-based therapeutic strategies. This study aimed to compare clinical outcomes of an NBCI-guided management approach *versus* a non-stratified standard treatment strategy in men with BPH-associated nocturia.

METHODS: This prospective study enrolled men aged 45-65 years with LUTS secondary to BPH and clinically significant nocturia (≥ 3 voids/night). Patients were allocated to an NBCI-guided treatment group or a non-NBCI group. In the NBCI-guided group, treatment was individualized based on NBCI values. Patients with $\text{NBCI} > 1.3$, consistent with reduced NBC, received combination therapy with tamsulosin (0.4 mg/day) and solifenacin (5 mg/day). Patients with $\text{NBCI} \leq 1.3$ underwent further evaluation with frequency-volume charts and nocturnal urine volume assessment to identify NP or other bladder dysfunctions. Patients diagnosed with NP were treated with desmopressin, while those without NP received diagnosis-specific therapy. The non-NBCI group was treated with tamsulosin. Outcomes were assessed at 6 and 12 months and included NVF and IPSS.

RESULTS: A total of 206 patients were included, with 103 per group. At 6 months, the NBCI-guided group showed a mean NVF reduction from 3.7 to 1.7 voids/night (54.1%), whereas the non-NBCI group decreased from 3.6 to 2.6 voids/night (both $P < 0.001$). IPSS improved from 22.9 to 14.2 in the NBCI-guided group ($P < 0.001$), compared with a reduction from 22.7 to 17.6 in the non-NBCI group ($P = 0.08$). At 12 months, improvements were stable in the NBCI-guided group, with NVF maintained at 1.8 voids/night, while the non-NBCI group showed NVF of 2.7 voids/night ($P < 0.001$). IPSS reduction at 12 months remained clinically significant in the NBCI-guided group; no additional improvement was observed in the non-NBCI group (13.9 vs. 17.7, respectively). Within the NBCI-guided cohort, patients diagnosed with NP experienced a reduction in NVF from 3.6 to 1.6 voids/night ($P < 0.001$). Patients without NP but with $\text{NBCI} \leq 1.3$ showed a reduction from 3.5 to 1.9 voids/night ($P < 0.01$). Patients with $\text{NBCI} > 1.3$ treated with tamsulosin-solifenacin showed a reduction in NVF from 3.9 to 2.3 voids/night ($P < 0.01$), which persisted at 12 months.

CONCLUSIONS: NBCI-guided management led to significantly greater and more durable reductions in NVF and IPSS than non-stratified therapy. By enabling etiological differentiation between NP and reduced NBC, the NBCI facilitated targeted, mechanism-based interventions, with desmopressin showing the greatest efficacy in patients with NP. NBCI-guided management of nocturia in men with BPH leads to significantly greater and more sustained improvements in NVF and LUTS compared with non-stratified

therapy. By enabling mechanism-based treatment selection, the NBCI optimizes therapeutic outcomes and supports its routine use in clinical practice.

SC191

Ultrasound evaluation of intravesical prostatic protrusion in benign prostatic hypertrophy as a predictive value of bladder outlet obstruction

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BACKGROUND: To confirm the predictive value of intravesical prostatic protrusion (IPP) as a non-invasive method for the diagnosis of bladder outlet obstruction (BOO).

METHODS: Data from 121 male patients were collected at the Urodynamics Outpatient Clinic of the Marche University Hospital from September 2023 to February 2026. Inclusion criteria included patients receiving α -blockers and suspected bladder outlet obstruction (BOO) associated with lower urinary tract symptoms. Fifty-eight patients were excluded due to conditions such as neurogenic bladder, type 1 and 2 diabetes mellitus, other causes of BOO, previous urethral surgery, bladder neck sclerosis, prostate cancer, urinary tract stones or infections, pelvic radiotherapy, use of anticholinergics or $\beta 3$ agonists, non-administration of α -blockers, and inability to void during the pressure/flow study (PFS). Sixty-three patients with a mean age of 62 years were included. The parameters analyzed were: age, prostate volume, comorbidities, prostate-specific therapy, IPP measurement in mm, free uroflowmetry, and PFS. IPP, defined as the distance, expressed in mm, between the apex of the prostatic protrusion within the bladder and the bladder neck, was assessed by suprapubic ultrasound with a bladder filling between 100 and 200 mL. Invasive urodynamic testing (UDS) was performed using a Laborie Nexam Pro air-operated device with the placement of 7-Ch catheters. All patients had a negative urine culture and performed an evacuative enema the evening before the examination. The tests were performed according to the urodynamic practices recommended by the International Continence Society (ICS). All studies were conducted in the same clinic and by the same medical and nursing staff.

RESULTS: Obstruction was assessed using the bladder outlet obstruction index (BOOI). Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of urodynamic parameters for PFS were calculated using different PPI cutoffs. Patients with a $\text{BOOI} \geq 10$ mm were more likely to be obstructed ($\text{BOOI} > 20$) (PPV 85.7%) than patients with a $\text{BOOI} < 10$ mm (PPV 54.3%). A statistically significant difference in the bladder outlet obstruction index was found between the two groups (P value = 0.013 calculated according to the Fisher's Exact Test). Furthermore, patients with a $\text{BOOI} < 4$ mm had no probability of being obstructed (NPV 100%).

CONCLUSIONS: This series is large enough to provide evidence on the significance of PPI. Ultrasound measurement of PPI is a noninvasive, inexpensive, and rapid method for assessing BOO, with a reliable positive predictive value in patients with $\text{PPI} \geq 10$ mm and a negative predictive value in patients with $\text{PPI} < 4$ mm.

SC192**Accuracy of ultrasound and MRI in estimating prostate volume compared to surgical specimen in patients undergoing robotic-assisted simple prostatectomy**

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BACKGROUND: To evaluate the accuracy of transrectal ultrasound (ECO) and magnetic resonance imaging (MRI) in estimating prostate volume compared to actual resected adenoma volume in patients undergoing robotic-assisted simple prostatectomy (RASP).

METHODS: Between January 2025 and April 2026, 30 consecutive patients undergoing RASP for benign prostatic hyperplasia were analyzed. Pre-operative prostate volume was assessed using transrectal ultrasound (ECO) and MRI. These measurements were compared with the volume of surgically enucleated tissue. Agreement between imaging modalities and surgical specimen was evaluated using Bland-Altman analysis, bias, limits of agreement (LoA), and error metrics including mean absolute error (MAE), root mean square error (RMSE), and mean absolute percentage error (MAPE).

RESULTS: Both imaging modalities systematically overestimated prostate volume compared to the surgical specimen. ECO showed a mean bias of +58.9 cc, with limits of agreement ranging from -32.2 to 149.9 cc. MRI demonstrated a higher mean bias of +68.4 cc, with limits of agreement from -24.5 to 161.2 cc. Error analysis confirmed slightly better performance of ECO compared to MRI. ECO had a lower MAE (60.4 vs. 68.4 cc), RMSE (74.5 vs. 82.7 cc), and MAPE (69.9% vs. 74.4%). Bland-Altman analysis showed wide dispersion for both methods, indicating limited agreement with the reference standard, particularly at higher prostate volumes. Intraclass correlation coefficients (ICC) could not be reliably estimated due to dataset limitations.

CONCLUSIONS: Both ultrasound and MRI tend to overestimate prostate volume in patients with large BPH undergoing RASP, with substantial variability and wide limits of agreement. Ultrasound demonstrated slightly better accuracy compared to MRI, although neither modality showed optimal agreement with the surgical specimen. These findings suggest caution when relying on pre-operative imaging for surgical planning in patients with very large prostates.

SC193**Increase in prostate transition zone stiffness is associated with altered voiding parameters in men with lower urinary tract symptoms**

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BACKGROUND: LUTS in men with BPH show limited correlation with prostate volume (PV) and postvoid residual (PVR), suggesting additional biomechanical contributors. Prostate Magnetic Resonance Elastography (pMRE) enables non-invasive assessment of tissue stiffness. Our study aimed

to evaluate the association between prostate transition zone (TZ) stiffness, LUTS severity and urinary flow, and whether combining stiffness with anatomical parameters improves functional correlation.

METHODS: Participants included healthy volunteers or referrals from a BPH clinic that underwent multiparametric prostate MRI including pMRE, on 3T MRI using a commercially available active driver and prototype transperineal passive driver. The American Urological Association Symptom Index (AUA-SI) questionnaire was used to categorize men by their reported LUTS: none (0), mild (1-7), moderate (8-19) or severe (>19). Non-invasive uroflowmetry was performed immediately prior to MRI to capture voiding parameters. Anatomic measures on MRI included total PV, PVR, TZ volume, and prostatic urethra length (PUL). A regions-of-interest was drawn on the prostate elastogram, at the midgland, and the product of midgland TZ stiffness and PUL [kPa x U length] was calculated. The Kruskal-Wallis rank sum test and Spearman correlation coefficients were used to assess relationships between imaging and clinical data. A P value of <0.05 was considered statistically significant.

RESULTS: A total of 42 men were included in the analysis. Men with moderate/severe LUTS were older ($P<0.01$) and had a lower Qmax ($P<0.01$) and Qave ($P<0.01$) compared to men without LUTS. PV and PVR did not differ across LUTS groups. pMRE was completed successfully in all men. The mean midgland TZ stiffness was lower in men without LUTS (3.6 kPa, IQR 3.5-4.1) compared to men with mild to severe LUTS ($P<0.01$). After excluding men ($N=12$) with an inadequate uroflow, (VV <150cc), higher midgland TZ stiffness demonstrated a stronger correlation with lower Qmax ($\rho = -0.63$; $P<0.01$). Increase in [kPa x U length] correlated with a lower Qmax ($\rho = -0.74$, $P<0.01$).

CONCLUSIONS: Prostate TZ stiffness is associated with LUTS severity and reduced urinary flow. Higher TZ stiffness correlates with lower Qmax, supporting the concept that the change in the mechanical properties of the prostate can be a measure of functional obstruction. The combined stiffness-urethral length metric shows stronger correlation with flow impairment, suggesting that integrating biomechanical and anatomical biomarkers may better characterize obstruction. pMRE may improve noninvasive assessment and support personalized management in men with BPH/LUTS.

SC194**Comparison of Serenoa Repens extract plus alfuzosin combination therapy to alfuzosine monotherapy in patients with luts secondary to BPH: a multicenter study in real life**

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BACKGROUND: Chronic inflammatory processes are very common inside BPH tissue, they are related to well-known specific mechanisms and can influence LUTS but also BPH growth and progression.

METHODS: This is a prospective longitudinal multicenter trial investigating standard care with alfuzosin 10 mg/daily compared to the combination therapy alfuzosin 10 mg + ethanolic extract of Serenoa Repens 320 mg/daily for 12 months

in a population of patients with LUTS secondary to BPH. Primary objective of the study was a comparative analysis of the two treatments in terms of efficacy (IPSS, Uroflowmetry). Inclusion criteria were male subjects with bothersome LUTS due to BPH with an IPSS >7, prostate enlargement at ultrasonography >30 cc, naïve to any previous treatment for BPH and LUTS. The IPSS questionnaire was used to characterize LUTS. A specific evaluation of storage symptoms (urgency and frequency) was performed on IPSS question 2 and 4 as well as of nocturia on question 7. IIEF-5 questionnaire was used to evaluate changes in sexual function as well as MSHQ EJ questionnaire to evaluate ejaculatory disorders during therapies. Treatment and follow-up were performed in a real-life condition reflecting current patient management. The observations were evaluated with the Mixed Analysis of Variance (ANOVA), to be evaluated as *between* the groups of treatment and *within* the period of 1-12 months. In the presence of a significant interaction between the group factor and the time factor, Tukey's multiple comparison test was applied to identify any differences *within* the planned periods and *between* the two groups of treatment.

RESULTS: 300 patients were included, randomized to the two treatments, and followed for 12 months in the study. Regarding LUTS, time had a highly statistically significant effect on total IPSS modification in both treatments. The type of therapy (combination *versus* monotherapy) and the interaction time-therapy also had a statistically significant effect on total IPSS modification. The combination therapy always (from 1-month to 12-month intervals) had slightly lower IPSS scores than monotherapy suggesting greater efficacy (Fixed Effect Test: Time = F ratio 347.671, $P < 0.0001$; Interaction Time-Therapy = F ratio 4.843, $P = 0.007$; Therapy = F ratio 6.494, $P = 0.0113$). Time had a highly statistically significant effect on nocturia modification in both treatments. The type of therapy (combination *versus* monotherapy) did not show a significant effect on nocturia modifications whereas the interaction time-therapy also had a statistically significant effect on nocturia. The combination therapy had slightly lower nocturia scores than alfuzosin monotherapy starting from 3-month to 12-month intervals (but not at 1-month interval) (Fixed Effect Test: Time = F ratio 149.1204, $P < 0.0001$; Interaction Time-Therapy = F ratio 3.6191, $P = 0.006$; Therapy = F ratio 3.1671, $P = 0.0761$). Regarding uroflowmetry evaluation, time had a highly statistically significant effect on Qmax modification in both treatments. The interaction Time-Therapy also had a statistically significant effect on Qmax modification. On the contrary, the type of therapy (combination *versus* monotherapy) alone did not have a statistically significant effect on Qmax modifications. The effect of Time depends also on the type of therapy administered (slightly higher improvement in the combination therapy group) but the type of therapy did not have a significant impact on Qmax regardless of time (Fixed Effect Test: Time = F ratio 136.425, $P < 0.0001$; Interaction Time-Therapy = F ratio 4.253, $P = 0.006$; Therapy = F ratio 0.913, $P = 0.113$). Most patients showed excellent adherence (higher than 90%) to therapy with 87.3% in the combination therapy group and 86.4% in the alfuzosin monotherapy group till the 6-month interval.

CONCLUSIONS: In general, our tests underline that time had the highest statistically significant effect on each variable modification in both treatments. The combination therapy showed a more marked reduction in IPSS compared to the monotherapy starting from the 3-month interval, a more evident advantage in QoL in the long-term evaluation, a slightly higher significant improvement in Qmax urinary flow start-

ing from 3-month interval. High adherence and real-world applicability support the clinical value of this combination in managing BPH-related LUTS.

SC195

Signal detection of depression and suicidality linked to the 5- α reductase inhibitors finasteride and dutasteride: evidence from pharmacovigilance data

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BACKGROUND: Finasteride and dutasteride are 5- α reductase inhibitors (5-ARIs) widely used for benign prostatic hyperplasia and androgenetic alopecia. Both agents have been associated with psychiatric adverse drug reactions (ADRs), including depression, anxiety, and suicidality. Although these associations have raised safety concerns, comparative real-world data assessing their psychiatric risk profiles are limited. We aimed to investigate and compare the frequency and disproportionality of psychiatric ADRs reported for finasteride and dutasteride using the U.S. Food and Drug Administration Adverse Event Reporting System (FAERS).

METHODS: We retrospectively analyzed all FAERS reports up to 2025 listing finasteride or dutasteride as suspected agents. Adverse events were classified according to the Medical Dictionary for Regulatory Activities (MedDRA) preferred terms, with psychiatric ADRs categorized into depressive, suicidality, anxiety, and libido-related groups. Duplicate entries were excluded before analysis. Reporting Odds Ratios (RORs) and corresponding 95% confidence intervals (CIs) were calculated after normalization and exponentiation to compare the relative reporting frequency between the two drugs.

RESULTS: A total of 27,578 ADRs were reported for finasteride, including 8087 (29.3%) psychiatric events. When finasteride was the sole suspected drug, 6754 psychiatric ADRs were identified, of which 5170 (76.6%) were serious and 1584 (23.4%) were non-serious. After deduplication, 4132 serious cases were analyzed, most commonly depressive disorders ($N = 2252$), anxiety ($N = 1524$), suicidality ($N = 1109$), and libido disorders ($N = 2122$). For dutasteride, 9161 total ADRs were reported, of which 1219 (13.3%) were psychiatric. When dutasteride was listed as the sole suspected ingredient, 595 psychiatric ADRs were identified, with 333 serious cases after deduplication. The most frequent events included depressive symptoms ($N = 55$), libido disorders ($N = 57$), anxiety ($N = 27$), and suicidality ($N = 24$). Disproportionality analysis showed higher reporting for finasteride compared to dutasteride, with RORs (95% CI) of 3.20 (2.72-3.76) for depression-related, 2.72 (2.18-3.39) for suicide-related, 2.68 (2.29-3.15) for libido-related, and 3.78 (3.07-4.67) for anxiety-related events.

CONCLUSIONS: This pharmacovigilance analysis suggests that finasteride is associated with a higher reporting frequency of psychiatric adverse reactions, including depression and suicidality, compared with dutasteride. Although limited by the intrinsic biases of spontaneous reporting systems, these findings underline the need for continued post-marketing surveillance and well-designed prospective studies to clarify the neuropsychiatric safety profile of 5- α reductase inhibitors.

SC196**Disrupted glucocorticoid rhythmicity and impaired glucose homeostasis in patients treated with 5 α -reductase inhibitors: a proof-of-concept study**

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BACKGROUND: To investigate the relationship between the circadian profile of GCs and glucose metabolism in patients undergoing 5ARi therapy.

METHODS: This observational, prospective, proof-of-concept, case-control study evaluated patients with BPH in two phases: at baseline (prior 5ARi initiation) and approximately three months later. The study protocol included: 1) salivary cortisol profile across five timepoints in a 24-hour period, analysed using liquid chromatography-tandem mass spectrometry (LC-MS/MS) and cosinor-based modeling; 2) continuous glucose monitoring (CGM) for 14 days; 3) fasting blood sampling for glyco-metabolic and hormonal assessments.

RESULTS: Between October 2024 and May 2025, 26 patients were enrolled. At baseline, greater amplitude of cortisol rhythmicity was associated with more favourable glycemic profile, including HbA1c ($r = 0.494$; $P = 0.044$) fasting glucose ($r = 0.502$; $P = 0.040$), as well as CGM-derived metrics such as glycemic variability ($r = 0.900$; $P < 0.001$), higher time in tight range 70-140 mg/dL ($r = 0.598$; $P = 0.009$), and lower mean glucose levels ($r = 0.431$; $P = 0.074$). In contrast, overall cortisol exposure, estimated by the area under the 24-hour salivary cortisol curve (AUC24h), was not associated with glycemic outcomes. Among patients with available follow-up data ($N = 13$), reduced acrophase of cortisol rhythmicity ($-1.68, -3.49$; 0.13 , $P = 0.06$) and reduced mesor ($-0.81, -1.51$; -0.10 , $P = 0.031$) associate with worsening glycemic control in the 5ARi-treated group.

CONCLUSIONS: The integration of salivary cortisol profiling by LC-MS/MS, combined with CGM analysis, offers a nuanced approach to studying the interplay between GCs metabolism and glucose homeostasis. Our findings suggest that blunted circadian GC rhythmicity, rather than total cortisol burden, may impair glycemic control. Expanding this cohort will provide more robust data to dissect the metabolic impact of 5ARi therapy.

SC197**Clean intermittent self-catheterization versus indwelling catheterization for de novo acute urinary retention secondary to BPH: a prospective randomized study**

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BACKGROUND: Acute urinary retention (AUR) secondary to benign prostatic hyperplasia (BPH) is the most common cause of urinary retention in aging male patients. The standard management includes indwelling catheterization (IDC) combined with α_1 -blocker therapy to restore spontane-

ous voiding. Clean intermittent self-catheterization (CISC) has proven beneficial in neurogenic bladder dysfunction, but evidence regarding its role in AUR due to BPH is limited. The aim of this study was to assess whether CISC could represent a valid alternative to IDC in patients with de novo AUR secondary to BPH.

METHODS: This prospective randomized study included 76 male patients (mean age 64.6 ± 7.8 years) presenting with de novo AUR due to BPH. At emergency admission (T0), all patients were initially treated with IDC and started on silodosin 8 mg daily. They were then randomized to either continue with CISC (Group A, $N = 37$) or maintain IDC (Group B, $N = 39$). Follow-up assessments were performed at 3 weeks (T1), 30 days (T2), and 45 days (T3) to evaluate restoration of spontaneous voiding, post-void residual volume (PVR), complications, and patient-reported outcomes. QoL was assessed with a dedicated questionnaire, while the AUR-Cath questionnaire evaluated the patient's experience with urinary drainage.

RESULTS: Baseline characteristics, including age, BMI, prostate volume, and concomitant antiplatelet or anticoagulant therapy, were comparable between the two groups (all $P > 0.05$). The proportion of patients who regained spontaneous micturition was similar at each follow-up: 65% vs. 59% at T1, 81% vs. 79% at T2, and 89% vs. 85% at T3 for Groups A and B, respectively (all $P > 0.05$). PVR values showed no significant difference between groups (T1: 98.6 ± 42.4 mL vs. 105.3 ± 45.7 mL, $P = 0.41$; T3: 63.7 ± 35.1 mL vs. 70.2 ± 37.6 mL, $P = 0.39$). Patients in Group A performed an average of four catheterizations per day, draining a mean volume of 377.8 ± 55.4 mL, which remained stable throughout the study. QoL scores were higher in the CISC group at all follow-up points (T1: $P = 0.01$; T2 and T3: $P < 0.01$). The AUR-Cath questionnaire also revealed a better overall experience for Group A (mean score 4.3 ± 0.5 vs. 3.1 ± 0.6 , $P < 0.01$). Sub-item analysis showed greater urethral discomfort and catheter management ease for IDC ($P < 0.02$). Psychological, social, and daily activity domains favored CISC ($P < 0.01$). No major complications, including urinary tract infections or gross haematuria, occurred in either group.

CONCLUSIONS: CISC proved as effective as IDC in restoring spontaneous voiding in patients with de novo AUR secondary to BPH. CISC was associated with significantly better quality of life and overall patient satisfaction, despite higher urethral discomfort and a more complex management. These results support CISC as a feasible and patient-preferred alternative to IDC in the management of AUR due to BPH.

SC198**"Z" anatomical needle cut leads ejaculation (Zangle): unilateral incision for bladder neck obstruction with ejaculation-sparing intent. Mid-term follow-up**

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BACKGROUND: This study aimed to evaluate functional outcomes and antegrade ejaculation rates in patients undergoing monopolar, unilateral transurethral incision of the prostate (TUIP) with a "Z"-shaped incision and ejaculatory sphincter sparing for primary bladder neck obstruction (PBNO) in a case series performed by a single surgeon.

METHODS: Between December 2018 and December

2025, data from patients who underwent monopolar, unilateral TUIP were prospectively collected. Patients with a prostate volume of less than 30 mL were included. Functional outcomes, including maximum flow rate (Q_{max}, mL/s), post-void residual volume (PVR, mL), International Prostate Symptom Score (IPSS), and IPSS Quality of Life (IPSS QoL) score, were assessed preoperatively and at 1, 6, 12, and 24 months postoperatively.

RESULTS: A total of 186 patients met the inclusion criteria, with a median age of 42 years (range: 37-57) and a median prostate volume of 27 mL (range: 20-29). The median hospital stay was 1 day, and the median catheterization time was 3 days. At 1-month follow-up, the mean Q_{max} increased from 10.2±2.5 mL/s to 22.8±3.9 mL/s, while the mean IPSS score and IPSS QoL score decreased from 16±2.7 to 6.9±1.5 and from 4.3±0.9 to 1.9±1.6, respectively ($P<0.001$). The mean PVR volume decreased from 125.5±16.1 mL to 27.7±7.3 mL ($P<0.001$). Uroflowmetry and symptom score improvements remained statistically significant at 12 months and were sustained at 24 months of follow-up (each $P<0.001$). Anterograde ejaculation was preserved in all cases.

CONCLUSIONS: Unilateral monopolar incision with Zancle technique confirms to be a feasible and safe procedure for the treatment of PBNO in young and sexually active patients, with durable functional outcomes up to 2 years of follow-up.

SC199

Hemoglobin drop and early outcomes in robotic simple prostatectomy with total (360° vesico-urethral anastomosis) vs. partial trigonisation for large prostates: a literature compared single-center case series

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BACKGROUND: Robotic simple prostatectomy (RASP) is an established surgical option for very large benign prostatic enlargement. Systematic reviews have confirmed its safety and functional efficacy, while representative conventional RASP series still report a measurable perioperative hemoglobin decline. We aimed to evaluate hemoglobin drop in a contemporary single-center case series performed with a Full 360° technique and to benchmark our results against published conventional RASP literature, exploring whether technical refinement may influence bleeding-related outcomes.

METHODS: We retrospectively reviewed 20 consecutive patients who underwent RASP for symptomatic large-volume benign prostatic enlargement at a single center between September 2025 and March 2026. All procedures were performed using a total trigonisation (360° vesico-urethral anastomosis), blunt and sharp adenoma dissection, direct mono- and bipolar coagulation for hemostatic control, application of Surgiflo® (Ethicon, Johnson & Johnson) in the bed of resection and, three-way Foley catheter (cuffed with only 10cc) with slow continuous irrigation during the first postoperative night. The primary outcome was perioperative hemoglobin drop, assessed both after surgery and at discharge. Secondary endpoints included operative time, length of stay, catheterization time, transfusion rate, perioperative complications, readmission, and final histopathology. Continuous variables are reported as median and interquartile range (IQR).

Findings were benchmarked against published conventional RASP evidence.

RESULTS: Median age was 70 years (IQR 68.8-75), median BMI was 29 kg/m² (IQR 24-30), median ASA score was 2.5 (IQR 2-3), and median Charlson Comorbidity Index was 4 (IQR 1-5.25). Median prostate volume was 164 mL (IQR 100-215). Median preoperative hemoglobin was 15.1 g/dL (IQR 14.4-15.6), decreasing to 13.5 g/dL (IQR 12.7-14.2) postoperatively and recovering to 14.1 g/dL (IQR 13.5-14.4) at discharge. Median postoperative hemoglobin drop was 1.25 g/dL (IQR 1.0-1.9), whereas median hemoglobin drop at discharge was 0.9 g/dL (IQR 0.5-1.25). Median operative time was 130 minutes (IQR 85-145), median length of stay was 2 days (IQR 2-2), and median time to catheter removal was 8 days (IQR 7-9). No conversions, transfusions, intraoperative complications, postoperative complications, or hospital readmissions were recorded. Final histopathology was benign in all cases. Compared with published conventional RASP benchmarks, in which postoperative hemoglobin change/decrease is commonly reported around 1.8-2.5 g/dL, our series showed a postoperative Hb drop at the lower end of published values and an even lower Hb drop at discharge.

CONCLUSIONS: In this initial single-center case series, RASP with full trigonisation proved reproducible and safe, with favorable perioperative outcomes and limited hemoglobin decline, particularly at discharge. Beyond adenoma removal, this configuration may offer additional practical advantages, including an immediate hemostatic effect, especially in anticoagulated and antiaggregated patient by reducing the need of prolonged continuous irrigation and risk of haematuria. When benchmarked against conventional RASP literature, these findings suggest that hemoglobin drop is not merely related to gland size, but may also be meaningfully influenced by surgical reconstruction and hemostatic strategy.

SC200

Do we operate too late? Decisional regret in patients undergoing bph surgery with very large prostates (>150 cc)

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BACKGROUND: Management of large prostates still represents a major challenge in the management of benign prostatic hyperplasia. The purpose of this study was to assess treatment regret in patients undergoing surgery for LUTS/BPH with very large prostates.

METHODS: We performed an analysis of prospectively collected data of consecutive patients undergoing LUTS/BPH surgery in 5 primary care Italian urology centers. Only patients with prostate volume >150 cc were included in the study. All patients underwent detailed clinical history and physical examination, preoperative, perioperative and postoperative characteristics were recorded. Decision regret and satisfaction was evaluated with the decision regret scale. A significant regret was defined as >25%.

RESULTS: Overall, 161 patients were enrolled. 68/161 (42%) underwent robotic simple prostatectomy, 18/161 (11%) underwent laparoscopic simple prostatectomy, 38/162 (24%)

an open simple prostatectomy and 36/162 (22%) a HoLep. Mean regret was 12% (16). Mean prostate volume was 160 (25) mL. Overall, 26/161 (16%) patients presented a significant regret. Preoperatively, on binary logistic regression analysis, older age (OR= 1,08; P=0,039) and low IPSS score (OR=0,87; P=0,007) were predictors of regret. Postoperatively, poor flow (OR=0,86; P= 0,008) and poor IPSS (1,62; P=0,001) were predictors of regret. Surgical technique was not associated with decision regret.

CONCLUSIONS: Patients with large prostate have some regret after BPH surgery. Higher age and poor surgical outcomes are predictors of decisional regret in patients with large prostates.

SC201

Outcomes of robotic-assisted simple prostatectomy in large BPH: a single-center experience

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BACKGROUND: To evaluate peri-operative and functional outcomes in patients treated with robotic-assisted simple prostatectomy (RASP) for benign prostatic hyperplasia (BPH).

METHODS: Between January 2025 and April 2026, 30 consecutive patients underwent RASP for BPH. All procedures were performed by experienced robotic surgeons (>500 procedures). Intra- and peri-operative data, length of stay (LOS), and complications were recorded. Lower urinary tract symptoms (LUTS) were assessed using the International Prostate Symptom Score (IPSS) and quality of life (QoL) score before and after surgery. Follow-up included uroflowmetry, PSA testing, and clinical evaluation at 3 and 12 months.

RESULTS: Median (IQR) age was 68 years (63-74) and median pre-operative PSA was 8.7 ng/mL (4.1-11.8). Median IPSS and QoL were 19 (17-23) and 4 (4-5), respectively. Median prostate volume was 182 cc (152-210). Four patients (13.3%) had concomitant bladder stones and 12 (40%) had an indwelling catheter at surgery due to prior acute urinary retention. Median operative time was 240 minutes (205-260), with no conversions to open surgery. Median estimated blood loss was 300 mL (200-400), and no patient required blood transfusion. Median hemoglobin drop was 2.4 g/dL (1.43-3.1). Median enucleated tissue volume was 110 g (76-140). Incidental low-risk prostate cancer (ISUP grade group 1, pT1a) was found in one patient. Catheter removal was performed after a median of 5 days (5-6), and median LOS was 6 days (6-7). Three patients (10%) experienced post-operative complications, of which only one was major (TEP, Clavien-Dindo grade III). At follow-up, all patients were continent and reported resolution of LUTS, with marked improvement in IPSS and QoL scores.

CONCLUSIONS: RASP is a safe and effective treatment for severe LUTS due to BPH, particularly in patients with large prostate volumes. It provides excellent functional outcomes, with full continence and symptom resolution in this cohort. To optimize cost-effectiveness, RASP should be reserved for selected patients and performed in high-volume centers by experienced robotic surgeons.

SC202

Robotic madigan prostatectomy (transcapsular urethral-sparing adenomectomy): step-by-step technique and initial experience

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BACKGROUND: The aim of this study is to provide a detailed, step-by-step description of a standardized robotic urethral-sparing prostatectomy (Madigan technique) for the management of large-volume benign prostatic hyperplasia (BPH). The approach adapts the principles of the classic transcapsular Millin adenomectomy to the robotic platform to enhance surgical precision and perioperative safety, specifically targeting the preservation of antegrade ejaculation.

METHODS: We prospectively evaluated 31 consecutive patients with symptomatic benign prostatic hyperplasia and a prostate volume ≥ 80 mL who underwent robot-assisted urethral-sparing simple prostatectomy (usRASP) between 2023 and 2025. All procedures were performed transperitoneally using the da Vinci Xi Surgical System. Preoperative and postoperative assessments included serum prostate-specific antigen (PSA), uroflowmetry with post-void residual (PVR) measurement, and validated questionnaires: International Prostate Symptom Score (IPSS) and International Index of Erectile Function (IIEF-5). Follow-up was conducted at 3, 6, and 12 months.

RESULTS: The median operative time was 120 minutes, with a median estimated blood loss of 200 mL and a median hospital stay of 3.5 days. No intraoperative complications or conversions to open surgery occurred. Incidental prostate cancer was detected in 5 patients (16.1%). At the 12-month follow-up, the median maximum urinary flow rate (Qmax) improved from 9 to 21 mL/s, and the median post-void residual decreased from 150 to 30 mL. The median International Prostate Symptom Score fell from 21 to 5, while median prostate-specific antigen levels decreased from 7.1 to 0.7 ng/mL. Antegrade ejaculation was preserved in 76.9% of patients (20 out of 26 patients with baseline preserved function) at 12 months, and no cases of postoperative urinary incontinence were reported.

CONCLUSIONS: Urethral-sparing robot-assisted simple prostatectomy (usRASP) is a safe and effective procedure that provides urinary and perioperative outcomes comparable to the standard Millin technique. The main advantage is the significant improvement in the preservation of antegrade ejaculation due to meticulous robotic dissection of the urethral plane. While initial results are objective and encouraging, larger multicentre studies are required to further validate these findings and refine technical standardization.

SC203

Single-port versus multi-port robot-assisted simple prostatectomy: a propensity score-matched bicentric analysis

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BACKGROUND: To compare perioperative outcomes and early recovery between single-port (SP) and multi-port

(MP) robot-assisted simple prostatectomy (RASP) using the Millin technique in a bicentric experience.

METHODS: A bicentric observational study was conducted at Candiolo Cancer Institute IRCCS and San Luigi Gonzaga University Hospital. Overall, 302 patients undergoing Millin-RASP were included: 228 MP and 74 SP. All MP procedures were performed *via* a transperitoneal approach, whereas all SP procedures were carried out using an extraperitoneal approach. A propensity score matching was performed based on baseline characteristics (age, Charlson Comorbidity Index, preoperative Qmax, prostate volume, IPSS, and post-void residual volume [PVR]), resulting in two well-balanced cohorts of 52 patients each. Intraoperative variables included operative time, estimated blood loss (EBL), and need for transfusion. Postoperative outcomes included length of stay (LOS), pain score (VAS), time to bowel canalization, catheterization time, need for transfusion, and complications (overall and major, according to Clavien-Dindo classification). Long-term functional outcomes at 3 months (Qmax, IPSS, PVR) were also assessed.

RESULTS: After matching, baseline characteristics were comparable between groups (all $P>0.05$). No statistically significant differences were observed in operative time [MP: 110 (95-125) min vs. SP: 115 (100-130) min; $P>0.05$], EBL [MP: 150 (100-200) mL vs. SP: 130 (90-180) mL; $P>0.05$], intra- and postoperative transfusion rates [MP: 3.8% vs. SP: 1.9%; $P>0.05$], catheterization time [MP: 5 (4-6) days vs. SP: 5 (4-7) days; $P>0.05$], and rates of overall and major complications [overall: MP 11.5% vs. SP 9.6%; major: MP 3.8% vs. SP 1.9%; all $P>0.05$]. Conversely, the SP approach demonstrated significantly improved early recovery outcomes: shorter LOS [SP: 2 (2-3) nights vs. MP: 3 (3-5) nights; $P<0.05$], lower postoperative pain [VAS SP: 2 (1-3) vs. MP: 5 (4-7); $P<0.05$], and faster bowel canalization [SP: 1 (1-2) vs. MP: 3 (2-4) postoperative days; $P<0.05$]. At 3-month follow-up, functional outcomes were comparable between groups, with no significant differences in Qmax [SP: 22 (18-26) mL/s vs. MP: 24 (17-27) mL/s], IPSS [SP: 6 (4-8) vs. MP: 7 (5-9)], and PVR [SP: 25 (10-40) mL vs. MP: 35 (15-45) mL] (all $P>0.05$).

CONCLUSIONS: SP RASP represents a safe and effective alternative to the MP approach, providing comparable intraoperative, perioperative, and short-term functional outcomes. The extraperitoneal SP approach is associated with enhanced early recovery, including reduced hospital stay, lower postoperative pain, and faster bowel function recovery. Further studies with larger cohorts and longer follow-up are warranted to confirm these findings.

SC204

Trends and incidence of reported events associated with Da Vinci single-port: an analysis of the Food and Drug Administration's manufacturer and user facility device experience database

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BACKGROUND: Aim of our study was to summarize medical device reports (MDRs) between 2018 and 2024 relating to "Da Vinci SP" Robot within the Manufacturer and User Facility Device Experience (MAUDE) database maintained by The Food and Drug Administration (FDA).

METHODS: The MAUDE database was analysed for all MDRs relating to each FDA-approved "Da Vinci SP" Robot since its first appearance. Event descriptions were reviewed and characterized into specific event types. Outcome measures include specific Da Vinci SP and reported events as detailed by the MDRs. All data is de-identified and in compliance with the Health Insurance Portability and Accountability Act (HIPAA). No further data was available in the database. Pooled Relative risk was used to compare data.

RESULTS: Overall, 206 reports were retrieved in 6 years. Between March 2021 and September 2024, a higher number of events were reported 93/206 (45.1%) of them were reported as malfunction of the Da Vinci SP while 107/206 (51.9%) as injury. 6 (2.9%) cases of death were reported. No clinical signs, symptoms or conditions (64/206: 31.1%) were detected by the patients for the main part of the adverse events (AEs) reported. Haemorrhage/Bleeding (13/206: 6.1%), unspecified tissue injury (10/206: 4.9%), haematoma (8/206: 3.9%) and seroma (6/206: 2.9%) were the most common complications for the patient. In terms of device problem: 77/206 (37.3%) were adverse event without identified device or use problem, 28/206 (13.6%) visual prompts will not clear, 20/206 (9.7%) were output problems and 16/206 (7.7%) were caused by no device output.

CONCLUSIONS: Standing to MAUDE database the most frequent complications related to Da Vinci SP are bleeding and tissue injury. Devices have low rate of use problems. As well, the main number of reported AEs do not lead to problems for the patients. Da Vinci SP seems to be safe according to MAUDE database preliminary data reports.

Tumore del testicolo e del pene

SC205

Beyond a simple procedure: multicenter evaluation of surgical practices in radical orchiectomy for testicular germ cell tumors

SC206

Testicular germ cell tumors in older men: clinicopathological features and temporal trends from a multicenter Italian cohort

SC207

Diagnostic performance of serum MIR-371a-3p for predicting viable germ cell tumor in chemotherapy-naïve patients undergoing RPLND

SC208

Real world performance of the MIR-371a-3p in detecting recurrence during follow-up of testicular germ cell tumours

Sc209

Trends in fertility preservation among men with testicular cancer: insights from a multicenter cohort (2010-2024)

SC210

The hidden cost of suboptimal primary surgery: clinical and pathological drivers of complexity in redo-RPLND for germ cell tumors

SC211

Maximal surgical effort in post-chemotherapy retroperitoneal lymph node dissection for germ cell tumors: morbidity of additional resection procedures and oncological outcomes

SC212

Malignant somatic transformation in germ cell tumors: histological subtype as a main driver of survival in a high-volume center experience

SC213

Clinical management and perioperative outcomes of growing teratoma syndrome: a large-scale experience from a high-volume center

SC214

Dynamic sentinel node biopsy in penile cancer: risk stratification and oncological outcomes

SC215

Role of MRI in penile cancer: accuracy in local and nodal staging and impact on surgical decision-making

SC216

Preliminary evaluation of circulating MIR-371a-3p in young patients with genetic conditions at risk for testicular lesions

SC205**Beyond a simple procedure: multicenter evaluation of surgical practices in radical orchiectomy for testicular germ cell tumors**

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BACKGROUND: Radical orchiectomy (RO) is the cornerstone and curative first-line treatment for testicular germ cell tumors (TGCT). Although often considered a straightforward procedure, it plays a crucial role in diagnosis, staging, and oncologic outcomes. Yet, data on surgical technique, perioperative variables, and short-term outcomes remain limited and mostly from single-center studies. A clearer understanding of perioperative practice across institutions is needed to identify variability and improve surgical standards. This study aimed to analyze perioperative and surgical outcomes of patients undergoing RO.

METHODS: Data from 305 patients who underwent RO for TGCT between 2020 and 2024 across six academic institutions were retrospectively analyzed. Preoperative variables included Eastern cooperative oncology group (ECOG) performance status, serum tumor markers, hormonal profile, scrotal ultrasound (US), body CT scan, and sperm cryopreservation status. Perioperative parameters such as operative time, testicular prosthesis implantation, and drain placement were also collected. Postoperative recovery and complications were assessed according to the Clavien-Dindo classification, and surgical margin status was reported in relation to pathological tumor (pT) stage. Descriptive statistics were applied.

RESULTS: The median (IQR) age was 35 (29-43) years. Most patients had an ECOG performance status of 0 (96.7%), while 5 (1.6%) patients had a status of 1, 2 (0.7%) had 2, and 1 (0.3%) had 3. Preoperatively, all serum tumor markers (LDH, β -hCG and AFP) were assessed in 219 (71.8%) patients, while hormonal profiling (total testosterone, LH, FSH) was performed in 57 (18.7%) patients. Scrotal US was performed in 99.7% of cases, while preoperative body CT scan in 83%. Sperm cryopreservation was utilized in 192 (63%) patients. The median operative time was 64 (46-86) minutes. A testicular prosthesis was implanted in 42% of cases, and a surgical drain was placed in 2.3%. Postoperative complications occurred in 7 (2.3%) patients, all Clavien-Dindo grade I. Overall complication rates did not differ between patients with and without drain placement (2.3% vs. 2.1%) or prosthesis implantation (0.8% vs. 3.5%), respectively. Operative time was significantly longer with prosthesis implantation (70 [50-94] vs. 60 [44-79] minutes, $P=0.04$). Positive surgical margins were reported in 5 (2.6%) patients, corresponding to pT1 in 1.2% cases, pT2 in 0.9%, and pT3 in 40% ($P=0.008$).

CONCLUSIONS: Preoperative patients work-up is usually comprising serum markers, US, and CT scan assessment, but frequently lacks hormonal screening and cryopreservation, although representing two relevant aspects in patients with TGCT. RO is usually associated with few postoperative complications. Margin positivity is relatively rare overall but appear to be more frequent in higher pathological stages.

SC206**Testicular germ cell tumors in older men: clinicopathological features and temporal trends from a multicenter Italian cohort**

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BACKGROUND: Testicular germ cell tumor (GCT) represents the most frequent malignancy in young adult males. Nevertheless, its incidence in older men remains clinically relevant and potentially rising. This study aimed to evaluate the clinicopathological features, treatment patterns, and temporal trends of GCT in older patients compared with younger counterparts.

METHODS: We retrospectively reviewed data from 381 consecutive men who underwent orchiectomy for testicular masses between 2010 and 2024 at six academic centers in Milan. Patients were stratified by age: ≤ 40 years (young) and > 40 years (old). Baseline demographics, preoperative serum tumor markers (AFP, hCG, LDH), histological subtypes (seminomatous [SGCT] vs. non-seminomatous [NSGCT]), treatment details, and follow-up outcomes (recurrence and overall mortality) were collected. Descriptive statistics and Kaplan-Meier survival analysis were used to compare groups. Temporal trends in GCT diagnosis were modelled using natural spline regression by histology and age group.

RESULTS: Over the 14-year study period, 251 (65.8%) GCTs occurred in patients aged ≤ 40 and 130 (34.2%) in those aged > 40 years. Histological distribution was comparable between groups (SGCT: 48.5% in older vs. 43.0% in younger, $P>0.05$). ECOG performance status was slightly worse among older men (7.7% vs. 0.8% with ECOG ≥ 1 ; $P<0.05$). Younger patients more frequently presented with locally advanced disease (pT2: 38.9% vs. 26.2%, $P<0.05$). No significant differences emerged regarding lymph node stage or serum marker levels. During follow-up, 9 patients (2.4%) died, all due to testicular cancer. Cancer specific mortality was higher in older patients (log-rank $P<0.05$). Spline regression revealed a modest increase over time in the proportion of SGCT diagnoses among older men, whereas incidence in younger patients remained stable.

CONCLUSIONS: Although GCT predominantly affects young men, more than one-third of new cases now occurred in those over 40 years. Older patients exhibit comparable histology but slightly worse performance status and higher mortality despite less frequent presentation with advanced local stage. The observed rise in SGCT diagnoses among older men highlights the need for increased awareness and age-adapted diagnostic and follow-up strategies. These findings suggest that age-specific biological or host factors may influence tumor behavior and outcomes, warranting further investigation in prospective multicenter studies.

SC207**Diagnostic performance of serum MIR-371a-3p for predicting viable germ cell tumor in chemotherapy-naïve patients undergoing RPLND**

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BACKGROUND: Serum microRNA-371a-3p (miR-371a-3p) has emerged as a promising biomarker in testicular germ cell tumors (GCT), demonstrating superior sensitivity compared to conventional serum markers. However, its role in predicting viable tumor in retroperitoneal metastases in chemotherapy-naïve patients remains unclear. This study aimed to evaluate the diagnostic performance of miR-371a-3p in this clinical setting.

METHODS: We retrospectively collected data from chemotherapy-naïve GCT patients who underwent retroperitoneal lymph node dissection (RPLND) at our center. Preoperative serum miR-371a-3p concentrations were measured using a CE-certified assay. Receiver operating characteristic (ROC) analysis was used to evaluate diagnostic accuracy, sensitivity, specificity, positive and negative predictive values.

RESULTS: A total of 66 patients were included. Viable non-teratomatous GCT was found in 51 patients (77%). Serum miR-371a-3p levels were significantly higher in patients with viable tumors compared to those with no viable tumor ($P < 0.05$). ROC analysis yielded an AUC of 0.90. At the optimal cutoff (RQ 15.15), sensitivity was 92% and specificity 80%, with a positive predictive value of 94% and a negative predictive value of 75%.

CONCLUSIONS: miR-371a-3p showed high diagnostic accuracy in predicting viable non-teratomatous GCT in chemotherapy-naïve patients undergoing RPLND, outperforming traditional serum tumor markers. Despite its inability to detect teratoma, it may represent a valuable adjunct in clinical decision-making. Prospective validation and standardization of the assay are warranted before routine clinical implementation.

SC208

Real world performance of the MIR-371a-3p in detecting recurrence during follow-up of testicular germ cell tumours

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BACKGROUND: Cornerstones of clinical management of testicular germ cell tumour (GCT) are surgery, imaging and serum tumour markers such as alpha-fetoprotein (AFP), beta-human chorionic gonadotropin (beta-HCG) and lactate dehydrogenase (LDH). Even if useful, these biomarkers have limited sensitivity, which is particularly relevant given the long-term surveillance required in typically young patients. Recently, miRNA-371a-3p (M371) has emerged as a promising biomarker in the diagnosis of GCT by performing better than conventional markers. This study aimed to evaluate the real-world diagnostic performance of the M371-Test compared with the conventional markers AFP, beta-HCG and LDH during follow-up of patients with suspected GCT.

METHODS: We prospectively analysed 81 patients under follow-up for GCT (52 seminomas, 29 non-seminomas, 14 metastatic at diagnosis). Their clinical data, imaging/histology results, and laboratory values of AFP, β -hCG, LDH, and miR-371a-3p were collected. Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), likelihood ratios, and ROC curves were calculated and compared.

RESULTS: After a mean follow-up of 33.4 months, 31 recurrences occurred in 23 patients. M371 showed a sensitivity of 93.5% and a specificity of 92.0%. Sensitivity was

significantly higher than AFP (32.3%), β -hCG (32.4%), and LDH (35.5%) ($P = 0.0001$). Specificity was 100% for β -hCG, 94.9% for AFP, and 85.0% for LDH. For M371, PPV was 72.5% and NPV was 98.4% (with positive likelihood ratio of 11.64 and negative likelihood ratio of 0.07). ROC analysis showed an AUC of 0.966 for M371, compared with 0.72, 0.75, and 0.65 for AFP, β -hCG, and LDH, respectively. Diagnostic accuracy was higher in seminomas (AUC 0.99) than in non-seminomas (AUC 0.94). The optimal cut-off for M371 was $RQ = 5.2$. Postoperative elevation of M371 may indicate the presence of occult metastases.

CONCLUSIONS: The M371 test demonstrated excellent diagnostic performance in detecting GCT recurrence under real-life conditions and outperforms conventional markers. Its integration into follow-up protocols could reduce the need for imaging and patients radiation exposure, improving their long-term safety. Postoperative elevation of M371 may suggest the presence of occult metastases and may contribute to decision-making regarding adjuvant treatment. Larger prospective multicentre studies are warranted to confirm these findings and to better define its role in the clinical decisions.

SC209

Trends in fertility preservation among men with testicular cancer: insights from a multi-center cohort (2010-2024)

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BACKGROUND: Testicular germ cell tumor (GCT) is the most frequent malignancy in young adult males. Given the potential impact on fertility, international guidelines recommend that all patients diagnosed with GCT be counselled regarding infertility risk and offered sperm cryopreservation before surgery or adjuvant therapy. We aimed to evaluate the temporal trends and determinants of sperm cryopreservation uptake in tertiary referral centers in Milan.

METHODS: We retrospectively analyzed 405 consecutive men who underwent surgery for testicular masses between 2010 and 2024 at six academic centers in Milan. Baseline demographics, preoperative serum tumor markers (AFP, hCG, LDH), histological subtype, treatment modality, and data on semen analysis and cryopreservation were collected. Temporal trends in cryopreservation were modeled using natural spline regression. Multivariable linear regression was performed to identify factors associated with cryopreservation uptake over time, adjusting for age, tumor stage, and histology.

RESULTS: Median age at diagnosis was 35 years (interquartile range [IQR] 28-45). Median lesion size was 25 mm (IQR 15-43.2). In 164 (40.5%) cases, GCT was diagnosed following the detection of a palpable testicular mass. Twenty-four (6%) men underwent testis-sparing surgery, while all others received orchiectomy for diagnostic and/or therapeutic purposes. A pT stage $\geq T2$ was observed in 152 (37.5%) patients. Overall, 234 (57.8%) men with confirmed GCT underwent sperm cryopreservation before treatment. Azoospermia was reported in 13 (3.2%) cases. Spline regression showed a progressive increase in cryopreservation uptake from 2010 to 2020, followed by a decline in the post-COVID-19 pandemic years. At multivariable regression, the temporal trend remained statistically significant ($P < 0.05$) and was independent of age at diagnosis, tumor stage, or histology.

CONCLUSIONS: Over the past decade, sperm cryopreservation uptake among men with testicular cancer has substantially increased, reflecting greater awareness of fertility preservation in oncologic care. However, the recent decline after the COVID-19 pandemic raises concerns about potential barriers to timely reproductive counseling and access to fertility services. These findings underscore the need for consistent implementation of fertility preservation pathways within multidisciplinary testicular cancer management.

SC210

The hidden cost of suboptimal primary surgery: clinical and pathological drivers of complexity in redo-RPLND for germ cell tumors

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BACKGROUND: Re-operative retroperitoneal lymph node dissection (redo-RPLND) is a challenging procedure. We aimed to evaluate how the quality of primary surgery at non-referral centers impacts the technical complexity and pathological findings of subsequent salvage surgery.

METHODS: We analyzed 55 patients undergoing redo-RPLND at a high-volume referral center, stratified by the center of their primary surgery (Referral vs. Other). Clinicopathological and surgical outcomes were collected. Continuous variables were presented using median and interquartile range, and the Wilcoxon test was used for comparison. Categorical variables were presented with frequencies and percentages and compared with the Fisher test. Survival outcomes, including RFS and CSS, were estimated with the Kaplan-Meier method and compared with the log-rank test. Univariate and multivariable logistic regression were used to identify predictors of adjunctive surgery. Subgroup analyses focused on teratoma and necrosis at redo.

RESULTS: Patients initially treated at non-referral centers showed significantly higher rates of incomplete primary resection (23.1% vs. 0%, $P=0.01$) and "in-field" relapses (71.4% vs. 26.9%, $P=0.003$). At redo-RPLND, initial treatment at a referral center was a strong independent protective factor against the need for adjunctive surgery (OR 0.27, $P=0.046$), while Malignant Somatic Transformation (MST) was the main risk driver (OR 5.60, $P=0.027$). Tumor size was not a predictor of surgical complexity ($P=0.81$). In the necrosis subgroup, 25% of "in-field" relapses in the "Other" group were purely necrotic (median size 50 mm), significantly correlating with previous incomplete resection ($P=0.02$). Conversely, in the referral group, in-field necrosis was 0%. In the subgroup analysis of patients with teratoma at redo, teratoma relapses in the non-referral group were smaller in diameter (median 26 mm vs. 40 mm, $P=0.089$) and predominantly occurred in-field (67% vs. 17%, $P=0.10$). Despite smaller tumor sizes, patients in the non-referral group required adjunctive surgery twice as often (33% vs. 16.7%). Despite increased surgical morbidity in the non-referral cohort, long-term RFS and CSS were comparable between groups (log-rank $P>0.05$).

CONCLUSIONS: Suboptimal primary RPLND leaves behind massive post-chemotherapy necrotic residuals (median 50 mm) and in-field teratomas resulting from primary incomplete resection, which mandate technically demanding redo-surgery. While expert surgical salvage at a referral hub achieves oncological equivalence, it is associated with higher

morbidity. Our data suggest that intraoperative frozen section should be considered for "in-field" masses from non-referral centers to avoid unnecessary organ resection when necrosis is suspected.

SC211

Maximal surgical effort in post-chemotherapy retroperitoneal lymph node dissection for germ cell tumors: morbidity of additional resection procedures and oncological outcomes

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BACKGROUND: Post-chemotherapy retroperitoneal lymph node dissection (PC-RPLND) with additional organ resection represents one of the most complex surgical scenarios in germ cell tumor management. This study aimed to characterize the morbidity profile of additional organ resections during PC-RPLND and to identify predictors of disease relapse in this setting.

METHODS: We retrospectively analyzed 100 patients who underwent PC-RPLND with at least one additional organ resection at our institution between 2008 and 2026. Additional procedures were categorized as renal/ureteral (40), intestinal (14), vascular (18), hepatic (8) or multiple (20). Postoperative surgical morbidity was graded using the Clavien-Dindo classification. Univariable and multivariable Cox regression models were used to identify predictors of relapse-free survival. Secondary analyses examined predictors of fibronectin tissue in the resected specimen using logistic regression.

RESULTS: Overall complication rate was 37% (Clavien-Dindo grade ≥ 3 : 12%; <3 : 25%). No death occurred due to complication. Complication rates and length of hospital stay (LOS) differed significantly across surgical categories ($P<0.001$ and $P=0.002$, respectively) intestinal resections carried the highest rate of major complications (Clavien ≥ 3 : 38%), whereas multi-organ surgery showed the highest overall complication burden (65% any grade). Median LOS was longer after intestinal (11 days) and multiple resections (10 days) compared to renal/ureteral (7 days) and hepatic procedures (7 days). After a median follow-up of 42 months, 31 patients (31%) relapsed, 23 of whom within the first two years and 16 within 6 months after RPLND. On multivariable Cox analysis, independent predictors of relapse were positive tumor markers at surgery (HR 2.94; 95% CI 1.29-6.73; $P=0.011$) and salvage chemotherapy (≥ 2 lines) (HR 2.70; 95% CI 1.28-5.69; $P=0.009$). Viable GCT/ somatic malignancy (Viable/SM) histology was the strongest univariable predictor of relapse (HR 12.3; 95% CI 2.86-53.0; $P<0.001$). Type and extent of additional organ resection were not independently associated with relapse-free survival on multivariable analysis. In the secondary analysis, first-line chemotherapy was the strongest independent predictor of fibronectin tissue in the resected specimen (OR 0.15; 95% CI 0.02-0.58; $P=0.016$ for line ≥ 2 vs. first-line), identifying a subgroup with a higher chance of complete response after chemotherapy alone.

CONCLUSIONS: Maximal surgical effort during PC-RPLND is achievable with an acceptable morbidity considering such a setting when performed in high-volume referral centers. Intestinal and multiple organ resections however carry substantially higher postoperative risk. Oncological outcomes associate with marker status prior to surgery and

medical treatment burden rather than extranodal anatomical extent. This finding may permit to preliminary select patients for this very demanding surgery.

SC212

Malignant somatic transformation in germ cell tumors: histological subtype as a main driver of survival in a high-volume center experience

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BACKGROUND: Teratoma with malignant somatic transformation (MST) is a rare and heterogeneous entity. We present a high-volume, single-institution experience to investigate management strategies, prognostic predictors, and clinical outcomes.

METHODS: The institutional database for testis cancer was reviewed to identify all patients with MST within germ cell tumors (GCT). Clinicopathological data were collected; continuous variables were presented using median and interquartile range, and categorical variables with frequencies and percentages. Cox regression was used to identify potential predictors of overall survival (OS). The Kaplan-Meier method was used to represent survival outcomes, focusing on OS and relapse-free survival (RFS) evaluated from the time of MST diagnosis.

RESULTS: Forty-eight patients were included: 14 (29%), 18 (38%), and 16 (33%) presented with stage I, II, and III at diagnosis, respectively. The most common MST histologies were adenocarcinoma (N.=9; 19%), neuroectodermal tumor (N.=7; 15%), and rhabdomyosarcoma (N.=6; 13%). MST was present at GCT diagnosis in 50% of cases and teratoma in 77%; for the remainder, the median time to transformation was 27 (8-108) months, with the longest latency observed in carcinoma histology (median 216 months). Primary treatment of MST consisted of surgery only in 35 (73%) patients, performed after primary chemotherapy in 14 (29%) cases. Eleven (22%) patients received adjuvant chemotherapy after surgery: 7 (64%) received GCT-oriented and 4 (36%) MST-oriented regimens. After a median follow-up of 24 months, RFS was 62% and OS was 81%. Adenocarcinoma histology demonstrated a prolonged clinical course: at a median follow-up of 48 months, the OS rate was 89% with a median survival of 168 months. At univariate analysis, rhabdomyosarcomatous histology was a significant predictor of poorer OS (P=0.0012). Notably, stage, risk group, and visceral metastases were not significant predictors of survival in this cohort.

CONCLUSIONS: MST prognosis is significantly influenced by histological subtype. The presence of rhabdomyosarcoma is a strong predictor of poor survival, whereas adenocarcinoma exhibits a significantly more favorable clinical behavior. These findings suggest that biological subtype, rather than traditional staging, may be the primary driver of outcomes in MST.

SC213

Clinical management and perioperative outcomes of growing teratoma syndrome: a large-scale experience from a high-volume center

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BACKGROUND: Growing Teratoma Syndrome (GTS) is a rare clinical entity with limited large-scale studies. We aim to define the clinicopathological profile and survival outcomes within a significant cohort treated at a high-volume center.

METHODS: We retrospectively reviewed 1,041 patients with testicular cancer treated with post-chemotherapy retroperitoneal lymph node dissection (PC-RPLND). Thirty-four (3.3%) patients fulfilled the criteria for GTS (increasing tumor size during/after chemotherapy with serum marker normalization) and were selected for analysis. Continuous variables were presented using median and interquartile range, and categorical variables with frequencies and percentages. The Kaplan-Meier method was used to represent survival outcomes, focusing on cancer-specific survival (CSS) and relapse-free survival (RFS).

RESULTS: Median retroperitoneal lymph node (RPLN) size at diagnosis was 28 (23-43) mm. Following a median interval of 2 (1-3) months from chemotherapy to PC-RPLND, median post-chemotherapy RPLN size increased to 49 (32-64) mm. Additional surgical procedures were required in 2 (6%) cases: one nephrectomy and one combined ureteral and inferior vena cava (IVC) resection with prosthetic reconstruction. Regarding morbidity, 1 patient (3%) experienced a Clavien-Dindo complication (CDC) <3, while 2 (6%) had CDC ≥ 3. Median operative time was 316 (263-375) minutes, median blood loss 100 (50-150) mL, and median hospital stay 7 (6-10) days. PC-RPLND histology confirmed necrosis in 2 cases (6%) and teratoma in 30 (88%); 1 patient (3%) presented with malignant somatic transformation and 1 (3%) with a malignant Sertoli cell tumor. After a median follow-up of 16 months, 3 (9%) patients relapsed. The CSS rate was 97%, with only one disease-related death recorded.

CONCLUSIONS: Complete surgical resection is mandatory for GTS. In high-volume centers, the requirement for adjunctive procedures and perioperative morbidity can be significantly minimized. PC-RPLND specimens may harbor rare and aggressive histologies requiring specialized management. Cancer-specific survival remains excellent.

SC214

Dynamic sentinel node biopsy in penile cancer: risk stratification and oncological outcomes

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BACKGROUND: To evaluate the diagnostic performance and prognostic impact of dynamic sentinel node biopsy (DSNB) in patients with clinically node-negative (cN0) penile squamous cell carcinoma, focusing on risk stratification, morbidity reduction, and oncological outcomes in a large single-center experience.

METHODS: We conducted a retrospective analysis of 218 consecutive patients with cN0 penile squamous cell carcinoma who underwent DSNB at a tertiary referral center. Clinical and pathological data (including pT stage and histological grade), treatment, and follow-up data were collected. Diagnostic performance was assessed in terms of sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV). Survival endpoints included inguinal recurrence-free survival (IRFS), cancer-specific survival (CSS), and overall survival (OS).

RESULTS: A total of 218 patients were included, with a median age of 72 years and a median follow-up of 52 months. DSNB identified nodal metastases in 12.4% of cases. DSNB demonstrated high diagnostic accuracy, with a specificity and PPV of 100%, and an NPV of 95%. At 5 years, both IRFS and CSS were 94%. At multivariable analysis, younger age and high-risk pathological disease ($\geq$ pT1G3 or $\geq$ pT2) emerged as significant predictors of nodal positivity. Among patients undergoing completion inguinal lymph node dissection (ILND) after a positive DSNB, 24% harbored additional non-sentinel node metastases, justifying the necessity of radical dissection in this subgroup. While DSNB significantly reduced regional morbidity compared to historical radical ILND cohorts, patients with nodal involvement showed worse CSS compared to node-negative patients, highlighting the strong prognostic impact of occult metastases.

CONCLUSIONS: In a contemporary single-center cohort, DSNB proved to be a highly accurate and minimally invasive staging tool for cN0 penile cancer. Its high negative predictive value supports its role in safely avoiding unnecessary inguinal lymphadenectomy, although the 5% false-negative rate mandates strict clinical follow-up. Nodal involvement remains the key determinant of prognosis, reinforcing the central role of DSNB in risk-adapted management and early therapeutic intervention.

SC215

Role of MRI in penile cancer: accuracy in local and nodal staging and impact on surgical decision-making

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BACKGROUND: Penile cancer is a rare malignancy carrying a substantial psychosocial burden. A reliable preoperative diagnostic pathway is essential to balance oncological control with organ preservation. We aimed to assess the accuracy of magnetic resonance imaging (MRI) in evaluating local tumour invasion and nodal status, and its role in guiding therapeutic decisions.

METHODS: We retrospectively reviewed 120 consecutive patients with penile cancer who underwent preoperative MRI at our institution (1999-2024). Patients were stratified into Group A (radical surgery, namely glansectomy or penectomy; N.=62, 52%) and Group B (penile-sparing surgery [PSS]; N.=58, 48%). A subgroup analysis was performed on 24 Group B patients requiring secondary radicalization. Continuous variables are reported as median (Q1-Q3); comparisons used Wilcoxon rank-sum, Fisher's Exact or Pearson's Chi-square Tests, as appropriate. Multivariable logistic regression models identified independent predictors of treatment selection.

RESULTS: Group A patients were older (63 vs. 58 years; $P=0.019$) and harboured larger tumours (35 vs. 21 mm; $P<0.001$). MRI revealed higher rates of cT3 (29% vs. 5.2%) and cN2-3 (26% vs. 0%) in Group A ($P<0.001$). Pathology confirmed locally advanced disease (pT2-T4) in 76% vs. 33% ($P<0.001$). Positive margins and radicalization rates were comparable between groups. Overall MRI-pT concordance was 50.8% (61/120), highest for pT3 (60%), and

lowest for pT2 (42%; with 45% of upstaging at final pathology) ($P=0.001$). Among 24 patients requiring radicalization after PSS, MRI understaged 72% of initial cT0-Tis-T1 cases ($P=0.035$). In this subgroup, all cT0-Tis-T1 patients achieved negative margins, whereas 40% of cT2-T3 had positive margins ($P=0.043$). MRI-US and MRI-CT concordance for nodal staging were high (95% and 87%). Overall MRI-pN concordance was 67%. The same rate of concordance (67%) was identified for US/CT-pN. Pathological nodal distribution differed significantly between concordant and discordant cases: 65% of discordant patients were pN+, indicating nodal understaging as the predominant pattern ($P=0.001$). At multivariable analysis, age (OR 0.94, 95% CI 0.90-0.98; $P=0.008$), tumour size (OR 0.94, 95% CI 0.90-0.98; $P=0.014$), and MRI cT stage (cT2-T3 vs. cT0-Tis-T1: OR 0.34, 95% CI 0.12-0.91; $P=0.033$) were independent predictors of treatment selection.

CONCLUSIONS: MRI cT staging influenced surgical treatment choice. While cT3-pT3 concordance was strong, MRI substantially understaged early-stage tumours. Nodal understaging was the predominant discordance pattern ($P=0.001$), and MRI did not outperform US/CT for nodal assessment. These findings support MRI integration in pre-operative evaluation while emphasizing cautious selection for organ-sparing surgery.

SC216

Preliminary evaluation of circulating MIR-371a-3p in young patients with genetic conditions at risk for testicular lesions

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BACKGROUND: Circulating miR-371a-3p (M371) has emerged in recent years as a highly sensitive and specific biomarker for testicular germ cell tumors (GCT). Its role in certain hereditary conditions, such as disorders of sex development (DSD) and congenital adrenal hyperplasia (CAH) has not yet been fully explored. In Androgen Insensitivity Syndrome (AIS) the presence of residual gonadal tissue is associated with an increased risk of GCT, requiring regular surveillance. Likewise, in CAH, testicular adrenal rest tumors (TART) may represent a diagnostic challenge, due to their similarity to malignant testicular lesions. In this context, circulating M371 may represent useful non-invasive biomarker for patient follow-up and for distinguishing benign from malignant lesions.

METHODS: We conducted an ongoing preliminary observational study, initiated in March 2024, including 11 patients enrolled to date: 9 with AIS, ranging from partial to complete forms, referred to us by the Pediatric Endocrinology Unit of the University of Pisa; one patient with CAH, with bilateral TART; and one patient with Carney complex, a condition associated with an increased risk of testicular tumours. The CAH patient, previously followed at our Endocrinology Unit with irregular followup due to poor adherence, was referred to us for bilateral orchiectomy by a private urologist. The patient with Carney complex had a history of testicular surgery in childhood and bilateral adrenalectomy for Cushing syndrome. Patient ranged from 3 to 21 years (median 15). Serum miR-371a-3p levels were measured in all patients as an initial

attempt to detect possible GCT development. A total of 21 serum samples were analyzed, with 1 to 4 samples per patient. All patients underwent abdominal ultrasound and testicular ultrasound, when gonads were present.

RESULTS: All AIS patients showed miR-371a-3p levels below the established diagnostic threshold of RQ=5, with the exception of one patient, who presented a very slight elevation (RQ=5.06), which normalized at subsequent follow-up. No patients showed clinical, biochemical or radiological evidence of GCT during follow-up. The patient with bilateral TART also showed consistently negative miR-371a-3p levels despite imaging findings suggestive of testicular masses. Serial measurements (at least 4 over a 2 year follow-up) confirmed persistently negative values with ultrasound imaging remained stable over time. The patient with Carney complex presented

testicular calcifications on ultrasound and showed persistently negative miR-371a-3p levels, with no evidence of tumour on serial testicular ultrasound during follow-up.

CONCLUSIONS: In this preliminary cohort, circulating miR-371a-3p levels were consistently negative in patients with AIS in a patient with CAH and bilateral TART, and in a patient with Carney complex presenting testicular calcifications, supporting its potential role as non-invasive biomarker to exclude GCT in these high-risk population. The transient elevation observed in one case warrants further investigation. Overall, these findings suggest that miR-371a-3p may be useful in the clinical evaluation of testicular lesions in hereditary conditions, helping to distinguish benign findings from malignant germ cell tumors. Larger studies are needed to validate these observations.

SMART COMMUNICATION (SC217 - SC231)

Tumore della prostata: diagnosi II

SC217

HYCAPP trial: a prospective randomized trial to evaluate the impact of hypnotic communication on anxiety, pain and perception of care on patients undergoing prostatic biopsy

SC218

Robot-assisted transperineal target prostate biopsy with Biobot Mona Lisa 2.0 System

SC219

Optimized urine smart test for early detection of prostate cancer

SC220

Predictors of clinically significant cancer after isolated HGPIN/ASAP diagnosis

SC221

Progression rates to clinically significant cancer in patients with isolated HGPIN/ASAP vs. Grade Group 1 prostate cancer

SC222

Incidental prostate cancer detection following robot-assisted simple prostatectomy *versus* holmium laser enucleation of the prostate in men with benign prostatic hyperplasia: results from a high-volume european referral centre

SC223

Comparison of regional and extended prostate biopsy in PI-RADS 5 lesions: a retrospective analysis

SC224

Safety and feasibility of transperineal prostate biopsy without antibiotic prophylaxis: a multi-centric retrospective study

SC225

Tolerability and pain predictors in sedation-free outpatient transperineal prostate biopsy: a multi-center real-world study

SC226

Novel strategies for tumor targeting in prostate cancer by the analysis of protein corona on nanoparticles: preliminary results from an experimental trial

SC227

BCG-related prostatic inflammation is associated with lower detection of clinically significant prostate cancer at biopsy

SC228

Contralateral prostate cancer detection at fusion biopsy and its association with contralateral positive surgical margins

SC229

Comparison of cognitive and software fusion techniques in the detection of clinically significant prostate cancer across target, Perilesional, and systematic sampling schemes in transperineal prostate biopsy

SC230

Integration of RPCRC risk calculator and a rapid urinary PSA and zinc test to reduce unnecessary biopsies

SC231

Limited incremental diagnostic value of perilesional and systematic biopsies in PI-RADS 4-5 lesions: a retrospective single-center study

SC217**HYCAPP trial: a prospective randomized trial to evaluate the impact of hypnotic communication on anxiety, pain and perception of care on patients undergoing prostatic biopsy**

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BACKGROUND: Prostate biopsy is a common outpatient procedure frequently associated with significant pain and anxiety, negatively impacting patient experience. Non-pharmacological strategies to improve procedural tolerability are increasingly needed. This study aimed to evaluate the impact of hypnotic communication (HYC) on anxiety, pain, and perception of care in patients undergoing prostate biopsy.

METHODS: We conducted a single-center prospective randomized controlled trial including patients undergoing prostate biopsy, randomized 1:1 to HYC or standard care (noHYC). Primary endpoints were peri-procedural anxiety (VAS-A and vital parameters), pain (VAS), and perception of care (Likert scale). Secondary endpoints included use of analgesia, perceived procedural duration, complications, and time to resumption of daily activities. Repeated measures analyses were performed to assess temporal trends.

RESULTS: A total of 101 patients were analyzed (52 HYC, 49 noHYC). Baseline anxiety levels were comparable between groups. HYC was associated with a significant reduction in anxiety at 30 minutes and 36 hours post-procedure (1.2 vs. 2.8; $P=0.004$; and 0.4 vs. 1.3; $P=0.01$), with a greater decrease from baseline. Pain scores were significantly lower in the HYC group both during and after biopsy (3.1 vs. 4.2; $P=0.02$ and 0.5 vs. 1.5; $P=0.002$). Patients receiving HYC reported a better perception of care (median 4.8 vs. 4.2; $P<0.001$) and a shorter perceived procedural duration ($P<0.0001$). No differences were observed in complications or analgesic use.

CONCLUSIONS: HYC significantly improves patient experience during prostate biopsy by reducing anxiety and pain and enhancing perception of care. This simple, non-pharmacological approach may be integrated into routine urological practice to optimize patient-centered outcomes.

SC218**Robot-assisted transperineal target prostate biopsy with Biobot Mona Lisa 2.0 System**

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BACKGROUND: Recent advances in imaging and robotic technologies have profoundly transformed the diagnostic approach to prostate cancer (PCa). The implementation of multiparametric MRI has enabled targeted biopsy (TB) strategies that improve the detection of clinically significant PCa (csPCa) compared to standard systematic biopsy (SB).

However, SB is still recommended in combination with TB, as some csPCa may be missed by targeted sampling alone. Meanwhile, the transperineal route is increasingly favored for its superior safety profile, although it remains technically demanding and time-consuming, particularly when both TB and SB are performed. In this evolving context, the Mona Lisa 2.0 system (Biobot Surgical, Singapore) has been developed as a next-generation robotic MRI/ultrasound (US) fusion platform designed to enhance biopsy precision, reproducibility, and workflow efficiency. By integrating robotic guidance, AI-assisted prostate segmentation, real-time image fusion, and automated calculation of needle trajectory and depth, the system aims to achieve accurate and reproducible sampling while maintaining the safety of the transperineal approach. This study presents the clinical experience with the Mona Lisa 2.0 platform for robot-assisted targeted prostate biopsy (rTB).

METHODS: Up to October April 2026, 30 patients with MRI-visible prostate lesions underwent rTB using the Mona Lisa 2.0 system at IRCCS-FPO Candiolo Cancer Center. Pre-procedural T2-weighted MRI images were uploaded for prostate and lesion segmentation, generating a 3D model used for biopsy planning. On the day of the procedure, real-time transrectal US was fused with the MRI model, allowing precise selection of target and optional perilesional cores. The robotic arm automatically calculated and positioned the optimal angle and depth for each puncture. Biopsies were performed transperineally under general anesthesia using disposable 18-gauge needles. Data collected included prostate volume, lesion diameter, number and positivity of biopsy cores, procedure time, and complications. Diagnostic performance and safety were assessed descriptively.

RESULTS: The mean prostate volume was 62.2 ± 19.2 mL, and the mean lesion diameter was 10 ± 3 mm. Five patients presented with an anterior lesion, and 25 with posterolateral ones. The mean number of target and standard cores was 7 ± 4 and 9 ± 4 , respectively. The mean number of positive target and standard cores was 4 ± 2 and 2 ± 2 . Twenty-three (76.6%) rTB samples were positive for csPCa, while rSB detected only non-significant PCa in six cases (20%), with positive cores located close to the target area ("penumbra" effect). No peri- or post-procedural complications were observed. The mean biopsy duration was 12.9 ± 2.0 minutes. All samples were of high histological quality, with a mean core length of 10.2 ± 1 mm.

CONCLUSIONS: This experience demonstrates that the Mona Lisa 2.0 robotic platform is a safe, feasible, and precise tool for transperineal MRI/US fusion-guided prostate biopsy. Robotic automation ensures consistent and reproducible sampling while minimizing operator variability and procedural invasiveness. Despite the small cohort and initial learning curve, the system achieves a high detection rate of csPCa in the target area and penumbra, suggesting the potential to reduce or omit systematic sampling.

SC219**Optimized urine smart test for early detection of prostate cancer**

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BACKGROUND: Rapid tests are popular diagnostic method that can rapidly provide in vitro diagnostic results by non-trained personnel at a patient site, permitting to decentralize first line exams outside the hospitals and towards local areas. In the present study we aim to validate the diagnostic performance of a rapid urine test based on PSA and Zinc and to explore the ability to improve early prostate cancer diagnosis.

METHODS: A urine sample were collected from 174 subjects scheduled for prostatic biopsies based on standard parameters, as PSA levels, digital rectal examination (DRE) and multiparametric-magnetic resonance imaging (mpMRI). Informed consent was obtained from each participant. The amount of urinary PSA and Zinc was determined by an optimize device combining lateral flow immuno assay and colorimetric dip-stick assay, respectively, and confirmed with commercial assays.

RESULTS: The test for urinary PSA and Zinc have been optimized based on values observed in previous studies, in order to return an intensity scale from 0 to 4, in relation to the quantity of analyte present in the sample. Intensity has been evaluated by the naked eye and image readers, showing a concordance of 88%. Multivariate ROC curve analysis combining Rapid test intensity with routine parameters such as PSA, Age, DRE (standard of care (SOC)) and PiRADS obtained by mpMRI resulted in an AUC=0.861, that is statistically different from SOC or PiRADS alone (AUC 0.643 and 0.761, respectively).

CONCLUSIONS: These results suggest that our optimized rapid test for urinary PSA and Zinc could be clinically useful in detecting neoplastic transformation in the prostate and spare useless invasive analysis to healthy subjects.

SC220

Predictors of clinically significant cancer after isolated HGPIN/ASAP diagnosis

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BACKGROUND: High-grade prostatic intraepithelial neoplasia (HGPIN) and atypical small acinar proliferation (ASAP) are recognized precursors of prostate cancer (PCa). Current guidelines lack clear recommendations on their management when found isolated without cancer. We aimed to evaluate the role of HGPIN/ASAP in cancer progression.

METHODS: Patients with histological diagnosis of ASAP/HGPIN without concomitant PCa were selected from our prospectively maintained registry (2017-2023). All biopsies – both the diagnostic (BX1) and the repeat (BX2) – were MRI-guided (MRI1 and MRI2, respectively). Pathological progression was defined as an upgrade to Gleason Grade group (GG) ≥ 2 . Univariate and multivariate analyses identified predictors of cancer progression.

RESULTS: Of 578 men with ASAP/HGPIN (368 with and 210 without concomitant PCa), 85/210 (40%) underwent repeat biopsy. Baseline characteristics were similar between groups who did or did not undergo BX2, except for younger age (67 vs. 70 years, $P=0.046$) and positive MRI1 (88% vs. 75%, $P=0.030$). Notably, histological features (type and focal-ity of pre-malignant lesions) did not influence the decision to perform repeat biopsy ($P=0.3-0.5$). At BX2, 51% (43/85) progressed to GG ≥ 2 , with the subgroup with HGPIN+ASAP showing the highest rate (61%). At univariate analysis, older age ($P=0.042$), ASAP multifocality ($P=0.086$), and MRI2

positivity ($P=0.15$) were associated with progression. At multivariate analysis, MRI2 positivity (OR 8.54, $P=0.037$) independently predicted progression, with ASAP multifocality approaching significance (OR 3.26, $P=0.076$). Sensitivity analysis showed MRI1 was not predictive ($P=0.3$), highlighting the importance of repeat imaging.

CONCLUSIONS: Patients with ASAP/HGPIN without concomitant PCa have significant risk of cancer progression (51% GG ≥ 2). Repeat MRI positivity independently predicts clinically significant cancer (OR 8.54), while ASAP multifocality provides complementary risk stratification (OR 3.26). Both features should prompt repeat biopsy, whereas initial MRI guides patient eligibility for repeat biopsy but not risk prediction.

SC221

Progression rates to clinically significant cancer in patients with isolated HGPIN/ASAP vs. Grade Group 1 prostate cancer

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BACKGROUND: The prognostic role of concomitant high-grade prostatic intraepithelial neoplasia (HGPIN) and atypical small acinar proliferation (ASAP) in patients with Gleason Grade group (GG) 1 prostate cancer (PCa) remains unclear. We compared progression rates to clinically significant PCa (GG ≥ 2) among patients with isolated HGPIN/ASAP and GG 1 PCa with or without concomitant HGPIN/ASAP.

METHODS: Patients were selected from our prospectively maintained registry (2017-2023) and stratified into three groups based on diagnostic biopsy findings: (1) isolated HGPIN/ASAP without cancer (N=210), (2) GG1 PCa without HGPIN/ASAP (N=97), and (3) GG1 PCa with concomitant HGPIN/ASAP (N=41). Patients who underwent follow-up biopsy were analyzed for progression to GG ≥ 2 . Both diagnostic and follow-up biopsies were MRI-guided. Baseline characteristics and progression rates were compared between groups.

RESULTS: Overall, 196/348 (56%) patients underwent follow-up biopsy: 85/210 (40.5%) in group 1, 95/97 (97.9%) in group 2, and 16/41 (39%) in group 3. Baseline characteristics (age, family history of PCa, PSA, PSA density, rectal examination, MRI positivity and stage, and time between diagnostic and follow-up biopsy) were similar between groups ($P>0.05$). Progression to GG ≥ 2 occurred in 43/85 (50.6%), 36/95 (37.9%), and 10/16 (62.5%) patients, respectively (overall $P=0.083$). When compared individually, isolated HGPIN/ASAP (group 1) showed a borderline higher progression trend than GG1 PCa alone (group 2) (50.6% vs. 37.9%, OR 1.67, $P=0.099$), suggesting that these lesions should not be underestimated. GG1 PCa with concomitant HGPIN/ASAP (group 3) showed a clinically relevant trend toward increased risk compared to GG1 PCa alone (group 2) (OR 2.71, 95% CI 0.81-9.88, $P=0.098$), although statistical significance was not reached, likely due to limited sample size (N=16).

CONCLUSIONS: Isolated HGPIN/ASAP demonstrates a similar (or higher) progression risk compared to GG1 (50.6% vs. 37.9%), warranting close surveillance. Concomitant HGPIN/ASAP in GG1 patients under active surveillance substantially increases progression risk to 62.5%, suggesting it should be considered a high-risk feature requiring intensive monitoring or early follow-up biopsy.

SC222**Incidental prostate cancer detection following robot-assisted simple prostatectomy versus holmium laser enucleation of the prostate in men with benign prostatic hyperplasia: results from a high-volume european referral centre**

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BACKGROUND: Incidental prostate cancer (iPCa) remains a clinically relevant finding following surgical treatment for benign prostatic hyperplasia (BPH). Differences in surgical approach and tissue retrieval may influence the likelihood of detecting occult malignancy. Robot-assisted simple prostatectomy (RASP) and holmium laser enucleation of the prostate (HoLEP) are widely adopted procedures for the management of BPH, yet their impact on iPCa detection rates has not been fully investigated. This study aims to compare the incidence of iPCa following RASP versus HoLEP.

METHODS: We retrospectively analysed 468 consecutive patients who underwent RASP (N=206) or HoLEP (N=262) at a high-volume referral centre between 2011 and 2024. Baseline characteristics, perioperative characteristics and pathological data were collected. The resection ratio – pathological specimen weight divided by preoperative prostate volume – was calculated to quantify anatomical tissue removal. Univariable and multivariable logistic regression analyses were performed to identify independent predictors of iPCa detection.

RESULTS: Baseline characteristics including age, BMI, and PSA were comparable ($P>0.05$), whereas median preoperative prostate volume was significantly larger in the RASP group (180 vs. 120 mL; $P<0.01$). iPCa detection was significantly higher in RASP (9.0%) compared to HoLEP (3.4%; $P=0.02$). Although HoLEP achieved a higher resection ratio ($P<0.01$), PSA reduction was comparable ($P=0.12$). On multivariable regression, RASP emerged as an independent predictor of iPCa detection (OR 3.49; $P<0.01$), alongside age (OR 1.07; $P=0.01$) and PSA density (OR 1.07; $P<0.01$).

CONCLUSIONS: RASP showed a higher rate of iPCa detection than HoLEP, likely owing to the greater integrity of the en bloc specimen. Although both procedures are effective for large-volume BPH, these findings highlight that tissue-handling characteristics can influence postoperative cancer detection.

SC223**Comparison of regional and extended prostate biopsy in PI-RADS 5 lesions: a retrospective analysis**

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BACKGROUND: Magnetic resonance imaging-guided biopsy is the standard for diagnosis of prostate cancer (PCa). Targeted with perilesional biopsy has become the recommended strategy in order to minimize the diagnosis of clinically

insignificant PCa (ciPCa) while maintaining a high diagnostic yield. In this context, we aimed to assess the results of different biopsy templates in patients with PI-RADS 5 lesions.

METHODS: Data from consecutive patients harboring a PI-RADS 5 lesion who underwent a targeted + systematic (TB + Sx) prostate biopsy at two academic centres from January 2018 to December 2025 were retrospectively collected. Group A consisted of all patients undergoing prostate biopsy, whereas patients treated by robotic radical prostatectomy (RARP) constituted group B. Patients' baseline characteristics and lesions' features were recorded. All patients underwent targeted + systematic prostate biopsies by either transperineal (TP) or transrectal (TR) approach. Cores were categorized as targeted (TB), perilesional (pl), ipsilateral (ipsi), systematic (Sx). McNemar tested the accuracy of different templates compared to the TB + Sx template in terms of clinically significant (cs) PCa detection rate (DR), risk stratification and grade concordance with final pathology. Weighted K was employed for exact grade concordance. All tests were two-sided, with significance set at 0.05.

RESULTS: A total of 177 patients were included, of which 146 (82.8%) were positive for csPCa. Median (IQR) age, baseline PSA and PSA density were 70 years, 8.0 ng/mL and 0.19 ng/mL/cc, respectively. Median prostate volume and lesion diameter were 45 cc and 20 mm, respectively. DR compared to TB + Sx for csPCa was 91.1% ($P<0.001$), 98.6% ($P=0.25$), 98.6% ($P=0.25$) and 92.5% ($P<0.001$) for TB, TB + pl, TB + ipsi and Sx, respectively. Grade concordance was good (weighted K = 0.83) for TB and excellent for TB + pl and TB + ipsi (both K 0.95) and Sx (weighted K = 0.90). In terms of risk stratification, DR of high risk PCa compared to TB + Sx was 87.3% ($P<0.001$), 96.2% ($P=0.08$), 98.7% ($P=0.15$) for TB, TB + pl, TB + ipsi and Sx, respectively. Nineteen (10.9%) biopsies were positive for ciPCa as highest grade disease. In this subgroup, DR for ciPCa was 63%, 74%, 95%, 95% for TB, TB + pl, TB + ipsi and Sx, respectively. Patients underwent RARP. An upgrade was observed for 17 (29.3%) patients, of whom 4 (6.8%) were significant. Considering different templates, only TB was significantly inferior to TB + Sx for overall (46.6%, $P<0.001$) and significant (20.7%) upgrade.

CONCLUSIONS: For PI-RADS 5 lesions, targeted + perilesional sampling was comparable to the standard targeted + systematic bilateral sampling in terms of diagnosis, grading, risk stratification and grade shift at whole mount pathology. Conversely, targeted only biopsy significantly underperformed compared to standard biopsy. On the other hand, perilesional sampling did not reduce the diagnosis of clinically insignificant prostate cancer in this specific group of patients.

SC224**Safety and feasibility of transperineal prostate biopsy without antibiotic prophylaxis: a multicentric retrospective study**

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BACKGROUND: Transperineal prostate biopsy (TPBx) is increasingly adopted due to its favorable infectious risk profile. However, real-world data on its systematic use in a fully outpatient setting without antibiotic prophylaxis remain limited. This study aimed to evaluate the safety and feasibility

of TPBx performed without prophylactic antibiotics in routine urological practice.

METHODS: We retrospectively analyzed 423 consecutive patients who underwent TPBx across three Italian urology centers between 2018 and 2024. All procedures were performed in an outpatient setting under local perineal anesthesia with lidocaine, without sedation or prophylactic antibiotics; skin preparation consisted of povidone-iodine only. The primary endpoint was the rate of infectious complications within 30 days (fever, culture-confirmed urinary tract infection [UTI], and sepsis). Secondary outcomes included complication grading according to the Clavien-Dindo classification.

RESULTS: A total of 423 patients (mean age 65.4 ± 8.3 years) were included. Median prostate volume was 50 g (IQR 40-60). The mean number of biopsy cores was 10.2 ± 2.1 , and the mean procedural time was 14.7 ± 1.1 minutes. Infectious complications were uncommon: 12 patients (2.8%) developed fever and 2 (0.5%) had culture-confirmed UTI. No cases of sepsis were observed. Overall, 292 patients (69%) had no complications. Grade I events occurred in 105 patients (24.8%), including hematuria (13.4%), hemospermia (13.4%) and transient LUTS (0.2%). Urinary retention was observed in 1.2% of cases and resolved with short-term catheterization. Grade II complications were recorded in 12 patients (2.8%), all of whom required oral antibiotics for fever or UTI. No Grade $\geq$ III complications occurred. No emergency visits or readmissions were required.

CONCLUSIONS: In this multicenter cohort, TPBx performed without antibiotic prophylaxis showed a low rate of infectious and clinically significant complications, and was feasible in an outpatient setting. These findings support the potential role of selective, risk-based antibiotic use in TPBx. Further prospective studies are warranted to confirm safety outcomes and better define patient selection strategies for prophylaxis-free pathways.

SC225

Tolerability and pain predictors in sedation-free outpatient transperineal prostate biopsy: a multicenter real-world study

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BACKGROUND: Sedation-free transperineal prostate biopsy (TPBx) is increasingly performed in clinical practice, but concerns remain regarding patient comfort when the procedure is carried out under local anesthesia alone. This study evaluated pain perception and tolerability in men undergoing TPBx under local anesthesia alone and explored clinical and procedural predictors of pain.

METHODS: A retrospective analysis was conducted including 423 consecutive men undergoing outpatient TPBx between 2018 and 2024 in three Italian urology units. All procedures were performed under local perineal anesthesia with lidocaine, without sedation or antibiotic prophylaxis. Pain was assessed immediately after the procedure using the Numeric Rating Scale (NRS; 0-10), with clinically relevant pain defined as $\text{NRS} \geq 6$. Associations between pain and age, prostate volume, number of cores, comorbidities, and procedural duration were evaluated through multivariable logistic regression.

RESULTS: A total of 423 patients (mean age 65.4 ± 8.3

years) were included. Median prostate volume was 50 g (IQR 40-60). The mean number of biopsy cores was 10.2 ± 2.1 , and mean procedural time was 14.7 ± 1.1 minutes. Mean pain score was 3.4 ± 1.4 (median 4, IQR 3-4), and 14 patients (3.3%) reported clinically relevant pain ($\text{NRS} \geq 6$). No procedures required interruption or conversion to sedation. Pain scores were not associated with age, prostate volume, comorbid conditions, or number of biopsy cores. In multivariable analysis, longer procedural duration was the only independent predictor of clinically significant pain (OR 2.52 per minute; 95% CI 1.88-3.40), suggesting a potential relationship between procedural efficiency and patient comfort.

CONCLUSIONS: Sedation-free TPBx demonstrated high patient tolerability, with low median pain scores. Procedure duration emerged as the primary determinant of pain, indicating that optimization of procedural workflow and anticipation of longer cases may further support patient comfort. Prospective studies are warranted to validate these observations and refine patient selection and counseling.

SC226

Novel strategies for tumor targeting in prostate cancer by the analysis of protein corona on nanoparticles: preliminary results from an experimental trial

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BACKGROUND: The identification of reliable predictive biomarkers for prostate cancer (PCa) remains an unmet clinical need. Nanoparticles (NPs) represent potential diagnostic and prognostic tools, through the formation of a "protein corona" upon interaction with biological fluids, thus reflecting and capturing otherwise undetectable disease-specific molecular signatures. This study aims to develop sensitive nanotools, such as NPs, to create a predictive diagnostic model to differentiate benign prostatic hyperplasia (BPH) from PCa, and to identify dynamic biomarkers associated with disease status and treatment response in metastatic hormone-sensitive PCa (mHSPC).

METHODS: This is an ongoing prospective single-center experimental study enrolling three cohorts in a 1:1:1 ratio: non-metastatic PCa undergoing radical prostatectomy (N.=50), advanced mHSPC undergoing systemic therapy (N.=50), and BPH controls (N.=50). From each patient, plasma samples are collected at baseline (T0), and longitudinally at 3 (T1), 6 (T2), 9 (T3) and 12 (T4) months for mHSPC group only. Plasma is processed for untargeted metabolomics and lipidomics analysis using Ultra-High Performance Liquid Chromatography – High-Resolution Mass Spectrometry (UHPLC-HRMS). Data are analyzed through a multivariate chemometric approach, including multi-level partial least squares discriminant analysis (ML-PLSDA), covariance selection (CovSel), and repeated double cross-validation (rDCV).

RESULTS: From January 2025, enrollment is ongoing (N.=35 for mHSPC), with completed sampling for localized PCa and BPH. A total of N.=41 plasma samples were analyzed (20 BPH and 21 PCa [at T0, T1 and T2]). In plasma metabolomics, model 1 (BPH vs. T0 vs. T1 vs. T2) demonstrated strong discrimination across all groups (BPH 100.0%, T0 97.4%, T1 94.1%, T2 95.8%), with slightly lower values for T1 suggest-

ing a transitional metabolic state following prostatectomy. Model 2 (BPH+T2 vs. T0 vs. T1) further improved classification consistency (98.2% vs. 97.6% vs. 95.6%), suggesting a metabolic shift of post-surgical samples toward a non-cancer profile. Lipidomics analysis confirmed this trend, although with slightly lower performance in post-surgical groups (T2 85.2%), indicating a more subtle systemic lipid remodeling.

CONCLUSIONS: Preliminary findings demonstrate that plasma metabolomics, integrated with NP-based approaches, can effectively highlight a clear metabolic distinction between pre-surgical PCa and a non-malignant profile, capturing dynamic metabolic changes following surgery, with a trending normalization after prostatectomy. Although still under investigation, this approach may contribute to the development of predictive biomarkers and precision medicine strategies in PCa, enhancing patient stratification and therapeutic decision-making.

SC227

BCG-related prostatic inflammation is associated with lower detection of clinically significant prostate cancer at biopsy

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BACKGROUND: To assess whether prior intravesical *Bacillus Calmette-Guérin* (BCG) therapy is associated with histological prostatic inflammation and clinically significant prostate cancer (csPCa) detection at prostate biopsy (PBx).

METHODS: Patients undergoing PBx were stratified into three cohorts: bladder cancer (BC) patients previously treated with BCG (N.=51), BC patients not exposed to BCG (N.=181), and controls without a history of BC (N.=1689). Prostatic inflammation was evaluated using our previously developed Prostate Inflammation Score (PIS), a three-tier histopathological score derived from the combination of Irani grade and Irani aggressiveness. To reduce selection bias, a 1:1:1 propensity score matching was performed, yielding three balanced cohorts of 51 patients each. The main study endpoints were PIS distribution and csPCa detection at biopsy.

RESULTS: In the matched cohort, severe histological inflammation (PIS 3) was significantly more common in BCG-treated patients than in BC patients not exposed to BCG and in controls without BC history (33.3% vs. 11.8% vs. 13.7%, $P=0.005$). Furthermore, the rate of csPCa at biopsy was significantly lower in the BCG-treated group (9.8% vs. 33.3% vs. 31.4%, $P=0.033$). This pattern is consistent with the original PIS model, in which higher inflammatory scores were associated with lower odds of prostate cancer detection. On multivariable analysis, higher PIS remained inversely associated with csPCa diagnosis.

CONCLUSIONS: Patients with prior intravesical BCG exposure showed a higher prevalence of severe histological prostatic inflammation and a lower rate of csPCa detection at PBx. These findings suggest that BCG-related prostatic inflammation may partly contribute to the lower yield of clinically significant prostate cancer at biopsy in this setting. Further studies are needed to better clarify the underlying mechanisms and the potential implications for clinical decision-making.

SC228

Contralateral prostate cancer detection at fusion biopsy and its association with contralateral positive surgical margins

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BACKGROUND: Current guidelines recommend the use of contralateral targeted and systematic biopsy to maximize prostate cancer (PCa) detection. It is still unclear whether the presence of contralateral PCa on systematic biopsy has a meaningful impact on surgical decision-making and whether it translates into a lower risk of contralateral positive surgical margins (PSM) in men candidates to radical prostatectomy (RP). We aimed to investigate the association between contralateral systematic biopsy PCa and the occurrence of contralateral PSM after RP.

METHODS: We retrospectively included PCa patients who underwent MRI-target fusion biopsy to single index lesion and treated with RP. Biopsy included targeted sampling of the MRI-visible lesion and systematic cores, including the contralateral lobe. Clinically significant contralateral cancer was defined as ISUP grade group ≥ 2 on contralateral systematic biopsy. PSM were assessed at final pathology and classified by side. Contralateral PSM was defined as a unilateral PSM on the side opposite to the MRI index lesion; cases with bilateral PSM were excluded. Descriptive analyses were performed, and multivariable logistic regression (MLR) models were fitted including contralateral biopsy, PSA, MRI area, and ISUP grade as covariates.

RESULTS: Overall, 287 patients were included. Median age and median preoperative PSA were 66 years (IQR 60-71) and 7.0 ng/mL (IQR 5.1-10), respectively. Median prostate volume and MRI lesion size were 42 cc (IQR 32-58) and 12 mm (IQR 9-16), respectively. Index lesions were classified as PI-RADS 3, 4, and 5 in 23%, 50% and 77% of cases. The clinical impact of contralateral biopsy was marginal, with upgrading observed in only 10.9% of cases. Overall, PSM was present in 93 (32%) PCa patients. Among patients with contralateral clinically significant PCa at systematic biopsy, 13 (16.5%) had PSM on the contralateral side, while contralateral PSM occurred only in 4.1% of patients with negative contralateral systematic biopsy. Finally, on MLR, contralateral biopsy was an independent predictor of PSM (OR 4.63, 95% CI 1.83-12.4; $P=0.001$).

CONCLUSIONS: Contralateral prostate cancer at systematic biopsy was associated with a higher rate of contralateral PSM at RP; however, a not-negligible proportion of patients with negative contralateral systematic biopsy could still experience a contralateral PSM. These findings suggest that contralateral biopsy status alone does not reliably exclude the risk of contralateral PSM at RP.

SC229

Comparison of cognitive and software fusion techniques in the detection of clinically significant prostate cancer across target, perilesional, and systematic sampling schemes in transperineal prostate biopsy

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BACKGROUND: The diagnostic value of perilesional sampling during MRI-targeted transperineal prostate biopsy remains unclear. We aimed to quantify the incremental csPCa detection rate of adding 4-core Perilesional and combined 4-core Perilesional + 10-core Systematic sampling, to a standard 3-core Target biopsy in biopsy-naïve men, comparing Cognitive *versus* Software fusion techniques.

METHODS: We prospectively enrolled patients undergoing a 3-core Targeted biopsy along with a 4-core Perilesional sampling, defined as biopsies taken from the sectors of the 14-core transperineal template anatomically adjacent to the sector containing the MRI index lesion, and a remaining 10-core Systematic sampling. csPCa detection rates were compared between techniques using the Chi-square Test and across the three incremental sampling schemes through McNemar's test. Multivariable logistic regression was used to assess independent predictors of csPCa.

RESULTS: We prospectively enrolled 530 patients. The csPCa detection rate for Target alone was 37% for Cognitive *vs.* 42% for Software ($P=0.2$). In both techniques, the addition of Perilesional cores significantly increased the csPCa detection rate to 40% and 48%, respectively ($P=0.001$ and $P=0.002$ *vs.* Target), adding systematic cores further increased detection rate to 45% and 52% (both $P<0.001$ *vs.* Target + Perilesional). While absolute Cognitive *vs.* Software comparisons did not reach statistical significance in the overall cohort (all $P\geq 0.1$), stratified analysis by PI-RADS category revealed a significant superiority of the Software technique in PI-RADS 3 (csPCa 24% *vs.* 8% on Target + Perilesional; $P=0.03$) and PI-RADS 5 (85% *vs.* 66% for Target alone; $P=0.02$), with equivalent performance in PI-RADS 4. On multivariable analysis, adjusted for age, PSA, prostate volume, lesion volume, PI-RADS score, and DRE findings Software biopsy was as an independent predictor of csPCa in the Target + Perilesional scheme (OR 1.79, 95% CI 1.06-3.07; $P=0.03$), in the Target + Perilesional + Systematic scheme (OR 2.03, 95% CI 1.20-3.50; $P=0.009$) but not in the Target alone scheme (OR 1.61, 95% CI 0.94-2.76; $P=0.08$).

CONCLUSIONS: In biopsy-naïve men undergoing MRI-targeted transperineal prostate biopsy, the addition of Perilesional and Systematic cores to Target sampling significantly increases csPCa detection rate, particularly in PI-RADS 4 lesions. Software fusion is not universally superior to Cognitive, but adds clinically meaningful value in the most challenging (PI-RADS 3) and most aggressive (PI-RADS 5) lesions, particularly when combined with perilesional sampling. These findings support Fusion Software combined with extended 4-core Perilesional + 10-core Systematic sampling as the reference strategy for csPCa detection in this setting.

SC230

Integration of RPCRC risk calculator and a rapid urinary PSA and zinc test to reduce unnecessary biopsies

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BACKGROUND: Risk-based strategies are increasingly used to improve patient selection for prostate biopsy and reduce unnecessary procedures. The Rotterdam Prostate

Cancer Risk Calculator (RPCRC) estimates individual cancer risk, but false-negative cases remain a limitation. This study aimed to evaluate whether the integration of a rapid urinary test measuring prostate-specific antigen (PSA) and zinc could improve diagnostic accuracy when combined with the RPCRC.

METHODS: A cohort of 170 men eligible for RPCRC assessment was analyzed. Biopsy indication was determined using the risk calculator. All patients also underwent a rapid urinary PSA and zinc test. Three diagnostic strategies were compared: RPCRC alone, urinary test alone, and their combination. Outcomes included unnecessary biopsy reduction, false-negative rate, International Society of Urological Pathology (ISUP) grade of missed cancers, positive predictive value (PPV), negative predictive value (NPV), and number needed to screen (NNS).

RESULTS: The RPCRC alone reduced unnecessary biopsies but showed a false-negative rate of 16%, missing cancers including 2 ISUP grade 3, 11 grade 2, and 3 grade 1 tumors. The urinary test alone reduced unnecessary biopsies by 59%, missing 13 cancers. The combined strategy reduced unnecessary biopsies by 52% and lowered the false-negative rate to 9%, missing 8 ISUP grade 2 and 1 grade 1 cancers. PPV and NPV improved from 66% and 67% with RPCRC alone to 72% and 81% with the combined approach. NNS decreased from 6.4 to 4.1.

CONCLUSIONS: The integration of a rapid urinary PSA and zinc test with RPCRC improves prostate biopsy selection by reducing unnecessary procedures and increasing diagnostic accuracy. This combined approach enhances risk stratification while limiting missed clinically significant cancers, supporting its role in personalized diagnostic pathways.

SC231

Limited incremental diagnostic value of perilesional and systematic biopsies in PI-RADS 4-5 lesions: a retrospective single-center study

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BACKGROUND: To evaluate the additional diagnostic value of systematic (SBx) and perilesional biopsies (PBx) compared with targeted biopsy (TBx) in patients with PI-RADS 3 4-5 lesions mpMRI-detected.

METHODS: Between January 2022 and June 2024, 208 men with PI-RADS ≥ 3 lesions underwent mpMRI-ultrasound fusion biopsy at a single institution. Clinically significant prostate cancer (csPCa; ISUP ≥ 2) was identified in 155 patients (74.5%), who constituted the study cohort. All patients underwent a standardized biopsy protocol consisting of 3-5 TBx cores, 3 PBx cores sampled within a 10 mm radius of the index lesion, and 10 SBx cores using the KOELIS Trinity® system. Detection rates of csPCa and ISUP grade upgrading were analyzed stratified by PI-RADS category.

RESULTS: TBx csPCa detection rates increased progressively with PI-RADS score: 39% for PI-RADS 3, 50% for PI-RADS 4, and 60% for PI-RADS 5 lesions. PBx showed detection rates of 42.5% of csPCa in PI-RADS 3, 58% and 85.3% of csPCa in PI-RADS 4 and 5 respectively, whereas SBx detected 34.5% of csPCa in PI-RADS 3, 46% of csPCa in PI-RADS 4, and 60.5% of csPCa in PI-RADS 5. Despite

these detection rates, PBx and SBx rarely provided clinically meaningful upgrading over TBx findings. ISUP grade upgrading occurred in only 7.3% of PBx cases and 1.8% of SBx cases in PI-RADS 5 lesions, with similarly low upgrading rates observed in PI-RADS 3-4 lesions.

CONCLUSIONS: In patients with high grade lesions like PI-RADS 4-5, TBx alone identifies the vast majority of csPCa, while SBx and PBx contribute minimal additional

diagnostic or grading benefit. These findings support biopsy de-escalation strategies in high risk mpMRI settings to reduce unnecessary sampling and procedure-related morbidity. On the other hand in PI-RADS 3 subgroup, omitting non-targeted sampling (SBx and/or PBx) may lead to under diagnosis of higher-grade tumors not captured by TBx alone, potentially resulting in substantial changes in therapeutic strategy and, consequently, patient prognosis.

SMART COMMUNICATION (SC232 - SC246)

IPB: chirurgia endoscopica

SC232

Outcomes of same-day *versus* delayed catheter removal after En-Bloc HoLEP: experience from a high-volume center

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Breaking the 26ch barrier: 22ch MiLEP shows safety, efficacy and high patient-reported benefit

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Prostatic enucleation provides the best outcomes in patients with BPH/LUTS and an indwelling catheter : a trifecta analysis

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Preoperative prostate volume and surgical efficiency in thulium laser enucleation of the prostate: a multicenter analysis

SC242

Thulium vapo resection of prostate (ThuVARP) as a valid therapeutic option in benign prostate obstruction (BPO)

SC243

Urodynamic de-obstruction and symptom improvement after thulium laser vaporization (ThuVAP): evidence from a prospective paired study

SC244

Predictors of treatment regret after laser enucleation of the prostate for benign prostatic obstruction: choosing between micturition and antegrade ejaculation

SC245

Beyond outcomes: decision regret following greenlight PVP *versus* TURP

SC246

Matched comparative analysis of robot-assisted simple prostatectomy (RASP) *versus* holmium laser enucleation (HoLEP) for large (>100 mL) benign prostatic hyperplasia (BPH): experience from a high-volume center

SC232**Outcomes of same-day *versus* delayed catheter removal after En-Bloc HoLEP: experience from a high-volume center**

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BACKGROUND: The popularity of Holmium laser enucleation of the prostate (HoLEP) is rapidly increasing for treating bladder outlet obstruction (BOO) caused by benign prostatic hyperplasia (BPH). Advances in holmium laser technology have enhanced hemostatic properties, resulting in improved efficiency and outcomes. The literature highlights the feasibility of same-day catheter removal after HoLEP. This study aims to evaluate the safety and efficacy of this approach, performed using the “En-Bloc” technique.

METHODS: Patients undergoing HoLEP between March 1, 2022, and April 30, 2025, were prospectively enrolled and categorized into two groups based on catheter removal timing: Group A (same-day removal) and Group B (catheter removal 72 h postoperatively). Evaluated parameters included age, ASA score, BMI, hypertension, diabetes mellitus, PSA, prostate size, post-void residual (PVR), pre and postoperative hemoglobin, presence of an indwelling catheter, enucleation and morcellation time, and pre and postoperative IPSS. Univariate and multivariate analyses were conducted to identify factors predicting failure of same-day catheter removal. Patients with prior prostatic surgery were excluded.

RESULTS: A total of 398 patients (199 per group) were included. Mean age, prostate volume, PSA, PVR, and IPSS were 68.6 years, 104.7 mL, 4.01 ng/mL, 104 mL, and 27.19 in Group A, and 67.9 years, 105.1 mL, 3.98 ng/mL, 103.2 mL, and 26.9 in Group B, respectively. Mean enucleation times were 62.4 and 61.9 minutes, and mean morcellation times were 12.3 and 12.7 minutes for Groups A and B, respectively. Indwelling catheter rates were 26.8% (Group A) and 28.3% (Group B), while antiplatelet/anticoagulant therapy rates were 13.4% (Group A) and 12.9% (Group B). In Group A, 184 patients (92.8%) successfully voided after same-day catheter removal, while the remaining 15 achieved catheter-free status within 72–168 h. In Group B, 191 patients (95.9%) successfully voided after catheter removal at 72 hours, with the remaining 8 patients becoming catheter-free within 110–168 hours. At the 90-day follow-up, mean PVR, IPSS, and PSA values were 16.8 mL, 10.2, and 1.72 ng/mL and 18.4 mL, 10.4, and 1.64 ng/mL in groups A and B respectively. Multivariate analysis identified advanced age and an indwelling catheter for over six months as same-day catheter removal failure predictors. Same-day catheter removal following “En-Bloc” HoLEP is highly feasible, achieving a success rate of over 90%. Factors such as advanced age and prolonged preoperative catheterization are associated with a higher likelihood of voiding failure. Despite these limitations, the procedure significantly reduces PVR and IPSS at 90-day follow-up, with comparable safety and efficacy across patient groups.

CONCLUSIONS: This study supports the implementation of same-day catheter removal after “En-Bloc” HoLEP as an effective and patient-friendly management strategy, regardless of prostate size, comorbidities, or history of urinary retention.

SC233**Breaking the 26ch barrier: 22ch MiLEP shows safety, efficacy and high patient-reported benefit**

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BACKGROUND: To investigate whether the use of miniaturized 22Ch instrumentation (MiLEP) can maintain the well-established efficacy of laser prostate enucleation while reducing procedure-related morbidity.

METHODS: In this prospective, multicenter study, consecutive patients with LUTS secondary to BPH/BPO were treated with MiLEP using a standardized en-bloc technique with early apical release. Baseline evaluation included symptom scores (IPSS), quality of life, uroflowmetry, PSA, prostate volume, post-void residual volume, and continence status. Perioperative data and complications were systematically recorded. Follow-up visits were scheduled up to 12 months to assess functional recovery, adverse events, and patient-reported outcomes (PGI-I). A composite endpoint (Trifecta: no early complications, Qmax >15 mL/s, and continence at 3 months) was used to define clinical success. Predictors of success were explored using regression models.

RESULTS: Sixty-five patients (mean age 68.3 years) were included. Median operative time was 82 minutes, and mean enucleated tissue was 42.6 g. No major intraoperative complications or transfusions occurred. Median catheterization time and hospital stay were 2 days. The overall complication rate was 18.4%, mostly minor (Clavien-Dindo I-II). At 12 months, significant improvements were observed in IPSS (from 20.3 to 7.6), QoL score (from 3.8 to 1.3), Qmax (from 10.3 to 20.3 mL/s), PVR (from 119 to 18 mL), and PSA (from 3.7 to 1.4 ng/mL) (all $P < 0.001$). Transient stress urinary incontinence decreased from 12.3% at 1 month to 1.5% at 12 months. Urethral strictures occurred in 4.6% of patients. Trifecta was achieved in 61.5% of cases. At 12 months, 97% of patients reported being much or very much improved. No significant association was found between complications and patient dissatisfaction ($P = 0.44$).

CONCLUSIONS: MiLEP represents an evolution of endoscopic enucleation that combines the effectiveness of traditional HoLEP with a potentially more favorable safety profile. The use of smaller-caliber instruments appears to enhance anatomical preservation, translating into excellent continence outcomes and low urethral complication rates. These findings support MiLEP as a valuable minimally invasive option in the surgical management of BPH, overall in patients at increased risk of functional complications. Further large-scale and long-term studies are warranted to consolidate its role in clinical practice.

SC234**HoLEP under intraprostatic anesthesia with schelin catheter and sedoanalgesia: feasibility, safety and functional outcomes**

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BACKGROUND: To evaluate feasibility, safety, pain control and functional outcomes in patients undergoing holmium-laser enucleation of the prostate (HoLEP) under transurethral intraprostatic anesthesia (TUIA) using the Schelin catheter (SC) combined with sedoanalgesia, in small- to medium-volume prostates.

METHODS: Between November 2023 and May 2024, clinical, perioperative and functional data of 50 patients affected by obstructive lower urinary tract symptoms due to benign prostatic hyperplasia, unresponsive to medical therapy, were retrospectively evaluated. Patients underwent HoLEP under TUIA with SC. Data collected included International Prostate Symptom Score (IPSS), International Prostate Symptom Score Quality of Life (IPSS-QoL), maximum urinary flow rate (Qmax), and post-void residual (PVR), both pre- and post-operatively. Pain was assessed using a Numeric Rating Scale (NRS) preoperatively, during SC insertion, during enucleation, during morcellation, 2 hours after surgery, and on postoperative day 1 and 2.

RESULTS: Median age was 67 years; 14% were ASA ≥ 3 , 2% were on anticoagulant therapy, and 22% on antiplatelet therapy. Sixty percent were taking alpha-blockers, 22% also α -reductase inhibitors, and 18% had an indwelling catheter. Median preoperative IPSS and IPSS-QoL were 16 (IQR 11-21) and 4 (IQR 4-6), respectively; Qmax was 10 mL/sec (IQR 3-19); PVR was 79 mL (IQR 0-500). Median prostate volume was 50 mL (IQR 41-70); PSA 1.70 ng/mL (IQR 1.1-2.95); 10% had volumes ≥ 80 mL. Median enucleation time was 13.6 min (IQR 11.15-21.45), morcellation time 8.3 min (IQR 4.2-10.8), and enucleated weight 33 g (IQR 19.50-50). NRS was 5 preoperative lyand at SC insertion, 5 during enucleation, 7 during morcellation, 2 at 2 hours postoperatively, and 2 and 3 on postoperative day 1 and 2, respectively. Ten percent required propofol during enucleation and 50% during morcellation. Catheter removal and discharge occurred within 48 hours in 100% of patients. At 3 months, significant improvement in IPSS, IPSS-QoL, Qmax and PVR was observed.

CONCLUSIONS: TUIA with sedoanalgesia in HoLEP for small- to medium-volume prostates is a feasible and safe technique, providing effective pain control and maintaining significant postoperative functional improvements.

months, including functional outcomes assessed by IPSS, ICIQ-OAB, and ICIQ-UI, were collected. Descriptive analyses were performed.

RESULTS: Of 411 patients, 271 (66%) underwent HP and 140 (34%) LP HoLEP, respectively. Baseline characteristics were comparable between groups. No differences were recorded for operative time (73 vs. 70 min, $P=0.8$), enucleation time (36 vs. 35 min, $P=0.8$), morcellation time (15 vs. 15 min, $P=0.9$), and enucleation efficiency (1.30 vs. 1.25 g/min, $P=0.7$) between HP and LP, respectively. However, total delivered energy was significantly lower in the LP group (76 vs. 123 kJ, $P<0.001$). Moreover, no differences were recorded for perioperative complication (5% vs. 3%, $P=0.4$) for HP vs. LP setting, respectively, as were length of stay and catheterization time (median 2 days, $P>0.05$). At 1 month, median IPSS was 8 vs. 9 ($P<0.001$), median IPSS voiding was 3 vs. 4 ($P=0.03$), median ICIQ-OAB Item 3 QoL was 2 vs. 3 ($P=0.018$), median ICIQ-OAB Item 5 QoL was 2 vs. 3 ($P=0.029$), and urgency severity differed between groups ($P=0.015$), in HP vs. LP group, respectively. At 3 months, median IPSS was 3 vs. 4 ($P=0.026$), median IPSS voiding was 2 vs. 2 ($P=0.007$), and median QoL was 1 vs. 1 ($P=0.010$), in HP vs. LP group, respectively. At 6 months, median IPSS was 3 vs. 4 ($P=0.015$) and median IPSS voiding was 1 vs. 2 ($P=0.015$), in HP vs. LP group, respectively.

CONCLUSIONS: In our study, both HP and LP HoLEP provide overall comparable functional outcomes in the treatment of symptomatic BPH. Although some differences remain statistically significant, particularly in the early postoperative period, these are likely of limited clinical relevance. Notably, no meaningful differences were observed across QoL domains, including IPSS and ICIQ measures. Overall, our findings suggest that the effectiveness of HoLEP primarily depends on surgical technique and anatomical enucleation rather than on the laser power setting.

SC235

Holmium laser enucleation of the prostate (HoLEP): a high-volume center comparison between high-power and low-power techniques

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BACKGROUND: Holmium laser enucleation of the prostate (HoLEP) is a well-established surgical treatment for benign prostatic hyperplasia; however, the impact of laser power settings on surgical efficiency and outcomes remains controversial, with growing evidence suggesting that Low Power (LP) may achieve results comparable to High Power (HP) settings. We aimed to compare HP *versus* LP settings in HoLEP to assess and quantify potential differences in perioperative, postoperative, and functional outcomes between the two techniques.

METHODS: We conducted a multi-institutional (three tertiary centers) retrospective analysis of 411 patients with symptomatic benign prostatic hyperplasia (BPH) refractory to medical therapy. All patients underwent HoLEP between July 2023 and July 2025. Patients were stratified according to intraoperative laser power setting: HP vs. LP. Perioperative outcomes, complications, and follow-up data at 1, 3, and 6

SC236

Is it possible to learn HoLEP before TURP? Autonomy and performance gain in an endourology-naïve surgeon

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BACKGROUND: To define the learning curve of Holmium Laser Enucleation of the Prostate (HoLEP) in a surgeon with no prior endourological experience.

METHODS: From May 2023 to January 2026, consecutive cases from an initial supervised phase and a subsequent independent phase of a single surgeon with no prior TURP experience were analyzed. Surgical technique was en-bloc, high power (2 J, 45 Hz), no touch enucleation of the prostatic adenoma with early apical release using Lumenis Versapulse 120 W laser. Primary endpoints were operative time (OT), intraoperative complications, postoperative complications according to Clavien-Dindo classification, urinary outflow improvement and case-order turning point. Continuous variables are reported as median (IQR). Comparisons were performed with Mann-Whitney U Test.

RESULTS: In the supervised phase, the first full-procedure

completion was achieved after 37 mentored cases. OT in this phase was 102.5 min (80.0-120.0). In the subsequent independent phase, 101 consecutive cases were considered. OT was 78.0 min (60.0-120.0), significantly shorter than during the supervised phase ($P=0.031$). Segmented case-order analysis identified the main efficiency turning point at case 20: OT decreased from 138.5 min (98.8-162.3) in cases 1-20 to 72.0 min (57.0-103.0; $P<0.001$), with no significant difference in adenoma weight between groups [55.0 g (39.0-65.0) vs. 47.5 g (31.8-61.0); $P=0.303$]. Median follow-up was 16 months (IQR 8-24). Overall, the median improvement in Qmax was 11 mL/s (8-14). Enucleation time was calculated in the last 60 cases of the improvement phase and measured 30.0 min (23.0-41.5). Only one intraoperative complication was recorded: focal capsule perforation requiring immediate abdominal US-guided drainage placement. 5/138 (3.62%) Clavien-Dindo $\geq$ II postoperative complications were observed, including 4 grade II (2.89%) and 1 grade III (0.72%). 8/138 (5.79%) cases had >1 pad/day postoperative stress incontinence and underwent tailored rehabilitation program. 1 patient (0.72%) required surgical treatment for urinary incontinence (sub-urethral sling placement).

CONCLUSIONS: HoLEP was safely learned by an endourology-naïve surgeon. Full autonomy was reached after 37 mentored cases, and the main performance gain occurred after 20 independent cases. These data support the possibility for a young surgeon to undergo structured early HoLEP training even before achieving advanced endourological skills.

SC237

Early learning phase analysis of holmium laser enucleation of the prostate: a prospective single-surgeon experience

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BACKGROUND: Holmium Laser Enucleation of the Prostate (HoLEP) represents the cornerstone of endoscopic prostate enucleation techniques. Different surgical techniques are employed, ranging from the three-lobe enucleation to the en bloc. This study aimed to evaluate the early learning phase of a novice surgeon performing HoLEP procedures.

METHODS: This prospective single-surgeon series (Feb 2024-Feb 2026) included 72 men with LUTS/BPO undergoing HoLEP (prostate volume 40-120 mL, on α -blockers $\pm$ 5-ARIs). Procedures were performed by a single novice unsupervised surgeon, with patients in the lithotomy position under spinal anaesthesia, using a 26-Ch resectoscope with a Kuntz element, with 550 μ m fibre. Patients were stratified chronologically into early (first year, 29 patients), mid (second year, 37 patients), and late (third year, 6 patients) phases. In the first phase, HoLEP was performed using the three-lobe enucleation technique. During the mid phase and early late phase, a two-lobe technique was also adopted, while an en bloc was performed only in the last 3 patients. Primary endpoints were continence rates and patient satisfaction (Δ IPSS; Δ QoL) at 1, 3 and 12 months. Secondary endpoints were operative time and perioperative complications (Clavien-Dindo classification).

RESULTS: 72 men were included (mean age 70.4; mean prostate volume 75 mL; baseline IPSS 23, IQR 19-28): 43% with indwelling bladder catheter. Baseline characteristics

were comparable across all three groups. Operative enucleation time decreased between groups (mean operative time: 93 minutes in Group 1, 78 minutes in Group 2, and 65 minutes in Group 3). The first 16 patients underwent terminal bipolar resection of residual adenoma prior to morcellation. 20 patients developed urinary incontinence at 1 month after HoLEP, of whom 16 were in Group 1 (55%) and 4 in Group 2 (10%). At 12 months, only 6 patients (20.1%) in Group 1 and 1 patient (2.7%) in Group 2 remained incontinent (9.7% overall); 4 of them (57%) had an indwelling catheter at the time of the procedure. All patients reported satisfaction after surgery: Δ IPSS -10; Δ QoL -2, stable at 1, 3 and 12 months. One major complication occurred in Group 1: intraoperative resorption leading to the onset of acute pulmonary edema (Clavien-Dindo IV). Postoperative fever (Clavien-Dindo II) was observed in 2 patients in Group 2. No complications have been reported in Group 3.

CONCLUSIONS: With increasing experience, operative efficiency in HoLEP improves, with shorter operative times and the ability to perform the procedure effectively even when using more complex techniques. Functional outcomes showed a decrease in postoperative incontinence rates with increasing experience. These findings suggest that approximately 30 cases are sufficient to observe a significant improvement in efficiency while maintaining safety.

SC238

Quantitative ergonomic assessment during laser endoscopic prostate enucleation using wearable inertial sensors: a pilot study

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BACKGROUND: Laser prostate ablation is performed under operative conditions that may expose the surgeon to prolonged static posture, constrained upper-limb positioning at the operating table, and sustained visual focus on the endoscopic monitor. These factors may contribute to biomechanical overload, particularly in the cervical region and upper-body. This study aims at quantitatively assessing intraoperative postural exposure during laser prostate ablation using wearable motion analysis.

METHODS: Three surgical procedures of laser endoscopic enucleation of the prostate were performed by the same operator and analyzed using a wearable inertial motion capture system (Xsens, Movella). Sagittal-plane angular excursions of head, trunk, shoulders and elbows were extracted throughout each procedure. For each angle, the percentage of operative time spent within three exposure bands (low/no, medium and high risk of musculoskeletal overload) was calculated according to predefined thresholds inspired by RULA scale (Rapid Upper Limb Assessment).

RESULTS: Head posture was the most critical finding. The cervical spine was kept in an extended position for nearly the whole duration of surgery, remaining in the high-risk band on average for 91.1% (range: 85.9%-97.6%) of total operative time across the three procedures, while low/no-risk exposure was about 1%. In contrast, trunk flexion-extension was consistently within the low/no-risk band for 100% of operative time in all procedures. Upper-limb findings showed side-specific differences. Mean risk distribution for shoulder flexion-extension suggested a less favorable pattern on the dominant

side, with 44.3% of operative time in the medium-risk band and 28.2% in the high-risk band on the right, compared with 25.8% and 16.5% on the left, respectively. At the elbow, the dominant side was mainly exposed to low-to-medium risk (58.6% medium), whereas the contralateral side showed a predominantly low-risk pattern (72.3% low), with a limited but non-negligible high-risk component (10.5%).

CONCLUSIONS: Wearable inertial sensors provided a feasible quantitative assessment of surgeon ergonomics during laser prostate ablation. Cervical posture emerged as the main ergonomic issue, with prolonged exposure to high-risk cervical spine. Upper-limb posture showed side-specific differences, with greater variability and higher-risk exposure at the dominant shoulder. These preliminary findings support further investigation in larger case series and may help guide ergonomic optimization of surgical setup, including table and monitor configuration. Future studies should also explore relevance of muscular fatigue and of subjective component (perceived discomfort reported by surgeons).

SC239

Eye-tracking patterns and clinical outcomes to assess surgical expertise in HoLEP training: a preliminary study

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BACKGROUND: Holmium laser enucleation of the prostate (HoLEP) is one of the most technically demanding endourological procedures, characterized by a steep and prolonged learning curve. It is typically performed in high-volume centers by a limited number of experienced surgeons. Training in this technique remains poorly standardized, requiring junior urologists to perform a substantial number of procedures before achieving proficiency, with a consequently higher risk of postoperative complications. In other fields, eye-tracking technology has been successfully used to differentiate levels of expertise. The aim of this preliminary study is to compare eye-tracking patterns and clinical outcomes during HoLEP training to objectively distinguish surgical experience.

METHODS: Two surgeons (one expert and one non-expert) wore eye-tracking glasses while performing 20 consecutive en bloc HoLEP procedures with early apical release between September and November 2025. The enucleation part of every procedure was divided into three phases: apex, lobes, and bladder neck. Eye-tracking metrics, including pupil diameter and gaze behavior (number and duration of fixations and number of saccades), were recorded and analyzed for each phase. Preoperative, intraoperative, and postoperative clinical data were also collected and evaluated.

RESULTS: Comparison of eye-tracking data between the expert and non-expert surgeons across the three phases of enucleation revealed the most pronounced differences during the apex one. The expert demonstrated a higher mean number of fixations (88 ± 42 vs. 53 ± 25 , $P=0.011$) and a lower mean number of saccades (39 ± 24 vs. 67 ± 34 , $P=0.014$) during this phase. Overall, a smaller mean pupil diameter was observed in the expert across all phases (apex: 4.13 ± 0.4 mm vs. 6.46 ± 0.73 mm; lobes: 4.1 ± 0.51 mm vs. 6.64 ± 0.52 mm; bladder neck: 4.0 ± 0.41 mm vs. 6.57 ± 0.45 mm; $P<0.001$),

suggesting a lower cognitive workload during the procedure. No significant differences were observed in preoperative and intraoperative variables between groups (expert vs. non-expert), including enucleation time (32.5 vs. 47.5 minutes, $P=0.063$) and prostate volume (89.5 vs. 85 mL, $P=0.94$). Postoperative outcomes were also comparable, with similar median IPSS scores (6 vs. 6 , $P=0.33$) and 30-day complication rates (2 vs. 5 , $P=0.076$).

CONCLUSIONS: Eye-tracking metrics may represent a valuable and objective tool for assessing expertise during HoLEP surgical training, enabling identification of critical procedural steps and potentially offering greater sensitivity than conventional clinical parameters. This approach may also contribute to improved standardization of surgical training.

SC240

Prostatic enucleation provides the best outcomes in patients with BPH/LUTS and an indwelling catheter : a trifecta analysis

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BACKGROUND: The management of patients with an indwelling catheter remains a significant clinical challenge in the treatment of benign prostatic hyperplasia (BPH). This study aimed to evaluate surgical outcomes in patients with lower urinary tract symptoms (LUTS) due to BPH who underwent surgery while catheter-dependent.

METHODS: From 2022 onward, consecutive patients with LUTS secondary to benign prostatic enlargement (BPE) who underwent surgical treatment were prospectively included. Surgical approaches were selected according to surgeon preference and included robotic-assisted simple prostatectomy (RASP), aquablation, transurethral resection of the prostate (TURP), and holmium laser enucleation of the prostate (HoLEP). Outcomes were assessed according to the trifecta favorable outcome, defined as meeting all of the following: 1) absence of perioperative complications; 2) postoperative International Prostate Symptom Score (IPSS) <8 ; and 3) postoperative maximum urinary flow rate (Qmax) >15 mL/s.

RESULTS: A total of 167 patients were included, with a mean follow-up of 21 ± 23 months. Surgical techniques were distributed as follows: RASP in 48 (29%), aquablation in 23 (14%), HoLEP in 60 (36%), and TURP in 36 (22%) cases. The overall trifecta rate was achieved in 106/167 patients (64%). Specifically, 128 (76%) experienced no complications, 105 (63%) achieved Qmax >15 mL/s, and 118 (71%) reached an IPSS <8 . On univariate analysis, both prostate volume and surgical technique were associated with trifecta success. On multivariate analysis, HoLEP (OR = 7.0; $P<0.05$) and RASP (OR = 20.0; $P<0.05$) were independent predictors of trifecta achievement compared with TURP, whereas prostate volume was not significant.

CONCLUSIONS: Patients with an indwelling catheter represent a complex subset of BPH cases, often with suboptimal outcomes. Among available techniques, HoLEP and RASP demonstrated the highest likelihood of achieving favorable functional and perioperative outcomes.

SC241**Preoperative prostate volume and surgical efficiency in thulium laser enucleation of the prostate: a multicenter analysis**

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BACKGROUND: Thulium laser enucleation of the prostate is an effective surgical treatment for benign prostatic obstruction and is increasingly used in patients with large glands. While larger prostate volume is usually associated with longer operative time, its relationship with surgical efficiency is less clearly defined in real-world multicenter settings. We aimed to evaluate the association between preoperative prostate volume, operative time, and surgical efficiency in a multicenter cohort of patients undergoing thulium laser enucleation of the prostate in two centers using different techniques.

METHODS: We performed a retrospective multicenter analysis of prospectively collected data from two training-network centers, including consecutive patients treated between May 2022 and July 2025. The two centers adopted different thulium laser enucleation techniques, namely ThuLEP and ThuFLEP. Baseline, perioperative, and functional variables were collected and summarized. Surgical efficiency was defined as cubic centimeters treated per operative minute (cc/min). The association between preoperative prostate volume and operative time was assessed using Spearman correlation. A multivariable linear regression model was fitted to assess preoperative prostate volume as the main predictor of surgical efficiency, adjusting for age and American Society of Anesthesiologists score. Sensitivity analyses were performed separately in each center, taking into account the use of different techniques. Functional outcome was assessed as the change in International Prostate Symptom Score (IPSS) from baseline to 12 months in patients with paired data.

RESULTS: A total of 117 patients were included, of whom 98 underwent ThuLEP and 19 ThuFLEP. Median age was 68 years (IQR 63-75), median preoperative prostate volume was 70 cc (IQR 50-100). Median operative time was 70 minutes (IQR 50-95), and median surgical efficiency was 1.00 cubic centimeters per minute (IQR 0.67-1.38). Preoperative prostate volume was positively correlated with operative time (Spearman rho 0.501, $P < 0.001$). In the multivariable linear regression model, preoperative prostate volume remained independently associated with higher surgical efficiency (beta 0.01, 95% confidence interval 0.01-0.01, $P < 0.001$). In sensitivity analyses performed separately in the two centers, the direction of the association remained consistent despite the use of two different thulium laser techniques. Among 90 patients with paired functional data, median IPSS improved from 19.5 (IQR 17-24) at baseline to 2.0 (IQR 1-4) at 12 months, with a median delta of 17.0 (IQR 13-21) ($P < 0.001$).

CONCLUSIONS: In this multicenter cohort, including two centers adopting different thulium laser enucleation techniques, larger prostate volume was associated with longer operative time but also with higher surgical efficiency. The consistency of the findings across the two centers suggests that the observed relationship between prostate volume and efficiency is maintained despite technical differences between ThuLEP and ThuFLEP. Functional outcomes were excellent in patients with available 12-month follow-up.

SC242**Thulium vapo resection of prostate (ThuVAP) as a valid therapeutic option in benign prostate obstruction (BPO)**

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BACKGROUND: Although HoLEP is commonly as endoscopic therapeutic technique for the treatment of Benign Prostatic Hyperplasia (BPH), in addition to other endoscopic techniques (*e.g.* Rezūm, Aquabeam, etc.), Thulium Vapo Resection of Prostate (ThuVAP) is less widespread and studied. Our aim is to discuss this technique and its clinical outcomes, side effects and cost analysis.

METHODS: 506 consecutive patients underwent this operation (by two experienced surgeons) between March 2018 and June 2025. The following parameters were considered pre- and post-procedure, after 1, 3, 6, 12 months: PSA, maximum flow rate (Qmax), postvoid residual urine volume (PVR), prostate volume verified by transrectal ultrasound, International Prostate Symptom Score (IPSS). Complications were registered.

RESULTS: Mean age was 68 years old (45-86), mean PSA was 2.8 ng/mL (0.8-5.6), mean prostate volume before surgery was 66 cc (38-182). Mean surgical procedure time was 46 min (16-96), mean catheterization time was 30 h (12-48), mean hospital stay was 2.2 days (1.5-4.2) 98 patients (19.4%) presented mild hematuria within 24 hours the operation, resolved with bladder washing within 2 days. 8 (1.5%) needed early reoperation, to perform hemostasis. 34 patients (6.7%) developed fever in the first day after operation, so they were treated with antibiotics. The rate of Stress Urinary Incontinence (SUI) was 8.8, 5.6, 2.6, 1.2 % at 1, 3, 6, 12 months post surgery, respectively. Urinary retention was described in 48 (9.8%) patients within one month after operation, 20 of them needed to retake alpha1-blockers for some months and 10 of them needed to undergo an endoscopic re-operation (TURP) within 2 years. Ejaculation was spared in 398 patients (78.6%). An improvement of IIEF was observed in 186 patients (36.7%). PSA and prostate volume showed significant decrease at 1, 3, 6, 12 months ($P < 0.05$); Qmax improvement and PVR reduction at 1, 3, 6 months ($P < 0.05$).

CONCLUSIONS: ThuVAP represents a valid therapeutic option in Benign Prostate Obstruction (BPO), in terms of good functional outcomes and side effects comparable to other endoscopic techniques. Sexual health is appreciable after the operation. Moreover the technique is cheaper than HoLEP for reduced maintenance costs and non-use of any morcellator.

SC243**Urodynamic de-obstruction and symptom improvement after thulium laser vaporization (ThuVAP): evidence from a prospective paired study**

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BACKGROUND: Thulium laser vaporization of the prostate (ThuVAP) is an established treatment for benign prostatic obstruction, but its impact on urodynamic parameters remains

poorly defined. This study aimed to quantify the de-obstructive efficacy of ThuVAP through pre- and postoperative urodynamic comparisons and to assess the relationship between urodynamic improvement and symptom relief.

METHODS: In a prospective single-center cohort (June 2022-June 2024), men with urodynamically confirmed obstruction underwent standardized ThuVAP with a 200-W thulium:YAG system. Baseline and 6-month invasive urodynamics and 12-month clinical follow-up were performed. The primary endpoint was the change in the bladder outlet obstruction index (BOOI); secondary endpoints included Qmax, postvoid residual volume (PVR), bladder voiding efficiency (BVE), detrusor pressures, and International Prostate Symptom Score (IPSS).

RESULTS: Sixty-four patients (mean age 67 years; prostate volume 52 mL) were analyzed. BOOI decreased from 55.9 {17.2 to 21.3} 11.2 ($P<0.001$), with obstructed cases dropping from 79.7% to 7.8%. Schäfer grade fell from 3.6 to 0.3 ($P<0.001$). Detrusor pressure halved, Qmax rose from 7.9 to 20.8 mL/s, PVR declined from 121 to 22 mL, and BVE improved from 64% to 94% (all $P<0.001$). Low compliance and involuntary detrusor contractions (IDC) decreased notably. IPSS improved from 26.2 to 3.4 ($P<0.001$) and correlated with the magnitude of urodynamic de-obstruction.

CONCLUSIONS: ThuVAP provides substantial, objectively verified relief of bladder outlet obstruction with consistent improvements in voiding efficiency and symptoms. The correlation between urodynamic and clinical outcomes underscores the procedure's efficacy and the utility of urodynamics in documenting therapeutic benefit.

SC244

Predictors of treatment regret after laser enucleation of the prostate for benign prostatic obstruction: choosing between micturition and antegrade ejaculation

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BACKGROUND: Anatomical endoscopic laser enucleation of the prostate (AEEP) is recognized as a first-line surgical treatment for benign prostatic obstruction (BPO), however the loss of antegrade ejaculation is a frequent condition postoperatively. The aim of this study was to analyze data on possible regret and the factors that might influence patient's dissatisfaction.

METHODS: We analyzed data from a prospectively maintained database, including 202 consecutive patients treated in the same institution, either with holmium or thulium laser AEEP for BPO. Preoperative and perioperative clinical and functional data, including the International Prostate Symptom Score (IPSS) and Sexual Encounter Profile (SEP) 2-3 questionnaire, were collected. All patients were reassessed at regular follow-up visits after surgery. Treatment regret was evaluated at 12 months postoperatively with a dedicated questionnaire during a routine urologic check-up. Logistic regression analysis was used to identify preoperative and postoperative predictors of regret.

RESULTS: Overall, 75 (37%) and 127 (63%) patients were treated with HoLEP and ThuLEP, respectively. Median (IQR) age was 71 (65, 75) years with a body mass index (BMI) of 22.4 (20.6, 25.8). Patients had a high median prostate volume

[94 (65, 113) mL] with a median PSA of 3.3 (1.4, 6.9) ng/mL and an IPSS of 20 (11, 25). A total of 118 (58%) patients were sexually active with normal erection according to SEP 2-3 questions. Dissatisfaction with the loss of antegrade ejaculation was reported by 24% (N.=49) of the patients, with 46% (N.=92) of them reporting being sexually active after surgery. Upon logistic regression, younger age (OR 1.13; 95% CI 1.06-1.20; $P<0.001$) and being sexually active preoperatively (OR 0.39; 95% CI 0.17-0.89; $P=0.025$) were identified as independent predictors of regret. No differences were reported for the type of laser enucleation nor significant postoperative complications influenced regret.

CONCLUSIONS: This study reports how younger patients and those who were sexually active preoperatively are more likely to regret the loss of ejaculation. Preoperative counseling should consider ejaculation-sparing techniques for selected patients to more effectively tailor patient management.

SC245

Beyond outcomes: decision regret following greenlight PVP versus TURP

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BACKGROUND: In BPO surgery, patient-centered outcomes such as decisional satisfaction and postoperative regret have been less frequently evaluated, despite their growing relevance in shared decision-making. This study aimed to compare postoperative regret between patients undergoing PVP and those undergoing TURP, matched for key preoperative characteristics.

METHODS: We conducted a match pair analysis study including 40 consecutive patients treated with PVP compared to a reference database of 360 patients who underwent TURP at our institution between 2022-2024. TURP patients were matched 1:1 to the PVP cohort based on age (± 3 years), prostate volume (± 10 mL), baseline IPSS (± 3 points) and Qmax (± 2 points). Preoperative demographic and clinical variables were recorded. Postoperative follow-up was performed at 12 months. The primary outcome was decision regret, assessed using the Decision Regret Scale (DRS, range 0-100), with severe regret $>25\%$ mild regret [10-20%], mild/no regret $<10\%$.

RESULTS: Overall, 80 patients were enrolled with a median age of 75 years and a median BMI of 25.5 kg/m². Overall, median IPSS was 20 (19/22) and median Qmax was 3.7 mL (1-6.3). No differences at baseline were recorded in terms of age, IPSS, PV and Qmax. Overall median regret was 20 (5/20): 4/80 (5%) patients presented severe regret, 52/80 (65%) presented mild regret and 24/80 (30%) mild/no regret. Patients undergoing green-light presented higher post-operative symptoms when compared to patient undergoing TURP (median IPSS = 5 vs. 3; $P<0.05$). As well patients presented a higher median regret (median regret = 20 vs. 5, $P<0.05$). No significant differences were recorded in terms of postoperative Qmax. No severe complications (Clavien $>II$) were recorded in both groups.

CONCLUSIONS: Patients undergoing greenlight vaporization of the prostate may have higher regret when compared to patients undergoing TURP. Adequate counseling is important in these patients before choosing surgical technique.

SC246**Matched comparative analysis of robot-assisted simple prostatectomy (RASP) versus holmium laser enucleation (HoLEP) for large (>100 mL) benign prostatic hyperplasia (BPH): experience from a high-volume center**

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BACKGROUND: In men with large benign prostatic hyperplasia (BPH; >100 mL), both robot-assisted simple prostatectomy (RASP) and holmium laser enucleation of the prostate (HoLEP) represent established treatment options. Comparative data remain scarce and often limited by baseline imbalances. We aimed to provide a matched comparative analysis of peri-operative and functional outcomes between RASP and HoLEP in a high-volume centre.

METHODS: We analysed data of 468 patients with symptomatic BPH due to large (>100 mL) prostate glands who underwent RASP (N.=206, 44%) and HoLEP (N.=262, 56%) at OLV Hospital, Aalst (Belgium) between 2011 and 2024. A 1:1 propensity-score matched (PSM) cohort was generated to reduce baseline imbalances. Pre-, intra-, and post-operative data were collected, with complications graded according to

Clavien-Dindo (CD). Functional outcomes were assessed by International Prostate Symptom Score (IPSS), maximum urinary flow rate (Qmax), and post-void residual volume (PVR) at immediate, 6-, and 12-month follow-up.

RESULTS: At baseline, age, BMI, IPSS, Qmax and PVR were comparable (all $P>0.05$), whereas RASP patients presented with larger prostate volume, lower PSA density, and lower Charlson Comorbidity Index (CCI) (all $P<0.05$). Median operative time was longer for RASP (130 vs. 110 min; $P<0.001$), while length of stay (LOS) was shorter after HoLEP (2 vs. 3 days; $P<0.001$). Intra-operative complication rates were similar (14% vs. 15%), but major Clavien-Dindo (CD) grade III-V events occurred only in HoLEP (0% vs. 8.3%; $P=0.016$). At 6 months, both groups showed an improvement of maximum flow rate (Qmax +14 vs. +14 mL/s; $P=0.8$), a reduction of PVR (-73 vs. -53 mL; $P=0.3$), and a decrease of IPSS (-17 vs. -17; $P=0.9$). At 12 months, Qmax was +11 vs. +13 mL/s ($P=0.2$), PVR -74 vs. -55 mL ($P=0.2$), and IPSS -18 vs. -18 ($P=0.8$) for RASP and HoLEP, respectively. After PSM, a balanced cohort of 144 patients (72 vs. 72) was obtained. In this analysis, functional outcomes remained equivalent and peri-operative differences were confirmed.

CONCLUSIONS: Both RASP and HoLEP provided equivalent functional improvements in large BPH. HoLEP was associated with shorter length of stay, whereas RASP showed longer operative time. After PSM, results were confirmed, supporting both as effective options depending on patient profile and expertise.

SMART COMMUNICATION (SC247 - SC260)

Outcomes della chirurgia renale e alternative alla chirurgia

SC247

Cancer-specific survival after synchronous or metachronous metastasis following surgery for renal tumors: a 10-year comparative analysis

SC248

Three-decade analysis of cancer-specific and other-cause mortality after surgical treatment for renal cell carcinoma

SC249

Role of surgical metastasectomy in metastatic renal cell carcinoma: a retrospective high-volume center experience

SC250

Impact of histological subtype and metastatic burden on overall survival after cytoreductive nephrectomy for metastatic RCC in the immunotherapy era: insights from the national cancer database

SC251

Barriers to care and individual expenditures among patients with Von Hippel-Lindau syndrome: insights from a patient-reported outcomes study in a large comprehensive care center

SC252

Renal function after robot-assisted partial nephrectomy: a comparison of observed vs. population-based predicted EGFR decline at 12 months

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Surgery- and patient-specific determinants of renal function decline after partial nephrectomy in solitary-kidney patients

SC254

Preliminary results of urinary biomarkers after partial and radical nephrectomy and their association with renal function decline

SC255

Surgery on the edge: real-world outcomes of partial and radical nephrectomy in patients with stage 4 chronic kidney disease

SC256

When the thrombus rises: inferior vena cava involvement impairs preoperative renal function in renal cell carcinoma

SC257

Refining surveillance for small renal masses: predicting aggressiveness and oncologic outcomes based on tumour size and patient characteristics

SC258

Tumor shape is not associated with growth and progression of small renal masses under active surveillance

SC259

Real-world outcomes of percutaneous renal tumour ablation: the first comparative multicentre study between cystic and solid lesions

SC260

Brief-MPI as a predictor of surgical risk and outcomes in elderly patients undergoing renal oncologic surgery: a prospective multicenter study

SC247**Cancer-specific survival after synchronous or metachronous metastasis following surgery for renal tumors: a 10-year comparative analysis**

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BACKGROUND: Patients with renal tumors may present with synchronous metastases (SM) at diagnosis or may develop metachronous metastases (MM) after curative nephrectomy. While both conditions are associated with limited survival, their long-term outcomes and potential prognostic differences by metastatic site remain unclear. This study aimed to compare cancer-specific survival (CSS) between synchronous and metachronous metastases and to explore site-specific prognostic stratification.

METHODS: We retrospectively analyzed patients with SM or MM who underwent partial or radical nephrectomy for renal tumors between 1992 and 2022 in a single high-volume institution. Patients with multiple metastatic sites were excluded. Baseline demographics, comorbidities, and tumor characteristics were compared using Wilcoxon rank-sum and Fisher's Exact Tests. CSS was estimated using 10-year truncated Kaplan-Meier analyses. Multivariable Cox regression adjusted for age, sex, clinical T stage, and Charlson index assessed the prognostic impact of metastatic timing and site.

RESULTS: Among 2072 patients, 571 (27.6%) were metastatic, of whom 215 (37.7%) SM and 356 (62.3%) MM. Median age was comparable between groups (63 vs. 63 years, $P=0.60$), while SM patients were more frequently male (74% vs. 64%, $P=0.021$) and had larger, more advanced tumors (median size 8 vs. 7 cm, $P<0.001$; cT3-4: 62% vs. 45%). The median latency to metastasis in MM cases was 24 months. SM were associated with uniformly poor outcomes across all sites (10-year CSS range 0-46%), with no site-specific survival differences. Conversely, MM showed marked heterogeneity: 10-year CSS was 80.3% for contralateral kidney, 46% for pancreas, 36% for adrenal, 43.5% for lung, 22.6% for liver, 33.8% for brain, and 0% for bone. In multivariable analysis, contralateral kidney (HR 0.09, 95% CI 0.02-0.35, $P<0.001$) and adrenal metastases (HR 0.19, $P=0.024$) independently predicted favorable survival, whereas higher age and advanced cT stage were adverse prognostic factors.

CONCLUSIONS: SM indicate a uniformly aggressive systemic disease with poor long-term survival, regardless of location. In contrast, MM show distinct prognostic patterns depending on location, with contralateral renal and adrenal lesions associated with prolonged CSS. These findings highlight that both the timing of metastases and anatomical location provide complementary prognostic information that should be incorporated into future renal tumor risk models and surveillance strategies.

SC248**Three-decade analysis of cancer-specific and other-cause mortality after surgical treatment for renal cell carcinoma**

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BACKGROUND: Advances in surgery and perioperative care have significantly improved outcomes for patients undergoing surgery for renal tumors. With increased survival, causes of death unrelated to cancer (other-cause mortality [OCM]) may exceed cancer-specific mortality (CSM) in the long term. This study aimed to evaluate CSM and OCM after surgical treatment, highlighting the relative impact of tumor stage.

METHODS: We retrospectively analyzed patients who underwent partial or radical nephrectomy for renal tumors between 1992 and 2022 in a single high-volume institution. Patients with synchronous metastatic (SM) disease were excluded. Demographic and clinical data were collected. The cumulative incidence of CSM and OCM was estimated up to 20 years using competing-risks analysis, stratified by clinical stage. Multivariable Cox models were used to identify predictors of each mortality endpoint.

RESULTS: Among 3008 patients, 215 were excluded for SM. The median age was 65 years; 62% were male. Most patients had localized disease (cT1-2, 70%) and low comorbidity (CCI 0-1, 70.5%). At 15 and 20 years, OCM consistently exceeded CSM in the overall population. After stratification for T stage, in T1 patients, >85% of deaths were from non-cancer causes. Conversely, in T3 disease nearly one-thirds of deaths at 15 years were due to OCM. In multivariate analysis, older age (HR 1.02; $P=0.001$), cT3 stage (HR 3.93; $P=0.001$), and tumor size >7 cm (HR 3.38; $P=0.003$) independently predicted CSM. Conversely, age (HR 1.08; >0.001), female sex (HR 1.76; >0.001), and CCI ≥ 4 (HR 3.62; >0.001) were strong predictors of OCM.

CONCLUSIONS: Over three decades of renal tumor surgery, OCM accounted for a non-negligible share of long-term deaths, including in patients with advanced disease. Surgical treatment has resulted in excellent oncological control, and many patients with aggressive tumors ultimately died from non-oncological causes related to age and comorbidities. These findings confirm the long-term effectiveness of surgical management in appropriately selected patients with renal tumors.

SC249**Role of surgical metastasectomy in metastatic renal cell carcinoma: a retrospective high-volume center experience**

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BACKGROUND: To retrospectively evaluate the indications, oncological outcomes, and perioperative morbidity of surgical metastasectomy in patients with metastatic renal cell carcinoma treated at a high-volume center.

METHODS: We include 302 patients with metastatic RCC during the period from 2006 to June 2025 who were treated with at least 1 surgical metastasectomy. Other metastasis-directed treatments (MDTs), such as stereotactic radiotherapy or ablative therapies, performed either before or after metastasectomy were not considered exclusion criteria; prior oncologic treatments were also not considered exclusion criteria. The indication for metastasectomy may be to achieve no evidence of disease (NED) status, in the setting of a dissoci-

ated response, defined as progression of a single or limited number of metastatic sites despite otherwise stable or responding disease, or for palliative purposes. Metastases were classified according to site, number, and timing (synchronous or metachronous). Survival analyses were performed using the Kaplan-Meier method and Cox regression models.

RESULTS: A total of 302 patients were included in the study. The mean age was 62.9 years, and clear cell RCC was the most common histology. In 37.1 % of cases, metastases were synchronous at diagnosis. The most frequent metastatic sites were bone, adrenal gland, and brain. 187 patients underwent metastasectomy with the aim of achieving NED status, which was achieved in 62.6% of these cases; 50 patients were treated for dissociated response and 65 for palliative indications. Additional MDTs were performed in 178 patients. Median OS was 93.2 months in the NED-intended group (112.6 months if NED achieved vs. 61.0 if not achieved), compared with 43.4 months in the dissociated response group and 14.1 months in the palliative group. Median CSS was 138.4 months in the NED-intended group (162.1 months if NED achieved vs. 113.2 months if not achieved), compared with 78.3 and 14.5 months in the dissociated response and palliative groups, respectively. A total of 44 complications were documented, of which 19 were Clavien-Dindo grade >3.

CONCLUSIONS: Our findings suggest that surgical metastasectomy may be a valuable component of the multidisciplinary management of selected patients with metastatic RCC, particularly when performed with the aim of achieving NED status. The observed complication rate further supports the feasibility of this approach in appropriately selected patients.

SC250

Impact of histological subtype and metastatic burden on overall survival after cytoreductive nephrectomy for metastatic RCC in the immunotherapy era: insights from the national cancer database

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BACKGROUND: To evaluate overall survival (OS) in metastatic renal cell carcinoma (mRCC) patients undergoing cytoreductive nephrectomy (CN) in the contemporary immunotherapy era, stratified by histological subtype and metastatic burden, to refine patient selection in a real-world setting.

METHODS: We conducted a retrospective analysis using the National Cancer Database (NCDB) to identify patients diagnosed with mRCC between 2016 and 2020 who underwent CN. Histology was categorized as clear cell (ccRCC), non-clear cell (nccRCC), and variant (sarcomatoid/rhabdoid) subtypes. Metastatic burden was quantified as 1, 2-3, or >3 metastatic sites (bone, brain, liver, lung, distant lymph nodes, or other). OS was estimated using Kaplan-Meier and compared by log-rank test. Multivariable Cox regression adjusted for age, sex, and comorbidities. Histology-specific models evaluated the independent prognostic impact of metastatic burden.

RESULTS: A total of 9,361 mRCC patients who underwent cytoreductive nephrectomy were included. Median follow-up was 26.9 months. Histological subtype was significantly

associated with OS (log-rank $P < 0.001$), with 5-year OS of 40.3% for ccRCC, 28.6% for nccRCC, and 18.4% for variant histologies. On multivariable analysis, nccRCC and variant histologies were associated with increased mortality compared to ccRCC 1 (HR 1.62, $P < 0.001$ and HR 2.31, $P < 0.001$, respectively). Increasing metastatic burden was independently associated with worse OS compared to patients with a single metastatic site, with HR 1.62 ($P < 0.001$) for 2-3 sites and HR 2.77 ($P < 0.001$) for >3 sites. Metastatic burden was independently associated with worse OS in ccRCC (HR 1.62 for 2-3 sites, HR 2.96 for >3 sites; $P < 0.001$) and in variant histologies (HR 1.82 for 2-3 sites, HR 3.64 for >3 sites; $P < 0.001$). In nccRCC, the association remained significant for patients with 2-3 metastatic sites (HR 1.82, $P = 0.034$) but was not significant for those with >3 sites (HR 1.10, $P = 0.78$). When stratifying Kaplan-Meier curves by metastatic burden, patients with >3 metastatic sites, survival curves converged with no significant differences across histologies (log-rank $P = 0.10$).

CONCLUSIONS: Histological subtype and metastatic burden are independent predictors of survival following cytoreductive nephrectomy in metastatic RCC during the immunotherapy era. These results underscore that the benefit of cytoreductive nephrectomy is largely confined to patients with low metastatic burden, reinforcing the need for careful selection and multidisciplinary assessment in the immunotherapy era.

SC251

Barriers to care and individual expenditures among patients with Von Hippel-Lindau syndrome: insights from a patient-reported outcomes study in a large comprehensive care center

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BACKGROUND: Von Hippel-Lindau (VHL) syndrome requires coordinated, lifelong multidisciplinary care. However, there is limited evidence on how patients experience healthcare access and system navigation. To address this void, we conducted an observational prospective study to evaluate patient-reported outcome measures (PROMS) relative to barriers to care and healthcare-related costs in individuals diagnosed with VHL syndrome.

METHODS: A questionnaire was disseminated to adult patients diagnosed with VHL syndrome through a tertiary referral centre. Key outcomes included number and distance of treating hospitals, presence of a care coordinator, difficulty obtaining prescriptions, and annual costs related to medical care and travel. Descriptive statistics summarized sociodemographic and healthcare utilization data.

RESULTS: The response rate was 100% ($N = 36$) out of 36 invitations sent. The proportion of patients followed in VHL-designated centres was 86% ($N = 31$). The proportion of patients requiring surveillance in more than one centre was 39% ($N = 14$). In the previous year, 42% ($N = 15$) attended more than two hospitals for surveillance, and 5.6% ($N = 2$) accessed more than two hospitals for active treatment. The proportion of patients who missed at least one follow-up visit and those who skipped at least one treatment was 22% ($N = 8$) and 6% ($N = 2$), respectively. The proportion of patients who

travelled outside their region to receive care was 75% (N.=27). Moderate-to-severe difficulty in obtaining prescriptions was reported by 33% (N.=12). The proportion of patients with annual out-of-pocket expenses exceeding 500 € was 22% (N.=8) for medical costs, 67% (N.=24) for travel-related costs, and 73% (N.=26) when considering overall annual expenditures.

CONCLUSIONS: This study provides novel patient-reported insights into healthcare access and system navigation among patients diagnosed with VHL syndrome. These findings are critical with respect to policymaking, underscoring that long travel distances to referral care centres and the associated costs represent the main barriers to care. Given the need for centralised management, actions including financial support for both travel and medical expenses are crucial to ensure equitable access to appropriate care.

SC252

Renal function after robot-assisted partial nephrectomy: a comparison of observed vs. population-based predicted eGFR decline at 12 months

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BACKGROUND: The aim of this study was to compare observed eGFR at 12 months after robot-assisted partial nephrectomy (RAPN) with the predicted trajectory derived from the risk-factor-adjusted normative model by Herold on the German population, and to evaluate the role of warm ischemia time (WIT) and tumour complexity as modulators of functional outcome.

METHODS: Peri-operative and follow-up data from 282 consecutive patients who underwent RAPN at a single tertiary centre were retrospectively analysed. eGFR was assessed at 24 hours, 3, 6, and 12 months postoperatively. Predicted eGFR at 12 months was calculated for each patient using the Herold *et al.* risk-factor-adjusted annual decline, incorporating diabetes (-0.45 mL/min/1.73m²/yr), overweight (-0.03), obesity (-0.12), and microalbuminuria (-0.09) as additive modifiers. Patients were stratified by WIT: no clamping, WIT <25 minutes, and WIT ≥25 minutes. The relationship between WIT and tumour complexity was assessed using Spearman correlations with clinical tumour size and operative console time, with Kruskal-Wallis and Mann-Whitney U Tests for group comparisons.

RESULTS: Mean pre-operative eGFR was 78.3 mL/min/1.73m². The eGFR trajectory after RAPN was characterised by an early decline stabilising rapidly: mean eGFR was 76.5 at 24 hours, 75.9 at 3 months, 76.2 at 6 months, and 75.6 mL/min/1.73m² at 12 months. The mean predicted eGFR at 12 months was 77.4 mL/min/1.73m², yielding a mean excess decline of -1.8 mL/min/1.73m² beyond aging-alone expectations. Overall, 67% of patients fell within their predicted eGFR while 33% declined more than predicted. Clampless cases (N.=84, 29.8%) showed negligible excess decline (actual 75.2 vs. predicted 75.5 mL/min/1.73m², $\Delta = -0.4$). Patients with WIT <25 minutes (N.=172) showed an excess of -1.0 mL/min/1.73m², while those with WIT ≥25 minutes (N.=26, 9.2%) exhibited an excess decline of

-13.6 mL/min/1.73m² (actual 70.7 vs. predicted 84.3). Longer WIT was significantly correlated with larger tumour size (Spearman $\rho = 0.25$, $P=0.0004$) and longer console time ($\rho = 0.34$, $P<0.0001$). Mean tumour size increased across groups from 3.2 cm (no clamp) to 3.5 cm (WIT <25 min) to 4.5 cm (WIT ≥25 min; $P=0.0001$). Among clinical subgroups, obese patients performed above their predicted eGFR at 12 months ($+3.0$ mL/min/1.73m²), potentially reflecting regression-to-the-mean and hyperfiltration dynamics. Diabetic patients and non-diabetic patients showed comparable excess declines (-1.0 and -2.0 mL/min/1.73m², respectively).

CONCLUSIONS: The majority of RAPN patients follow a renal function trajectory closely aligned with population-based aging predictions. However, patients with more complex tumors (WIT ≥25, longer console time and larger tumor size) encountered an eGFR decline above aging-related expectations. This excess could reflect the impact of both ischemic injury and greater parenchymal sacrifice associated with more complex tumours.

SC253

Surgery- and patient-specific determinants of renal function decline after partial nephrectomy in solitary-kidney patients

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BACKGROUND: Partial nephrectomy represents a unique surgical challenge in solitary-kidney patients, as postoperative functional decline may have direct implications for long-term outcomes. While ischemia time is a recognised determinant of postoperative function, its effect and interaction with clinical characteristics in this population remain unclear. This study aimed to characterise the non-linear association between ischemia duration and renal functional recovery, and to identify specific patterns across patient subgroups that could inform tailored perioperative strategies.

METHODS: We retrospectively analysed 291 solitary-kidney patients who underwent partial nephrectomy at multiple participating centres in Europe, Asia, and the United States. Renal function was evaluated pre-operatively and at 1 year after surgery, and the relative percentage change in eGFR (Δ eGFR%) was calculated accordingly. Locally weighted scatterplot smoothing (LOWESS) curves were used to explore the non-linear relationship between ischemia time and renal function decline across different patients' categories.

RESULTS: Median age was 65 years and 32% of patients were females. The median Δ eGFR at 1 year was -14% (IQR: -29, 0). Patients with shorter operative time exhibited a better renal function recovery compared to those who underwent longer procedures. Interestingly, overweight patients and those with hypertension showed a more favourable functional recovery. A similar trend was also observed among diabetic patients, although estimates were less precise due to the limited sample size in this subgroup. Renal function trajectories appeared comparable across gender and intraoperative blood loss categories.

CONCLUSIONS: Among patients with a solitary kidney, postoperative renal recovery after partial nephrectomy

is determined by both surgical and patient-specific factors. Understanding how these variables modulate susceptibility to ischemic injury can support more individualised surgical planning and postoperative monitoring, ultimately aiming to preserve renal function and delay progression to chronic kidney disease.

SC254

Preliminary results of urinary biomarkers after partial and radical nephrectomy and their association with renal function decline

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BACKGROUND: Partial nephrectomy (PN) and radical nephrectomy (RN) represent standard surgical approaches for localized renal tumors. RN causes greater nephron mass loss, while PN may induce ischemia-reperfusion-related tubular stress. Urinary biomarkers of tubular injury, including Dickkopf-3 (DKK3), monocyte chemoattractant protein-1 (MCP-1) and the NephroCheck® panel (TIMP-2 $\times$ IGFBP7), may provide insight into early renal damage and help predict subsequent glomerular filtration rate (GFR) decline. This study compared these biomarkers after PN and RN and evaluated their association with one-year renal function decline.

METHODS: In this prospective comparative study, 71 patients (54 PN, 17 RN) were enrolled. Baseline clinical characteristics, including serum creatinine (sCr), and estimated GFR (eGFR), were collected. Tumor complexity was assessed using PADUA and RENAL scores. Urinary biomarkers were measured at predefined time points and normalized to urinary creatinine. NephroCheck® was assessed at 6, 18 and 30 hours postoperatively. MCP-1 and DKK3 were measured at baseline, 6 months and 12 months. The primary outcome was change in eGFR (Δ GFR) at 12 months. Secondary analyses evaluated the association between baseline DKK3 and renal function decline, adjusting for age, diabetes and baseline eGFR. Subgroup analyses used GFR decline thresholds ($\geq 10\%$ for PN; $\geq 30\%$ for RN).

RESULTS: Baseline renal function was comparable between groups, while tumor size and complexity scores were higher in the RN group. At 12 months, RN was associated with greater renal function decline than PN (Δ GFR -34 ± 17 vs. -8 ± 10 mL/min; $P < 0.001$), with lower final eGFR (57 ± 17 vs. 74 ± 21 mL/min; $P = 0.003$). NephroCheck® levels were higher in the PN group at 18 hours postoperatively (0.51 ± 0.57 vs. 0.19 ± 0.11 ; $P = 0.034$), indicating greater acute tubular stress. No differences were observed at 6 or 30 hours. Urinary MCP-1 levels were higher in the PN group at 6 months (23.7 ± 17.1 vs. 14.0 ± 15.7 ng/mg; $P = 0.035$), suggesting a more pronounced mid-term inflammatory response. No significant differences were observed at baseline or 12 months. DKK3 levels did not differ between groups at any time point. Baseline DKK3 showed a significant linear association with Δ GFR at 12 months ($P = 0.032$). Stratified analysis demonstrated predictive value only in the RN subgroup, where higher baseline DKK3 was associated with a $\geq 30\%$ GFR decline ($P = 0.049$).

CONCLUSIONS: RN results in greater long-term renal function decline than PN. PN, however, is associated with higher early tubular stress and mid-term inflamma-

tory response. Baseline urinary DKK3 identifies patients at increased risk of significant renal decline, particularly after RN, suggesting that pre-existing tubular vulnerability plays a critical role when nephron mass is substantially reduced. Urinary tubular stress biomarkers may improve perioperative risk stratification and enhance individualized surgical decision-making.

SC255

Surgery on the edge: real-world outcomes of partial and radical nephrectomy in patients with stage 4 chronic kidney disease

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BACKGROUND: Patients with stage 4 chronic kidney disease (CKD4) have a substantial risk of end-stage renal disease (ESRD). Management of localized renal tumors is controversial, as both radical (RN) and partial nephrectomy (PN) may precipitate renal decline, yet evidence on postoperative functional and oncological outcomes in this high-risk group is limited. We aimed to characterize renal function trajectories, ESRD risk, and perioperative morbidity among CKD4 patients undergoing renal surgery.

METHODS: We retrospectively analyzed 4,019 consecutive patients who underwent PN or RN (1987-2023) at a tertiary center. CKD4 was defined as baseline eGFR 15-29 mL/min/1.73m². Outcomes included postoperative renal function decline (Δ eGFR=pre- postoperative eGFR) and progression to ESRD (eGFR < 15 mL/min/1.73m²) at last follow-up. ESRD was modelled as a competing-risk event with death as competing endpoint. 90-day postop complications were recorded. Multivariable linear regression (MVA) assessed predictors of Δ eGFR. Fine-Gray competing-risk regression identified predictors of ESRD. Logistic regression compared complication rates between PN and RN.

RESULTS: 67 CKD4 patients met inclusion criteria; 37 (55%) underwent RN. RN patients had larger tumours (7 vs. 4.7 cm, $P = 0.002$), with otherwise comparable baseline characteristics. At a median follow-up of 20 months, 15% progressed to ESRD. Median postoperative Δ eGFR was 1 mL/min/1.73m² (IQR -2.3, 6.2), with no difference between PN and RN ($P > 0.9$). On MVA, RN predicted greater short-term functional decline ($P = 0.007$). The 60-month cumulative incidence of ESRD was similar in PN and RN (22% vs. 20%, HR 0.65, $P = 0.4$). Younger age was associated with lower ESRD risk (HR 0.94, $P < 0.001$). Overall, 57% had postop complications, with no difference between PN and RN (60% vs. 54%, OR 0.78, $P = 0.6$). Bleeding/hematoma occurred more often after PN (40% vs. 16%), whereas acute kidney injury was more frequent after RN (30% vs. 17%).

CONCLUSIONS: In patients with CKD4 undergoing renal surgery, RN led to greater short-term renal function decline but did not increase long-term ESRD risk compared with PN. Overall complication rates were high but comparable between approaches. These data provide contemporary real-world benchmarks for counselling CKD4 patients with localized renal tumours and call for individualized surgical strategies in this rare, high-risk population.

SC256**When the thrombus rises: inferior vena cava involvement impairs preoperative renal function in renal cell carcinoma**

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BACKGROUND: In renal cell carcinoma (RCC), a venous tumor thrombus (VTT) extending into the inferior vena cava (IVC) may impair both ipsi- and contralateral renal venous outflow, predisposing to renal dysfunction. We compared survival outcomes between renal vein (RV) and IVC VTT and assessed whether caval extension is independently associated with preoperative chronic kidney disease (preopCKD).

METHODS: From a prospectively maintained database, we retrospectively analyzed patients undergoing nephrectomy with VTT, dichotomized as RV or IVC (T3b/T3c) involvement. Overall (OS) and cancer-specific survival (CSS) were analyzed using restricted mean survival time (RMST) up to $\tau = 60$ months. Multivariable logistic regression assessed the association between VTT extension and preopCKD (eGFR < 60 mL/min/1.73 m²), adjusting for renal-function confounders (diabetes, Charlson Comorbidity Index [CCI], smoking, ECOG, age, sex, BMI, tumor size).

RESULTS: Among 389 patients, 238 (61%) had RV VTT and 151 (39%) IVC VTT (111 T3b, 40 T3c). Median follow-up was 75 months (IQR 67-84). For OS ($\tau = 60$), RMST was 44 months (95% CI 41-47) for RV VTT vs. 33 months (95% CI 28-37) for IVC VTT, a Δ RMST of +11 months (95% CI +6 to +18; $P < 0.001$). The RMST ratio (RV/IVC) = 1.35 (95% CI 1.16-1.57; $P < 0.001$) indicated 35% more event-free survival time for RV VTT. For CSS, RMST was 46 months (95% CI 43-49) vs. 38 months (95% CI 34-43), Δ RMST +8 months (95% CI +2 to +13; $P = 0.006$) and RMST ratio 1.21 (95% CI 1.05-1.38; $P = 0.009$). PreopCKD occurred in 59 (25%) RV VTT and 56 (37%) IVC VTT ($P = 0.01$). At multivariable analysis, IVC VTT was independently associated with higher odds of preopCKD (OR 2.15, 95% CI 1.23-3.79; $P = 0.025$), together with higher CCI (OR 1.50; $P = 0.006$), increasing age (OR 1.10; $P < 0.001$), higher BMI (OR 1.09; $P = 0.041$), and larger tumor size (OR 1.10; 95% CI 1.01-1.19; $P = 0.048$).

CONCLUSIONS: IVC involvement by VTT is associated with significantly shorter 5-year event-free survival for both OS and CSS and with increased risk of preoperative CKD, reflecting the hemodynamic burden of caval obstruction on bilateral renal drainage. These findings underscore the importance of proactive renoprotective strategies in patients with IVC thrombus extension and warrant validation in larger multicentric cohorts.

SC257**Refining surveillance for small renal masses: predicting aggressiveness and oncologic outcomes based on tumour size and patient characteristics**

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BACKGROUND: The widespread use of cross-sectional imaging has led to a marked increase in the incidental detection of small renal masses, many of which display indolent behaviour. This study aimed to estimate the probability of malignant and aggressive histology according to tumour size and to assess recurrence rates and survival outcomes in patients with aggressive *versus* indolent renal tumours.

METHODS: We retrospectively analysed patients who underwent surgery for renal masses at a tertiary referral centre. Tumours were categorised as indolent (benign or low-grade malignant) or aggressive (high-grade or non-organ-confined). Logistic regression models were applied to estimate the likelihood of malignant and aggressive histology as a function of tumour size. Kaplan-Meier analyses were used to compare progression-free survival (PFS) and cancer-specific survival (CSS) between aggressive and indolent tumour groups. Multivariable models explored the influence of age, sex, and other clinical features on tumour aggressiveness.

RESULTS: 3,837 patients were included, with a median tumour size of 5 cm (IQR: 3 - 7). The predicted probability of both malignancy and aggressiveness increased steadily with tumour size. Male sex and older age were independently associated with a higher risk of aggressive histology (both $P < 0.05$). Median follow-up was 5 years, and 132 patients experienced relapse. Among patients with aggressive histology, 71 (7.6%) developed local recurrence and 327 (35%) developed distant metastases, compared with 51 (1.8%) and 234 (8.1%) of those with indolent histology ($P < 0.001$). Patients with aggressive tumours experienced markedly worse outcomes, with a 5-year PFS of 36% *versus* 87% and a 5-year CSS of 69% *versus* 95% compared with those harbouring indolent lesions. These findings remained consistent across tumour size subgroups and histologic variants.

CONCLUSIONS: Tumour size serves as a robust surrogate for the biological behaviour of renal masses, with larger lesions exhibiting a greater probability of aggressive pathology and inferior survival outcomes. When integrated with key patient characteristics such as age and sex, it can inform more personalised clinical decision-making, optimise surveillance protocols, reduce overtreatment, and tailor follow-up intensity according to individual risk.

SC258**Tumor shape is not associated with growth and progression of small renal masses under active surveillance**

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BACKGROUND: Tumor shape radiomic features (TSRF) have been associated with aggressive behavior of several tumors, including lung nodules and brain tumors. There is little evidence on the role of TSRF in large renal tumors treated with nephrectomy. However, the role of tumor shape of small renal masses (SRM) under active surveillance (AS) is currently unexplored. We addressed this knowledge gap testing the role of TSRF at diagnosis in predicting growth rate and progression during active surveillance (AS).

METHODS: All patients with a single SRM enrolled in our AS protocol from 2008 with at least 6 months of follow-up and ≥ 3 radiological studies were included in the analysis. SRM were approximated to ellipsoids. The three diameters

measured at CT scan were used to compute several radiomics feature, namely maximum diameter, axes ratio, sphericity index, anisotropy index, compactness, surface to volume ratio (SVR), normalized for the diameter of a sphere of the same volume. Mixed effect model quantified linear growth rate. Univariable and multivariable linear regression model identified predictors of growth rate among radiomics features. Univariable and multivariable Cox regression models tested predictors of progression, defined as reaching 4 cm in maximum diameter, a volume doubling time <12 months, TNM upstage and development of symptoms.

RESULTS: A total of 131 SRM were followed with AS for a median follow-up of 41.8 months (IQR 21.8-68.4). Tumor shape radiomics revealed an approximately spherical shape for most of SRM included in the study. The mean linear growth rate was 0.15 ± 0.13 cm/year. Among radiomics features, only maximum diameter (beta 0.05 cm/year, $P < 0.001$) was a predictor of growth rate. Thirty (23%) masses met progression criteria, mostly (16%) for reaching 4 cm in size. At 3 years, progression-free survival was 83%. At univariable Cox regression model, only maximum diameter was a predictor of progression (HR 1.73, 95%CI 1.25-2.39, $P < 0.001$, Harrell's c-index=0.749). The inclusion of TSRF did not meaningfully changed discrimination of the model (c-indices range: 0.747-0.752).

CONCLUSIONS: TSRF do not predict SRM growth or progression during AS of SRM. Tumor size is the main predictor of SMR growth and should be the main driver for selection of patients for AS, along with age and comorbidities.

SC259

Real-world outcomes of percutaneous renal tumour ablation: the first comparative multicentre study between cystic and solid lesions

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BACKGROUND: Percutaneous ablation (PA) represents an established treatment option for small renal masses. However, evidence comparing outcomes between cystic and solid lesions remains limited. We aimed to compare perioperative, functional, and oncological outcomes between cystic and solid renal tumours treated with percutaneous ablation in a multicentre high-volume setting.

METHODS: We performed a retrospective multicentre analysis including patients treated with PA for renal tumours across five high-volume centres. Only malignant lesions were included. Patients were categorised according to lesion type (cystic vs. solid). Baseline characteristics, perioperative outcomes, renal function, complications, and recurrence rates were compared between groups. Kaplan-Meier analysis was used to assess local recurrence-free survival (LRFS). Univariable and multivariable logistic regression analyses were performed to identify predictors of local recurrence.

RESULTS: A total of 502 patients were included, of whom 451 (90%) had solid and 51 (10%) cystic tumours, including 12 Bosniak III and 39 Bosniak IV lesions. Baseline characteristics were largely comparable between groups; however, cystic lesions showed a different histological distribution, with a

lower proportion of clear cell RCC (53% vs. 76%) and a higher rate of papillary RCC (39% vs. 22%; $P < 0.001$). Ablation techniques included radiofrequency ablation (N.=311, 62%), microwave ablation (N.=157, 31%), and cryoablation (N.=34, 7%), with a higher use of radiofrequency ablation in cystic lesions (82% vs. 60%, $P = 0.005$). No significant differences were observed in overall complication rates (16% vs. 12%, $P = 0.6$) or in major complications (Clavien-Dindo grade $\geq$ III; 2.2% vs. 2.0%, $P = 0.8$). Perioperative changes in renal function and haemoglobin were comparable between groups, with no significant differences in Δ creatinine (0.10 vs. 0.07 mg/dL, $P = 0.5$) or Δ haemoglobin (-0.40 vs. -0.50 g/dL, $P = 0.12$). At a median follow-up of 65 months, local recurrence rates were similar between solid and cystic lesions (11% vs. 12%, $P = 0.9$), with no differences in time to recurrence ($P = 0.6$). Kaplan-Meier analysis confirmed no significant difference in LRFS at 5 years between groups (log-rank $P = 0.69$). On multivariable analysis, tumour size ≥ 3 cm was the only independent predictor of local recurrence (OR 3.98, $P < 0.001$), whereas lesion type (cystic vs. solid), histology, tumour grade (G3-4 vs. G1-2), and ablation technique were not significantly associated with recurrence.

CONCLUSIONS: PA provides comparable safety and oncological outcomes in cystic and solid renal tumours. Lesion type does not appear to influence local recurrence, while tumour size remains the main determinant of oncological failure.

SC260

Brief-MPI as a predictor of surgical risk and outcomes in elderly patients undergoing renal oncologic surgery: a prospective multicenter study

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BACKGROUND: Preoperative risk stratification plays a key role in improving outcomes among elderly patients undergoing renal cancer surgery. The Brief Multidimensional Prognostic Index (Brief-MPI) is a validated geriatric tool; however, its prognostic value for perioperative complications and surgical outcomes in the setting of major renal surgery remains to be clarified. Therefore, the aim of this study was to evaluate its predictive role in this context.

METHODS: This prospective multicenter study included 193 patients aged ≥ 65 years undergoing nephrectomy or nephron-sparing surgery for renal cancer. Preoperative frailty was assessed using the Brief Multidimensional Prognostic Index (Brief-MPI), and patients were stratified into three categories (MPI I-III). Demographic, clinical, and surgical variables were collected, including polypharmacy (defined as ≥ 5 medications). Comparisons across MPI groups were performed using appropriate statistical tests. An ordinal logistic regression model was used to identify independent predictors of increasing MPI severity.

RESULTS: Among the 193 patients, 38% were classified as MPI I, 45% as MPI II, and 17% as MPI III. Increasing MPI severity was significantly associated with polypharmacy

ABSTRACT

($P<0.001$) and a higher burden of comorbidities, including cardiac, respiratory, and liver diseases. Surgical approach differed significantly across MPI groups ($P=0.001$), with open surgery more frequently performed in frailer patients. Complication rates were higher in laparoscopic and open procedures compared to robotic surgery. At multivariable analysis, polypharmacy (OR 1.234; 95% CI 1.097-1.394) and surgical approach

(open: OR 4.267; robotic: OR 3.974 vs. laparoscopic) emerged as independent predictors of higher MPI severity.

CONCLUSIONS: The Brief-MPI is a valuable tool for identifying frail elderly patients undergoing renal cancer surgery. Its integration with clinical and surgical variables may improve preoperative risk stratification and support tailored surgical decision-making.

Tumore della prostata: chirurgia II

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Outcomes and treatment patterns of prostate cancer patients with low risk biochemical recurrence after radical prostatectomy managed with initial observation

SC262

Radical prostatectomy in stampede-defined high-risk prostate cancer: long-term oncologic and perioperative outcomes from a large single-center cohort

SC263

Assessing the risk of false positive findings of PSMA-PET in nodal staging in patients treated with radical prostatectomy and extend pelvic lymph-node dissection

SC264

The role of SUVmax ratio at 18f-PSMA-1007 PET for predicting high aggressive pathologic features and PSA persistence after radical prostatectomy in prostate cancer patients

SC265

Prior TURP does not affect perioperative outcomes at radical prostatectomy: a pair-matched analysis of a single center series

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Enhancing the accuracy of PSMA-PET-based nomograms for predicting lymph node invasion in prostate cancer: the added value of intraprostatic SUVmax

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Pathologically node-positive prostate cancer after radical prostatectomy: anatomical distribution, predictors of nodal burden and early oncological outcomes

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Predictive factors for functional outcomes after robot-assisted radical prostatectomy: a single-center retrospective analysis

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Impact of radical prostatectomy on the development of major depressive disorder in prostate cancer patients: the role of premorbid personality traits and coping mechanisms

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Exploring factors associated with pelvic nodal dissection-related complications during robot-assisted radical prostatectomy over a 6763 cohort

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Risk of pathological upgrading in biopsy Grade Group 1 prostate cancer: associations with MRI features, tumor burden and therapeutic timing

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Intraoperative frozen section during robot-assisted radical prostatectomy (RARP): impact on margin conversion, final surgical margins, and early biochemical recurrence

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Introduction of posterior reconstruction technique during robotic assisted radical prostatectomy at a tertiary center: results on the self-perception of anastomotic quality and ease of execution

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Prevalence and predictors of anastomotic leakage after robot-assisted radical prostatectomy using systematic cystography: a single-center experience

SC261**Outcomes and treatment patterns of prostate cancer patients with low risk biochemical recurrence after radical prostatectomy managed with initial observation**

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BACKGROUND: The EAU guidelines suggest observation for patients with low-risk biochemical recurrence (BCR) after radical prostatectomy (RP) (namely, PSA doubling time >1 yr and ISUP at RP 1-3). However, it is unknown to what extent this management would spare salvage treatments vs. result in men treated in a late salvage setting (*i.e.*, PSA at salvage >0.5 ng/mL) and whether this delay would impact on oncologic control. We assessed treatment patterns of low-risk BCR patients managed with initial observation and tested for differences in cancer control outcomes according to salvage treatment timing (early vs. late).

METHODS: We relied on 364 RP patients with low-risk BCR, according to the EAU risk group, managed with initial observation, treated at a single centre from 1990 to 2023. Kaplan-Meier (KM) plots depicted salvage treatment- and metastatic-free survival. Patients receiving salvage RT were stratified according to PSA values at the time of salvage (early salvage PSA <0.5 ng/mL vs. late salvage PSA ≥0.5 ng/mL). Multivariable Cox-regression (MCR) models tested the impact of treatment patterns (observation vs. early- vs. late-salvage RT ± androgen deprivation therapy; treated as time-varying variable) on metastatic progression risk after adjusting for age at BCR, pT (pT2/3a vs. pT3b/4) and pN (pN0/x vs. pN1).

RESULTS: Median age and PSA at BCR were 68 (IQR: 63-73) years and 0.28 (IQR: 0.2-0.45 ng/mL) ng/mL. Overall, 49 (13%) and 58 (16%) patients harboured pN1 and pT3b at RP. The 10-yr MFS was 82% (95%CI: 76-87%), with a median salvage treatment-FS of 90 months (95%CI: 83-100 months). A total of 160 patients were treated in an early salvage setting, while 38 patients were treated in a late salvage setting. In MCR models, use of early salvage RT was not associated with increased metastatic risk (HR: 1.2, 95%CI 0.45-3, P=0.77), while the minority of men treated in a late salvage setting exhibited an increased risk of disease progression (HR: 4.5, 95%CI 2.2-15.1, P<0.001).

CONCLUSIONS: RP patients with EAU low-risk BCR managed with initial observation and early salvage RT exhibited optimal cancer control outcomes. However, postponing salvage RT to PSA values >0.5 ng/mL even in the low-risk setting might increase metastatic risk and compromise oncologic control.

SC262**Radical prostatectomy in stampede-defined high-risk prostate cancer: long-term oncologic and perioperative outcomes from a large single-center cohort**

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BACKGROUND: EAU guidelines do not clearly define the role of surgery in high-risk prostate cancer (PCa) patients according to the STAMPEDE definition. Although multimodal treatment (MMT) is oncologically effective, treatment intensification may increase treatment-related side effects. We aimed to evaluate the surgical safety of a STAMPEDE-like cohort of PCa patients treated with radical prostatectomy (RP) and extended pelvic lymph node dissection (ePLND).

METHODS: We identified 572 PCa patients reflecting the STAMPEDE definition (cN1 or, if cN0, having at least two among: cT3-T4, ISUP 8-10, and PSA ≥40) and treated with RP+ePLND at a single centre (1990-2025). MMT was defined as the administration of neoadjuvant or adjuvant treatment. Clinical recurrence (CR) was the onset of recurrence at any site. High-grade (HG) and very HG (VHG) complications were defined as Clavien-Dindo ≥2/≥3 within 90d. The estimated annual percent change (EAPC) assessed differences in the use of MMT and HG/VHG complications across the years. Multivariable logistic regression (MLR) assessed the predictors of HG/VHG complications.

RESULTS: Overall, 408 (71%) patients received MMT, and 275 experienced CR. The 10-year CR-FSR was 62%. The most common recurrence sites were bones (48%), and regional nodes (24%). The most common complications were fever (13%), lymphocele (5%), and lymphedema (6%). A total of 305 (53%), 341 (60%), and 333 (58%) had lymph node invasion, pT3b/4 stage, and ISUP 4-5 at final pathology, respectively. The proportion of STAMPEDE-like patients increased, and MMT use decreased during the years (EAPC: -2.1% and +1.6%, P<0.045). Similarly, the rates of men experiencing HG and VHG complications dropped from 27% and 17% in 2016 to 22% and 3% in 2024 (EAPC: -18% and -16%, P<0.03). Year of surgery was associated with a lower risk of HG (HR 0.80) and VHG complications (HR 0.56, P<0.03).

CONCLUSIONS: Despite the proportion of STAMPEDE-like patients increasing across the years, the use of MMT and the rates of complications after RP and ePLND were significantly reduced. Surgery can be safely considered as part of MMT, and clinical trial should include a surgical arm to clarify the benefit of RP in the management of very high-risk PCa.

SC263**Assessing the risk of false positive findings of PSMA-PET in nodal staging in patients treated with radical prostatectomy and extend pelvic lymph-node dissection**

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BACKGROUND: PSMA-PET represents the most accurate imaging technique for nodal primary staging in prostate cancer (PCa). With its use increasing in patients with favorable features in recent years, physicians should be aware of the risk of suspicious nodal lesions at molecular imaging (mI N1) that are not confirmed at final pathology. We aimed to assess how the risk of false positive findings at PSMA-PET varies according to lymph node invasion (LNI) risk.

METHODS: We relied on 148 miN1 patients undergoing radical prostatectomy (RP) with extended pelvic lymph node dissection (ePLND) at 8 referral centres between 2016 and 2025 with complete clinical and pathological data. A false positive was defined as suspicious pelvic nodal spots at PSMA-PET (miN1) without LNI at final pathology (pN0). Preoperative LNI risk was calculated according to the 2019 Briganti nomogram. Multivariable logistic regression (MLR) model tested the impact of LNI risk on PSMA-PET false positive rate adjusting for number of nodes removed and PSMA-PET nodal burden (1 vs. ≥ 2). An interaction test explored whether the impact of LNI risk on false positive findings varied according to PSMA-PET nodal burden (1 vs. ≥ 2). The relationship between LNI risk and false positive rates was explored using the multivariable Lowess function. The same analyses were repeated using a composite outcome of pN0 and PSA response (<0.1 at 6 weeks) after RP.

RESULTS: Overall, 54 (36%) vs. 94 (64%) harbored ISUP 1-3 and 4-5 PCa at biopsy. Overall, 54 (36%) patients had pN0 disease. Persistently elevated PSA was recorded in 8 (15%) pN0 and 27 (29%) pN1 patients ($P=0.05$). In MLR models, LNI risk (OR: 0.03, 95%CI:0.004-0.2, $P<0.001$) was significantly associated with a lower risk of false positive PSMA-PET. Lowess plot showed a non-linear correlation between LNI risk and false positive PSMA-PET, where a decrease of false positive rate was observed with increasing LNI risk, irrespectively of nodal burden at PSMA-PET ($P=0.2$). The risk of false positive findings exceeded 60% when the baseline risk of LNI was $<10\%$. Preoperative LNI risk confirmed its predictor status (OR: 0.01, 95%CI:0.002-0.05, $P<0.001$) for a composite endpoint of pN0 and PSA response.

CONCLUSIONS: Patients with a baseline risk of LNI $<10\%$ harbour false positive findings at PSMA-PET in more than 60% of the cases. This should guide physicians on the selection of candidates for advanced staging modalities to optimize resource utilization and healthcare-related expenditures.

SC264

The role of SUVmax ratio at 18f-PSMA-1007 PET for predicting high aggressive pathologic features and PSA persistence after radical prostatectomy in prostate cancer patients

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BACKGROUND: The PRIMARY score is an established PSMA PET scoring system originally developed for 68Ga-PSMA-11 PET in prostate cancer (PCa). Other radiopharmaceuticals such as 18F-PSMA-1007 have distinct biodistribution and standardized uptake value (SUV) metrics, which is affected by patient- and scan-related variability. Normalization using reference organs such as the submandibular glands may improve its reproducibility. We aimed to explore the role of the prostate-to-submandibular gland SUVmax ratio in predicting high grade disease, advanced stage, and PSA persistence after radical prostatectomy (RP).

METHODS: Overall, 210 patients with clinically significant

PCa (csPCa) staged with 18F-PSMA-1007 PET and treated with RP+extended pelvic lymph node dissection (ePLND) at a referral center between 2022 and 2025 were identified. The ratio of SUVmax values between the prostate and the submandibular gland was calculated. Multivariable logistic regression analysis (MVA) tested the association between the SUVmax ratio and ISUP GG 4-5 at RP, $\geq pT3$ stage, and PSA persistence (≥ 0.1 ng/mL at 6 weeks after RP) adjusting for PSA, biopsy ISUP and MRI stage. A systematic evaluation of different SUVmax ratio cut-offs was performed using the c-index. Sensitivity analyses predicted upgrading in patients with biopsy ISUP GG 2-3. Multivariable models were developed to predict upgrading, $\geq pT3$ stage, and PSA persistence based on MRI (biopsy ISUP+PSA+PIRADS+MRI stage) and after adding SUVmax ratio. Models' discrimination was assessed using the c-index.

RESULTS: Median age and PSA at RP was 63 years (58-68), and 6.9 ng/mL (4.9-11), median SUVmax ratio was 0.37 (0.24-0.73). Overall, 131 (62%) and 79 (38%) patients harbored ISUP GG 2-3 and 4-5 at RP, respectively. Overall, 130 (62%) patients harbored $\geq pT3$ stage at RP and 22% patients had PSA persistence. At MVA, the SUVmax ratio was significantly associated with ISUP GG 4-5 at RP (OR 1.85, 95%CI 1.10-3.40, $P=0.038$) and PSA persistence (OR 1.63, 95%CI 1.04-2.98, $P=0.043$). After a systematic assessment of SUVmax ratios, 0.32 resulted to be the best cut-off predicting ISUP GG 4-5 disease at RP (c-index: 62%). In patients with ISUP GG 2-3 at biopsy, the SUVmax ratio significantly predicted upgrading at RP (OR 2.16, 95%CI 1.07-4.37, $P=0.032$). The inclusion of the SUVmax ratio improved the discrimination of models predicting $\geq pT3$ stage (78% vs. 72%) and PSA persistence (69% vs. 64%).

CONCLUSIONS: The prostate-to-submandibular glands SUVmax ratio represents a promising biomarker that can improve the accuracy of 18F-PSMA-1007 PET for predicting aggressive features and PSA persistence. Normalization strategies using a stable reference organ can reduce variability and improve diagnostic reproducibility in PSMA PET imaging.

SC265

Prior TURP does not affect perioperative outcomes at radical prostatectomy: a pair-matched analysis of a single center series

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BACKGROUND: To assess the impact of prior transurethral resection of prostate (TURP) on perioperative outcomes in patients undergoing radical prostatectomy (RP).

METHODS: We retrospectively reviewed our cohort of RP patients, stratified by prior TURP. Propensity score matching (PSM, 1:5 ratio) and multivariable Poisson and logistic regression models addressed perioperative outcomes. Matching variables were age, baseline PSA, Charlson comorbidity index, prostate volume, ISUP grade, and cT stage. Regression covariates were age, BMI, baseline PSA, prostate volume, ISUP grade, and cT stage. Patients with prostates showing a large median lobe were excluded.

RESULTS: Of 1161 RP patients treated at our Institution from 2014 to 2026, 76 (6.5%) had prior TURP vs. 1085 (93.5%) without. TURP patients were older (median 69 [IQR 66-73] vs. 67 [62-71] years, $P=0.002$), had lower PSA (median

6.0 [4.0-10.0] vs. 8.0 [5.0-11.0] ng/mL, $P=0.01$), smaller prostates (median 35 [23-47] vs. 40 [28-52] mL, $P=0.02$), and higher ISUP 5 proportion (20.3% vs. 5.7%, $P=0.002$). After 1:5 PSM, 53 (77.9%) TURP and 265 (29.3%) non-TURP patients were compared, with no residual baseline differences. TURP patients had similar operative time (220 [180-270] vs. 210 [180-240] min, $P=0.2$) and blood loss (300 [200-500] vs. 300 [200-400] mL, $P=0.9$) than non-TURP patients, but higher intraoperative complication rate (3–4.4% vs. 2–0.8%, $P=0.03$). Specifically, two bladder injuries and one bleeding occurred in TURP patients vs. one bladder and one rectal injury in non-TURP. Postoperative complications (15.1% vs. 12.1%, $P=0.7$) and perianastomotic leakage (0.0% vs. 6.7%, $P=0.09$) were comparable. At 6 and 12 months, continence (0-1 pad) rates were 84.9 vs. 93.6% ($P=0.047$) and 86.8 vs. 94.3% ($P=0.07$) for TURP vs. non-TURP, respectively. No differences were observed in pathology (ISUP grade, pT stage, or positive margins) or detectable PSA after RP. At multivariable analysis, prior TURP independently predicted longer operative time (RR 1.07, 95%CI 1.05-1.10, $P<0.001$), higher blood loss (RR 1.05, 95%CI 1.03-1.06, $P<0.001$), and lower 6-month continence rate (OR 0.29, 95%CI 0.11-0.79, $P=0.01$), but not postoperative complications, positive margins, detectable PSA, or 12-month continence.

CONCLUSIONS: Although prior TURP is associated with worse intraoperative outcomes during RP, no clinically relevant postoperative differences were found between patients with and without prior TURP. TURP patients may experience slower continence recovery, but achieve similar 12-month continence rates. Therefore, a prior TURP should not play a negative role in decision making when RP is indicated.

SC266

Enhancing the accuracy of PSMA-PET-based nomograms for predicting lymph node invasion in prostate cancer: the added value of intraprostatic SUVmax

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BACKGROUND: Identification of prostate cancer (PCa) patients at risk of lymph node invasion (LNI) is crucial when planning extended pelvic lymph node dissection (ePLND) during radical prostatectomy (RP). The Briganti 2023 and Amsterdam Brisbane Sydney (ABS) nomograms, developed in PSMA-PET-staged cohorts, showed higher LNI accuracy than previous tools. However, they do not include PSMA-PET quantitative features. We evaluated whether adding 68-Ga PSMA-PET prostate SUVmax improves their accuracy for LNI.

METHODS: We identified 197 PCa patients staged with pre-operative 68Ga-PSMA-PET who received RP and ePLND at 5 referral centers (2021-2025), for whom a SUVmax value was recorded. The outcome was LNI at RP. LNI individual risk was calculated according to the Briganti 2023 (miN0 patients only) and ABS (miN0/miN1 patients) nomograms. Predictive performance of these nomograms was assessed using area under the curve (AUC), calibration plots, and decision curve analyses (DCA). Intraprostatic SUVmax was

incorporated in these nomograms using logistic regression. Original models were recalibrated for the comparison of performance with models including intraprostatic SUVmax. Predictive performance of recalibrated models was assessed using AUC, calibration plots and DCA.

RESULTS: Overall, 42 (21%) and 40 (20%) had miN1 and pN1 PCa, respectively. Median PSA at RP was 8 ng/mL, and 116 (56%) patients were ISUP 8-10 at biopsy. Median intraprostatic SUVmax values differed among patients with and without LNI (35 [IQR: 20-48] vs. 16 [9-27], $P<0.001$). AUCs of the Briganti 2023 and ABS nomograms were 85% (95%CI: 77-93%) and 78% (95%CI: 70-86%). The SUVmax was significantly associated with pN1 disease ($P<0.001$). Addition of SUVmax improved the discriminative ability of these calibrated Briganti 2023 and ABS nomograms, yielding an AUC of 89% (95% CI: 84-92%) and 83% (95%CI: 77-90%), respectively. In DCA, the addition of prostate SUVmax to the Briganti 2023 and ABS nomograms resulted in increased net benefit. Using a 5% cutoff, the novel model would have spared 55% ePLNDs vs. 50% with Briganti 2023 and 6% with ABS nomograms, missing only one (1.3%) LNI case.

CONCLUSIONS: The addition of prostate SUVmax to previously developed nomograms improved their predictive performance, which suggests that PSMA-PET is a likely future candidate for a modern predictive nomogram for LNI.

SC267

Pathologically node-positive prostate cancer after radical prostatectomy: anatomical distribution, predictors of nodal burden and early oncological outcomes

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BACKGROUND: Pathological lymph node involvement (pN+) after radical prostatectomy with extended pelvic lymph node dissection (ePLND) has prognostic significance, yet the topographic distribution of nodal metastases and determinants of metastatic burden remain incompletely characterized. We aimed to describe nodal metastasis distribution, predictors of positive node count and early oncological outcomes in a consecutive pN+ series.

METHODS: Retrospective single-institution analysis of consecutive pN+ patients undergoing robot-assisted radical prostatectomy (RARP) with bilateral PLND (2017-2025). Station-level mapping (obturator, external iliac, internal iliac, extrapelvic) was available in a sub cohort (N=25). Predictors of nodal burden were evaluated through multivariate Poisson regression. PSA persistence was defined as PSA >0.1 ng/mL at 6 weeks after RARP. Cancer-specific (CSS) and overall survival (OS) were estimated by Kaplan-Meier and compared by ISUP grade (log-rank test).

RESULTS: Of 1666 RARPs screened, 148 pN1 patients were included. Median age was 69 years (IQR 63-74), PSA 11.0 ng/mL (IQR 6.1-21.0). Biopsy ISUP grade group was concentrated in higher grades (ISUP 4: 38.0%; ISUP 5: 22.5%). PI-RADS 5 was recorded in 67.0%. On conventional imaging, 78% had no evidence of nodal metastasis; PSMA-PET/CT, available in 31.1% (46/148), detected nodal involvement in 73.9% (34/46). Median follow-up was 23.2 months (IQR 8.6-47.9). At final pathology, 97.3% harbored

ISUP ≥ 3 (33.8% ISUP 5); 62.8% had pT3b-pT4 disease; margins were positive in 39.2%. Median nodes removed were 21 (IQR 16-28.5), with a median of 2 positive (IQR 1-3). External iliac nodes were most frequently involved (68%), followed by obturator (63%), extrapelvic (17%) and internal iliac (11%). Internal iliac metastases occurred in isolation in 2 patients. On multivariate Poisson regression, independent predictors of higher positive node count were pT stage (pT3b vs. pT2: IRR 2.56, $P=0.006$), extensive positive margins (vs. R0: IRR 2.14, $P<0.001$), ISUP grade ($P=0.038$), total nodes removed (IRR 1.05/node, $P<0.001$) and ECE ($P=0.022$). PSA-persistence was detected in 73 (49%) patients. At available follow-up, 14 deaths (10.1%) and 9 cancer-specific deaths (6.5%) occurred, 2-year CSS and OS being 94.4% and 93.4%, respectively. Borderline trends toward worse OS ($P=0.058$) and CSS ($P=0.070$) were noted for ISUP 5.

CONCLUSIONS: Nodal metastases involved all ePLND stations, most frequently external iliac and obturator, including internal iliac and extrapelvic sites. PSMA-PET showed good sensitivity. Pathological stage, margin status, ISUP grade, ECE and nodes removed independently predicted nodal burden. Almost half of the patients had PSA persistence. Early oncological outcomes confirm that pN1 prostate cancer is an aggressive disease, having a significant associated mortality.

SC268

Predictive factors for functional outcomes after robot-assisted radical prostatectomy: a single-center retrospective analysis

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BACKGROUND: Robot-assisted radical prostatectomy (RARP) is the standard surgical treatment for localized prostate cancer, combining oncological radicality with minimally invasive advantages. Despite technical refinements, postoperative erectile dysfunction (ED) and urinary incontinence remain relevant complications. This study aimed to evaluate functional outcomes after RARP and identify preoperative and intraoperative predictors of postoperative recovery.

METHODS: A retrospective single-center analysis was conducted on patients who underwent RARP between 2018 and 2024. Data included age, BMI, IPSS, preoperative IIEF-5, surgical technique (nerve-sparing [NS], bladder neck-sparing [BNS]) and pathological margins. Functional outcomes were evaluated using the PAD test and IIEF-5 score at 1, 6, and 12 months. Multivariate logistic regression identified predictors of early continence and erectile recovery.

RESULTS: Early continence (≤ 1 month) was achieved in 54% of patients, increasing to 81% at 6 months and 91% at 12 months. Younger age ($P<0.001$), lower BMI ($P=0.012$), mild urinary symptoms (IPSS, $P=0.017$) and BNS technique ($P=0.046$) were independent predictors of early recovery. A strong correlation was observed between NS approach and 12-month continence ($P=0.002$), supporting the role of proprioceptive neurovascular preservation. Patients with severe preoperative LUTS (IPSS ≥ 20) showed delayed and incomplete recovery: 32% continent at 1 month and 68% at 12 months, compared with 63% and 94% in those with mild symptoms (IPSS ≤ 7). This confirms IPSS as a reliable predictor of postoperative continence trajectory. Regarding

erectile function, 68% of patients recovered or maintained potency at 12 months after bilateral NS, *versus* 31% without NS ($P<0.001$). Both preoperative IIEF-5 ($P<0.001$) and NS technique ($P<0.001$) independently predicted postoperative potency. Pre-existing ED tended to persist, emphasizing early evaluation. Positive margins were not associated with functional outcomes ($P=0.41$). Adjuvant radiotherapy, delivered within 6-8 months in selected high-risk patients, negatively influenced continence recovery if early functional improvement was not achieved, highlighting the need for prompt rehabilitation.

CONCLUSIONS: Preoperative assessment and tailored surgical planning are crucial to optimize functional outcomes after RARP. Nerve-sparing and bladder neck-sparing techniques significantly enhance continence and erectile recovery without compromising oncological safety. Simple standardized tools such as IPSS and IIEF-5 reliably predict postoperative function and should guide personalized perioperative management. A multidisciplinary, patient-centered approach integrating prehabilitation, refined surgical preservation and structured rehabilitation may further improve long-term quality of life after prostate cancer surgery.

SC269

Impact of radical prostatectomy on the development of major depressive disorder in prostate cancer patients: the role of premorbid personality traits and coping mechanisms

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BACKGROUND: Depression is detected in 7% to 9.2% of prostate cancer patients, negatively impacting both treatment adherence and disease progression (Sánchez Sánchez *et al.*, 2020). Given the heterogeneous clinical manifestations of depression, routine screening and detailed diagnosis should be considered fundamental components of good clinical practice (Sharpley *et al.*, 2020). This study investigates the impact of radical prostatectomy on the development of Major Depressive Disorder (MDD) by examining the specific role of premorbid personality traits and coping mechanisms.

METHODS: Seventy male patients with prostate adenocarcinoma were prospectively enrolled after obtaining informed consent. Participants were evaluated at baseline (T0) and three months post-radical prostatectomy (T1) using the Kissane Demoralization Scale (KDS), the Zung Self-Rating Depression Scale (SDS), and the PHQ-9. At T0, the Kasahara Scale, the COPE inventory, and the DSQ-40 were administered to assess melancholic traits, coping strategies, and defense mechanisms, respectively. Descriptive and inferential statistical analyses, including linear regression, were performed to identify predictors of psychological outcomes.

RESULTS: The mean age was 66.38 years (SD: 6.08). At T0, 7.1% of subjects presented with demoralization syndrome, while the Zung scale revealed low-severity depressive symptoms in 50% and moderate-severity in 7.1%. Paired samples *t*-tests showed a significant decrease at T1 in both SDS ($P<0.001$) and KDS ($P<0.001$) scores. An inverse correlation was found between Kasahara scores and KDS at T1 ($\rho=-.250$; $P=0.043$), specifically within the 'sense of failure' dimension ($\rho=-.301$; $P=0.014$). Immature defense scores (DSQ-40) cor-

related directly with KDS at T1 ($p=.411$; $P<0.001$) and all its subdomains. Linear regression identified immature defenses as a significant predictor of T1 demoralization (Beta=0.376; $P=0.004$; $R^2=0.138$).

CONCLUSIONS: While depressive symptoms and demoralization may decrease following surgery, specific psychological profiles remain vulnerable to post-operative distress. Immature defense mechanisms were identified as robust predictors of post-surgical demoralization. Notably, no direct causal link was found between radical prostatectomy and MDD onset, suggesting that pre-existing personality substrates and coping strategies are the primary drivers of psychological complications. Preoperative screening is essential for implementing targeted supportive care.

SC270

Exploring factors associated with pelvic nodal dissection-related complications during robot-assisted radical prostatectomy over a 6763 cohort

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BACKGROUND: Pelvic lymph node dissection (PLND) performed during robot-assisted radical prostatectomy (RARP) remains a controversial procedure. While it is widely considered the most accurate method for nodal staging, its therapeutic benefit is still debated, with current evidence suggesting a primarily staging role rather than a clear impact on oncological outcomes. Moreover, PLND represents the step of RARP most associated with perioperative morbidity, including complications such as lymphocele formation and thromboembolic events, namely deep vein thrombosis and pulmonary embolism. In this context, identifying patients at higher risk of PLND-related complications may help refine patient selection and optimize the indication for a safer and more tailored surgical approach. The aim of the present study is to identify risk factors associated with PLND-related complications in a large cohort of patients treated at a high-volume referral center.

METHODS: This is a retrospective analysis conducted at a high-volume referral center including >18,000 patients who underwent robot-assisted radical prostatectomy (RARP). Among these, patients who received a concomitant PLND and included. The primary endpoint was to evaluate risk factors related to PLND complications, including thromboembolic events (deep vein thrombosis and/or pulmonary embolism) and symptomatic lymphoceles. A total of 80 variables were evaluated; these included: Demographics (age, BMI, race); lifestyle factors (smoking, alcohol, drug use); comorbidities (CCI, CAD, HTN, DVT, etc.); prior surgical history (multiple categories); oncologic variables (PSA, stage, ISUP, MRI findings, etc.). Statistical analysis was performed to identify predictors of complications. Univariable analyses were initially conducted to assess the association between each variable and the outcomes of interest. Variables showing significant associations were subsequently included in a multivariable logistic regression model to identify independent risk factors for PLND-related complications.

RESULTS: Overall, 6763 patients undergoing PLND were analyzed, of whom 1196 (17.7%) experienced complications, including thromboembolic events (DVT/pulmonary embolism) and/or lymphocele. Patients experiencing PLND-related complications were older, with higher BMI, more advanced disease, and greater comorbidity burden (all $P<0.001$). Prior DVT, higher cancer stage, hypertension, CAD, and alcohol use were also more frequent among complicated cases. At multivariable analysis, BMI (OR 1.05, 95% CI 1.03-1.07; $P<0.001$), prior DVT (OR 2.30, 95% CI 1.60-3.30; $P<0.001$), and advanced stage (Stage IIc: OR 1.47, 95% CI 1.26-1.71; $P<0.001$; Stage III-IV: OR 1.64, 95% CI 1.34-2.02; $P<0.001$) were independent predictors. History of leukemia (OR 3.54, 95% CI 1.77-7.09; $P<0.001$) and alcohol abuse (OR 1.27, 95% CI 1.08-1.48; $P=0.003$) increased risk, whereas cT2 stage (OR 0.73, 95% CI 0.63-0.85; $P<0.001$) was protective.

CONCLUSIONS: In this large cohort, several patient- and disease-related factors were associated with PLND-related complications, indicating that risk is distributed across multiple factors, supporting a more comprehensive multifactorial risk assessment. Further development and validation of multivariable predictive models are warranted to better inform patient selection and clinical decision-making.

SC271

Risk of pathological upgrading in biopsy Grade Group 1 prostate cancer: associations with MRI features, tumor burden and therapeutic timing

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BACKGROUND: International Society of Urological Pathology (ISUP) Grade Group 1 (GG1) prostate cancer (PCa) is widely regarded as biologically indolent, and active surveillance (AS) is recommended for appropriately selected patients. Nevertheless, pathological upgrading remains common even in the magnetic resonance imaging (MRI) era, underscoring persistent limitations of biopsy-based risk stratification. Identifying which clinically available preoperative factors are associated with upgrading is essential to refine AS selection criteria and reduce misclassification.

METHODS: We retrospectively analysed a contemporary cohort of 922 men with biopsy GG1 PCa who underwent radical prostatectomy (RP) at a tertiary center between September 2017 and September 2025. Preoperative clinical, biopsy, MRI, and diagnostic-timing variables were collected. The primary outcome was pathological upgrading to $\geq$ GG2 at RP. Associations were assessed using univariable and multivariable logistic regression. Variable selection was informed by a random-forest permutation importance analysis. Effect modification was examined by modeling an interaction between PIRADS category and the biopsy-to-surgery interval.

RESULTS: Pathological upgrading occurred in 623 patients (68%). In multivariable analysis, log-PSA density (OR 4.83, 95% CI 2.77-8.44), log-percent positive cores (OR 3.47, 95% CI 2.20-5.49), and higher PIRADS categories (OR 2.24-2.46 for PIRADS ≥ 4 , all $P\leq 0.001$) were independently associated with upgrading. Prostate volume showed an inverse association (OR 0.12, $P<0.001$). The baseline multivariable model demonstrated moderate discrimination (AUC 0.71). In an extended model, a significant interaction between PIRADS category and biopsy-to-surgery interval was identified ($P=0.039$). While diagnostic timing was not associated

with upgrading in PIRADS 3 lesions, longer intervals were associated with higher odds of upgrading in PIRADS 4-5 disease (interaction OR 2.96, 95% CI 1.27-6.90). This model achieved the highest discrimination (AUC 0.73). Univariable predictors showed limited discriminative ability individually, supporting the need for integrated multivariable approaches.

CONCLUSIONS: Upgrading is common in biopsy ISUP GG1 prostate cancer and reflects substantial biological heterogeneity. Alongside established clinical and MRI markers, diagnostic timing emerged as a risk modifier exclusively in men with PIRADS 4-5 lesions. These findings should be interpreted in the context of a surgical cohort and require validation in patients managed with active surveillance.

SC272

Intraoperative frozen section during robot-assisted radical prostatectomy (RARP): impact on margin conversion, final surgical margins, and early biochemical recurrence

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BACKGROUND: Intraoperative frozen section (IFS) during robot-assisted radical prostatectomy (RARP) is used as a real-time tool to optimize the balance between oncological control and nerve preservation. However, its clinical value is difficult to define using conventional diagnostic accuracy metrics, as intraoperative secondary resection may modify final pathological outcomes.

METHODS: We retrospectively analyzed consecutive patients undergoing RARP with systematic IFS at a high-volume tertiary referral centre. Patients were stratified according to IFS results and the impact of secondary resection on final surgical margins. The primary outcome was margin conversion, defined as a negative final surgical margin following a positive IFS and secondary resection. Secondary outcomes included final positive surgical margin (PSM) rate and early biochemical recurrence (BCR). Multivariable logistic regression analysis was performed to identify predictors of early BCR.

RESULTS: Overall, 869 patients were included. IFS was positive in 220 patients (25.3%), all of whom underwent secondary resection. Margin conversion to a negative final surgical margin (R0) was achieved in 141/220 cases (64.1%). The overall rate of PSM was 19.3% (168 patients). Among 649 patients with negative IFS, 560 (86.3%) had negative final margins, while 89 (13.7%) exhibited PSM at final pathology. Median follow-up was 12 months (IQR 4-26); early BCR occurred in 27 patients. The rate of early BCR was comparable between patients achieving margin conversion and those with primary negative margins (4.3% vs. 3.1%, $P=0.6$), while significantly higher in patients with persistent positive margins (10.2%, $P=0.042$). On multivariable analysis, persistent PSM (OR 1.67, 95% CI 1.05-2.65, $P=0.039$) was independently associated with BCR.

CONCLUSIONS: In a setting of systematic IFS during RARP, intraoperative identification of margin involvement allows effective surgical correction in a substantial proportion of patients. Achieving margin conversion is associated

with oncological outcomes comparable to primary negative margins, highlighting the role of IFS as a real-time decision-making tool rather than a purely diagnostic test.

SC273

Introduction of posterior reconstruction technique during robotic assisted radical prostatectomy at a tertiary center: results on the self-perception of anastomotic quality and ease of execution

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BACKGROUND: The posterior reconstruction (PR) during robot-assisted laparoscopic prostatectomy (RALP) – as originally described by Rocco F and coworkers – has been introduced in 2006 aiming to restore anatomical disruption occurring after radical prostatectomy and to improve continence recovery. The original open technique has been adapted to laparoscopy and to robotics thereafter. The approximation achieved after PR may also reduce the anastomotic tension – while tying the suture – and thus enhance the anatomical alignment. The Rocco's stitch was introduced by October 2024 at a tertiary robotic center who was previously unfamiliar to the technique; therefore, a comparative study to assess the impact of PR on the self-perceived quality and easiness of VUA of robotic surgeons was performed.

METHODS: This is a retrospective, single-center comparative study performed at Fondazione Policlinico Gemelli IRCCS, Rome, Italy. The Rocco Stitch was introduced in October 2024 using the standardized two-layer technique. Cases before and after the introduction of PR were retrieved from a prospectively maintained database (Protocol ID 7314) and 271 patients undergoing RALP between November 2023 and February 2025 were evaluated. Post-operative cystogram was performed when deemed necessary (7-9 PO day), based on the surgeon's ease of anastomosis execution and final perceived quality. The primary outcome of the study is the rate of cystogram use; the overall rate of urinary leakage and the need for additional imaging due to suspect urine extravasation are secondary endpoint. Multivariable logistic regression was performed to identify independent predictors of leakage.

RESULTS: Overall, 87 patients received PR, 184 did not; PR group had significantly lower cystogram use (34.5% vs. 52.7%, $P=0.005$). Considering the whole cohort (w/out cystogram), 67 out of 181 (37%) patients before PR introduction had a urinary leakage whereas 2 out of 87 (2.2%) patients who underwent PR had extravasation. No emergency cystograms was required in either group. PR was independently associated with lower leakage risk (OR 0.18; 95% CI 0.04-0.80; $P=0.024$) among other factors as age, BMI, CCI, prostate volume. Catheter removal occurred in 17 (SD 13) PO day compared with 8 (SD 5) PO day before and after PR introduction, respectively. Limitations are the retrospective design, single-center setting, non-randomized allocation, relatively small sample size.

CONCLUSIONS: In our experience, the introduction of PR led to an improved surgeon's confidence toward vesicourethral anastomosis; when assessed through cystogram, PR significantly decreases the rate of urinary extravasation. Incorporating PR into standard RALP protocols may enhance

perioperative outcomes and reduce the need for postoperative imaging. Further prospective, multi-center studies are warranted to confirm reproducibility.

SC274

Prevalence and predictors of anastomotic leakage after robot-assisted radical prostatectomy using systematic cystography: a single-center experience

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BACKGROUND: Despite the well-documented advantages of robot-assisted radical prostatectomy (RARP) in reducing perioperative complications, vesicourethral anastomotic (VUA) leakage remains a relevant concern. Its true prevalence is likely underestimated, as most series rely on selective cystographic protocols or clinical detection alone. Moreover, data on patient- and procedure-related predictors of leakage remain scarce. This study evaluated the prevalence of VUA leakage using systematic postoperative cystography, identified independent predictors of leakage, and characterized a subgroup of patients with leakage detected at low bladder filling volumes.

METHODS: We retrospectively analyzed 475 consecutive patients who underwent RARP for clinically localized prostate cancer at a single tertiary center (January 2017-September 2025). All procedures were performed using a standardized transperitoneal technique. Routine retrograde cystography was performed on postoperative day 6, with initial contrast instillation at 50 mL and continued filling to 100 mL

if no extravasation was evident. Leakage detected at a filling volume <50 mL was classified as low-volume leakage. Multivariable logistic regression was used to identify independent predictors of VUA leakage. Patients with confirmed leakage were further stratified by bladder filling volume at detection (<50 mL vs. ≥50 mL).

RESULTS: Median age, BMI and CCI were 68.6 years (IQR 63.7-72.6), 25.7 kg/m² (IQR 23.9-28.1), and 0 (IQR 0-1). Baseline PSA was 7.3 ng/mL (IQR 5.2-10.0), and median - prostate volume was 44.0 g (IQR 32.0-60.0). The median duration of hospitalization and urethral catheterization were 3 (IQR 3-4) and 7 days (IQR 6-10), respectively. Anastomotic leakage was detected in 22.3% of patients (N.=106), at a median bladder filling volume of 50 mL (IQR 40-100). On multivariable analysis, prostate volume (OR 1.012 per gram; P=0.005), bladder neck reconstruction (BNR) (OR 1.714; P=0.041), and pathological stage pT3 (OR 2.024; P=0.007) were independent predictors of leakage. A positive intraoperative flush test was significantly less frequent among patients who developed leakage (1.9% vs. 11.7%; P=0.003), suggesting a protective effect of immediate anastomotic revision. Among the 106 patients with leakage, those detected at low volumes (<50 mL; 26.4%) required more repeat cystograms (median 2.0 vs. 1.0; P=0.007) and longer catheterization time (median 28.5 vs. 18.0 days; P<0.001) compared to those detected at higher volumes.

CONCLUSIONS: Systematic cystographic assessment reveals a higher prevalence of anastomotic leakage than commonly reported with selective protocols. Prostate volume, BNR, and locally advanced pathology are independent predictors of leakage. Leakage detected at low bladder filling volumes identifies patients requiring prolonged catheterization, supporting a risk-stratified approach to postoperative catheter management after RARP and a more individualized use of postoperative cystography.

SMART COMMUNICATION (SC275 - SC284)

Tumore vescicale e chirurgia

SC275

Extended *versus* standard lymphadenectomy in muscle-invasive bladder cancer: real-world data confirming trial-based evidence and the prognostic role of pathological staging

SC276

Robot-assisted *vs.* open radical cystectomy outcomes in elderly bladder cancer patients

SC277

10-Year outcomes of senior clinical fellowship in robot-assisted radical cystectomy (RARC) with focus on intracorporeal ileal conduit urinary diversion: aggregated learning curve assessment and achievement of the EAU-robotic urology section (ERUS) RARC curriculum

SC278

Evaluation of the impact of previous experience in robotic surgery on perioperative outcomes of patients undergoing robot-assisted radical cystectomy for bladder cancer: a learning curve study using the Pasadena Consensus Panel

SC279

Application of the QoR-15 questionnaire to evaluate postoperative recovery after open radical cystectomy: impact of epidural analgesia

SC280

Evaluating the surrogacy of intermediate clinical endpoints for overall survival in patients who received radical cystectomy with or without neoadjuvant chemotherapy for localized muscle invasive bladder cancer: a real-world cohort study

SC281

Adjuvant immunotherapy bladder score (AIOB): a new score to identify the ideal candidate for adjuvant (adj) immunotherapy (IO) in patients (pts) undergoing radical cystectomy (RC) for muscle invasive bladder cancer (MIBC)

SC282

Risk of lymph-node invasion after radical cystectomy according to histological subtypes: results from a large multi-institutional cohort

SC283

Development of a transcriptome-based model for predicting adverse pathology at radical cystectomy

SC284

Development and validation of a novel risk stratification tool to de-intensify surveillance after radical cystectomy: reshaping follow-up strategies

SC275**Extended versus standard lymphadenectomy in muscle-invasive bladder cancer: real-world data confirming trial-based evidence and the prognostic role of pathological staging**

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BACKGROUND: Clinical trials have shown similar survival outcomes between standard and extended lymphadenectomy during radical cystectomy for muscle-invasive bladder cancer. Yet, real-world validation of these findings in large multi-institutional cohorts is lacking. Moreover, limited evidence exists on whether the survival impact of lymphadenectomy extent differs according to pathological nodal status.

METHODS: We conducted a retrospective, multi-institutional analysis among patients with cT2-T4aN0-2M0 MIBC treated with RC and bilateral pelvic lymph node dissection (PLND) between 2013 and 2023. Patients received either a Standard PLND (limited to the common iliac bifurcation) or an Extended PLND (extending to the aortic bifurcation). The estimated annual percentage change (EAPC) was used to analyze the temporal trend of Extended versus Standard PLND over time. Inverse probability of treatment weighting (IPTW) and multivariable Cox regression (MCR) were used to adjust for confounding. Interaction analyses were conducted by clinical and pathological nodal status.

RESULTS: Median follow-up was 44 months. Among 2,464 patients, 1,303 (53%) were treated with Extended PLND versus 1,161 (47%) Standard patients. EAPC showed no statistically significant differences between the two templates over time ($P=0.5$). Positive nodal status (pN+) was observed in 352 patients (27%) in the extended group and 306 (26%) in the standard group. IPTW-adjusted 5-year OS rates were 70.0% in the Extended versus 63.4% in the Standard group. IPTW-adjusted MCR showed no statistically significant OS benefit with Extended PLND compared to Standard PLND (HR 0.88, $P=0.2$). Interaction analyses revealed no significant differential effect of surgical template across cN or pN subgroups ($P=0.5$ and $P=0.1$, respectively).

CONCLUSIONS: In this large real-world cohort, extended PLND was not associated with improved OS compared with standard PLND, regardless of clinical or pathological nodal status. Despite this evidence, standard PLND has not yet been systematically adopted in real-life practice. These findings support the broader implementation of standard PLND as an adequate surgical template and highlight the need for prospective studies to identify subgroups that might benefit from a more extensive dissection.

SC276**Robot-assisted vs. open radical cystectomy outcomes in elderly bladder cancer patients**

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BACKGROUND: Radical cystectomy (RC) is the standard treatment for muscle-invasive and high-risk non-muscle-

invasive bladder cancer. The increasing number of elderly patients requiring surgery raises concerns regarding perioperative morbidity. This study aimed to assess the feasibility and perioperative outcomes of RC in elderly patients (≥ 70 years) compared to younger patients, and to evaluate the impact of robot-assisted RC (RARC) in this population.

METHODS: We retrospectively analyzed a prospectively maintained database of patients undergoing RC between January 2017 and January 2026. Patients were stratified into young (< 70 years) and elderly (≥ 70 years). Demographic, clinical, and perioperative variables were collected. Primary outcomes included operative time, estimated blood loss (EBL), postoperative complications (overall and major, Clavien-Dindo ≥ 3), blood transfusion, length of stay (LOS), and 30-day readmission. Multivariable logistic regression was performed to identify predictors of complications and transfusion. Progression-free survival (PFS) and overall survival (OS) were assessed using Kaplan-Meier analysis.

RESULTS: A total of 423 patients were included (202 young, 221 elderly). Elderly patients had higher rates of overall complications (23% vs. 17%, $P=0.003$) and transfusion (22% vs. 12%, $P=0.008$), while rates of major complications ($P=0.8$), perioperative mortality ($P=0.09$), and 30-day readmission ($P=0.1$) were comparable between groups. Among elderly patients, RARC was associated with lower EBL (100 vs. 150 mL, $P<0.001$), reduced overall (21% vs. 48%, $P<0.001$) and major (6.5% vs. 18%, $P=0.009$) complications, fewer infectious (3.2% vs. 10%, $P=0.011$) and respiratory (0.6% vs. 7.5%, $P=0.011$) complications, lower transfusion rates (9% vs. 34%, $P<0.001$), and shorter LOS (9 vs. 11 days, $P=0.016$) compared to open RC (ORC). On multivariable analysis, RARC was independently associated with reduced overall (OR 0.32, $P<0.001$), major (OR 0.38, $P=0.047$), and infectious complications (OR 0.26, $P=0.028$), as well as lower transfusion rates (OR 0.32, $P=0.001$). Additionally, RARC was associated with a shorter hospital stay compared to ORC ($\beta = -3.2$ days, $P=0.002$). PFS ($P=0.17$) and OS ($P=0.48$) were similar between RARC and ORC in elderly patients.

CONCLUSIONS: RC is feasible and safe in elderly patients, with major complication rates comparable to younger individuals. RARC is associated with improved perioperative outcomes, including reduced complications and shorter hospital stay, without compromising oncological outcomes. Age alone should not preclude surgical treatment, and a robotic approach may be preferred in selected elderly patients.

SC277**10-Year outcomes of senior clinical fellowship in robot-assisted radical cystectomy (RARC) with focus on intracorporeal ileal conduit urinary diversion: aggregated learning curve assessment and achievement of the EAU-robotic urology section (ERUS) RARC curriculum**

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BACKGROUND: (I) To examine 10-year outcomes of Robot-assisted Radical Cystectomy (RARC) with Intracorporeal Ileal Conduit (ICIC) performed by internation-

al clinical fellows within 1-year RCS-Eng Urothelial Senior Fellowship Programme. (II) To explore fellow's Learning-curve (LC) trajectories and perceived EAU-ERUS RARC/ICIC curriculum competency achievement.

METHODS: RARC/ICIC with curative intent for Bladder Cancer performed by supervised fellows (2015-2025) were reviewed. Perioperative outcomes and Kaplan-Meier survival trajectories served as surrogates of training competency and safety. Cumulative sum (CUSUM) model by operative time (OT) was applied for RARC/ICIC LC. Time to perceived proficiency across the 12 ERUS RARC/ICIC clinical modules was explored.

RESULTS: 423 procedures (median follow-up 39 mo, IQR 16-70) were included. Proficiency by CUSUM was identified at 30th case, with significant reduction in total OT thereafter (350 vs. 300 min, $P=0.01$). Outcomes within learning and proficiency phases were comparable, including postoperative complications (36.6% vs. 46.0%, $P=0.07$), re-admissions (17.3% vs. 19.3%, $P=0.63$), and cancer-specific survival ($P=0.97$). ERUS curriculum acquisition was progressive: early modules in 0-1 months by 88.9% of fellows and advanced modules in 4-6 months by 100%. Skin-to-skin RARC/ICIC was achieved within ≤ 3 , 4-6 and >6 months in 22.2%, 33.3% and 44.4% of fellows, respectively. Previous robotic exposure was the only predictor for shorter time to independence (OR 2.34, 95%CI 1.17-13.29). Post-fellowship, 88.9% of fellows continued independent RARC/ICIC practice.

CONCLUSIONS: Structured Senior Robotic Fellowship training achieves safe and efficient acquisition of RARC/ICIC skills. The observed LC corroborates the educational value of the ERUS modular curriculum in the setting of a tertiary referral center.

SC278

Evaluation of the impact of previous experience in robotic surgery on perioperative outcomes of patients undergoing robot-assisted radical cystectomy for bladder cancer: a learning curve study using the Pasadena Consensus Panel

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BACKGROUND: Radical cystectomy remains the gold standard for the treatment of muscle-invasive bladder cancer. In recent years, the robotic-assisted approach has gained increasing prominence due to its minimally invasive nature, while maintaining functional and oncologic outcomes comparable to the open technique. The aim of this study is to evaluate the impact of prior robotic surgical experience (RARP, RAPN, pyeloplasty) on the peri-operative outcomes of robotic-assisted radical cystectomy (RARC) and to assess the time required to meet the performance criteria established by the Pasadena Consensus Panel.

METHODS: The peri-operative data of 97 patients who underwent RARC at the U.O. of Urology of IRCSS S. Orsola-Malpighi from January 2018 to December 2023 were retrospectively analysed. All procedures were performed by two experienced robotic surgeons (E.B. and R.S.). Multivariate logistic regression models were used to assess the impact of surgical experience on various peri-operative parameters, and

the LOWESS function was employed to graph and analyse the relationship between experience and outcomes.

RESULTS: Among the 97 patients analysed (79% men and 21% women), 49% had a preoperative diagnosis of non-muscle-invasive bladder cancer (NMIBC), including 37% with pT1, 11% with carcinoma in situ (CIS), and 1% with pTa disease. Muscle-invasive bladder cancer (MIBC) was diagnosed preoperatively in 50% of patients (47% pT2 and 3% pT3), while one patient (1%) presented with locally advanced prostate cancer. Neoadjuvant chemotherapy was administered to 27.8% of patients. Regarding urinary diversion, orthotopic neobladder reconstruction was performed in 38% of patients (8% according to the Bordeaux technique and 30% according to the Studer technique), an ileal conduit according to Bricker in 61%, and bilateral ureterocutaneostomy in 1%. Nerve-sparing cystectomy was performed in 37.7% of cases (31.2% bilateral and 6.5% unilateral). The mean operative time was 361 ± 84 minutes, and the mean length of hospital stay was 10 ± 3 days. Pathological examination of the surgical specimens revealed pT <2 disease in 58.8% of cases, pT2 in 16.5%, pT3 in 17.5%, and pT4 in 6.2%. Pathological lymph node status was pN0 in 82.5% and pN ≥ 1 in 17.5% of patients, with a mean of 21 ± 10 lymph nodes removed. Positive surgical margins were observed in 3.2% of cases. Reoperation was required in 15% of patients, and early postoperative complications of Clavien-Dindo grade ≥ 3 occurred in 7.2% of cases. Overall, the reintervention rate and incidence of major complications decreased as surgeon experience increased, with a plateau observed after 50 cases. Regarding the Pasadena Consensus Panel performance criteria, blood loss ≤ 300 mL, extensive lymphadenectomy and a neovescical rate of 25-50% were achieved from the first case. Criteria related to major postoperative complications, operative time and length of stay improved progressively with increasing surgical experience. A statistically significant association ($P \leq 0.001$) was found between the probability of meeting all criteria and surgeon experience, reaching 60% after 97 cases, while a plateau was reached after approximately 40 procedures.

CONCLUSIONS: Robotic surgical experience significantly impacts the achievement of Pasadena Consensus Panel criteria and the optimization of peri-operative outcomes of RARC, that still remains a complex surgical procedure with a steep learning curve.

SC279

Application of the QoR-15 questionnaire to evaluate postoperative recovery after open radical cystectomy: impact of epidural analgesia

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BACKGROUND: The Quality of Recovery-15 (QoR-15) questionnaire is a validated tool for assessing postoperative recovery across various surgical procedures. However, its specific application in patients undergoing radical cystectomy remains poorly investigated. According to ERAS (Enhanced Recovery After Surgery) guidelines, thoracic epidural analgesia is strongly recommended for postoperative pain management following major surgery. This study aimed to evaluate differences in postoperative recovery between patients

undergoing open radical cystectomy who received epidural analgesia and those who did not. Additionally, differences in recovery were analyzed according to the urinary diversion performed – ureterocutaneostomy (UCS) *versus* ileoureterocutaneostomy (UICS).

METHODS: We retrospectively analyzed 20 consecutive patients (16 males, 4 females; median age 78 years, IQR 75.00-80.25) who underwent open radical cystectomy at our Urology Department, between 2022 and 2023. UCS was performed in 7 cases, and UICS in 13. In 13 patients, an epidural catheter was placed before surgery for continuous analgesia with L-Bupivacaine (250 mg/200 mL) and sufentanil (50 µg) at a mean infusion rate of 3-4 mL/h. The QoR-15 questionnaire was administered 48 hours postoperatively to all participants.

RESULTS: The overall median QoR-15 score was 130.00 (IQR 116.00-136.75). Patients with UCS had a median QoR-15 of 130.00 (IQR 109.50-131.50), while those with UICS showed 130.00 (IQR 122.00-139.00). Patients receiving epidural analgesia achieved a median score of 130.00 (IQR 116.00-133.00), whereas those without epidural analgesia had 126.00 (IQR 116.00-136.75); one outlier value (QoR-15 = 154) was observed in the non-epidural subgroup. Recovery outcomes were comparable across subgroups, but patients receiving epidural analgesia showed slightly higher QoR-15 scores, consistent with current ERAS recommendations emphasizing multimodal pain management. Differences between urinary diversion types may reflect underlying patient fitness, with UICS patients generally presenting better preoperative status. The outlier in the non-epidural group suggests that individual variability in pain perception or resilience may influence recovery, underscoring the need for personalized analgesic strategies. Despite the limited sample size and single-center design, the findings highlight the clinical value of epidural analgesia in enhancing postoperative recovery quality.

CONCLUSIONS: The QoR-15 questionnaire proved effective for assessing recovery after open radical cystectomy. Epidural analgesia was associated with improved recovery quality, reinforcing its role within ERAS-based perioperative care. Future multicenter studies with larger cohorts are warranted to validate these findings and explore individualized recovery pathways in cystectomy patients.

SC280

Evaluating the surrogacy of intermediate clinical endpoints for overall survival in patients who received radical cystectomy with or without neoadjuvant chemotherapy for localized muscle invasive bladder cancer: a real-world cohort study

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BACKGROUND: Although the use of intermediate clinical endpoints (ICEs) could help to expedite the completion of randomized controlled trials (RCTs) testing perioperative systemic treatments for localized muscle-invasive bladder cancer (MIBC), no surrogate has been formally identified for overall survival (OS) to date. Thus, our aim was to test the surrogacy of pathological complete (pCR) or objective (pOR) response and disease-free survival (DFS) in this setting.

METHODS: This was an observational cohort study including 4828 MIBC patients who received RC with or without neoadjuvant chemotherapy (NAC) for cT2-T4N0M0 disease between 2001 and 2024 at 29 tertiary referral European centers. The inverse probability of treatment weighting (IPTW) approach was used to adjust for confounding between patients treated with or without NAC. For surrogacy assessment of pCR, pOR and DFS, we relied on 1) the adapted Prentice criteria to ultimately test whether each candidate ICE remained a significant predictor of OS while the treatment effect did not in IPTW-adjusted multivariable Cox regression models; 2) the proportion of treatment explained (PTE); and 3) the emulated two-stage meta-analytic approach to ultimately compute the pseudo-trial level R² for the correlation between the IPTW-adjusted treatment effect on each candidate ICE and OS by using the median across 1000 replicates of five randomly partitioned clusters. The surrogate threshold effect (STE) was further assessed only for candidate ICEs showing a strong surrogacy for OS defined as an R²≥0.7.

RESULTS: Overall, 1288 (26.7%) and 3540 (73.3%) patients received NAC followed by RC or RC alone, respectively. In IPTW-adjusted multivariable Cox regression analyses including separately each ICE along with the use of NAC, pCR (HR=0.32; 95% CI=[0.24-0.41]; P<0.001), pOR (HR=0.26; 95% CI=[0.21-0.31]; P<0.001) and DFS (HR=5.17; 95%CI= [4.56-5.86]; P<0.001) were the only independent predictors of OS. The PTE was 0.42 (95% CI=[0.22-0.54]), 0.48 (95% CI=[0.24-0.58]) and 0.84 (95% CI=[0.66-0.96]) for pCR, pOR and DFS, respectively. At the pseudo-trial level, the R² was 0.22 (95%CI=[0.16-0.32]), 0.33 (95%CI=[0.25-0.44]) and 0.83 (95%CI=[0.78-0.87]) for the correlation between the treatment effect on pCR, pOR or DFS and OS, respectively. The STE was 0.74 (95%CI=0.61-0.85) for DFS.

CONCLUSIONS: We report uncertainty with regards to the surrogacy of pCR and pOR in patients who received RC with or without NAC for localized MIBC. Only DFS was consistently able to fully mediate the treatment effect on OS, supporting its use as a surrogate for RCT dimensioning when a recurrence/death-risk reduction greater than 26% can be hypothesized.

SC281

Adjuvant immunotherapy bladder score (AIOB): a new score to identify the ideal candidate for adjuvant (adj) immunotherapy (IO) in patients (pts) undergoing radical cystectomy (RC) for muscle invasive bladder cancer (MIBC)

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BACKGROUND: The standard treatment for pts with urothelial MIBC and MIBC with variant histologies is RC with pelvic lymph node dissection preceded by neoadj chemotherapy. Relapse rate after surgery for urothelial cancer are high. Recently, the Checkmate 274 (CM 274) trial showed a DFS advantage of adj nivolumab (anti PD-1) over placebo in MIBC pts at high risk (HR) of recurrence after RC. While the IM vigor 010 trial showed that atezolizumab don't improve DFS in the atezolizumab group over placebo. It is therefore appropriate to select pts at HR of recurrence who may benefit from adj treatment. We investigated the prognostic role of several factors in a cohort of pts with HR-MIBC who met the inclusion criteria of the CM 274 study in order to identify the ideal candidate for adj IO.

METHODS: The medical records of 314 pts with MIBC who underwent RC at our hospital between Jan 2017 and Nov 2024 were retrospectively reviewed and those at HR of recurrence as per CM214 criteria (pT3, pT4a, or pN+; and ypT2-T4a or ypN+) were included. We examined the relationship between sex, baseline smoke, BMI<25, neoadj CT, Hb<12g/dL, albumin<34 g/L, eGFR<50 mL/min, neutrophil to lymphocyte ratio (NLR), systemic immune-inflammation index (SII, defined as neutrophil counts×platelet counts/lymphocyte counts), and stage with pts outcomes. Cox model was used to assess the correlation between different prognostic factors and outcomes; DFS and OS were estimated by Kaplan-Meier method.

RESULTS: 134 pts met the inclusion criteria for the study. Four factors (BMI, Hb, SII>median, and stage) significantly correlated with DFS and OS, both at univariate and multivariate analysis ($P<0.05$). The Adjuvant-IO-Bladder score (AIOB) was created by scoring from 0 to 4, based on these factors. Three risk categories were identified: low-risk (L) 0-1 factor (48 pts; 35.8%); intermediate-risk (I) 2 factors (33 pts; 28.4%); high-risk (H) 3-4 factors (48 pts; 35.8%). Significant DFS and OS differences were observed between the three AIOB risk groups. AIOB risk groups mDFS P value mOS P value L NR -78.6 m -I 26.1 mL vs. IP=0.007 31.0 mL vs. IP<0.001 H 7.9 m I vs. HP=0.002 12.4 m I vs. HP<0.001.

CONCLUSIONS: The AIOB-Score is a prognostic model that stratifies HR-MIBC pts into 3 risk groups significantly associated with different clinical outcomes. A prospective validation of the AIOB-score as predictor of response to adj IO is warranted.

SC282

Risk of lymph-node invasion after radical cystectomy according to histological subtypes: results from a large multi-institutional cohort

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BACKGROUND: The risk of lymph-node invasion (LNI) across non-urothelial histological subtypes (HS) of bladder cancer remains poorly defined. We aimed to compare LNI rates among different HS relative to pure urothelial carcinoma of the urinary bladder (UCUB).

METHODS: We analyzed a multinational database of patients treated with radical cystectomy (RC) between 2000

and 2023 across 25 tertiary centers. Patients with UCUB and non-UCUB histological subtypes were identified. Those with ≥ 2 coexisting variants were classified as "Mixed". Univariable and multivariable logistic regression (MLR) models tested the association between each HS and LNI, adjusting for age, sex, clinical N stage, and pathological T stage. Patients previously exposed to neoadjuvant systemic therapy were excluded.

RESULTS: Overall, 3763 patients were included. Of these, 3211 (85%) had UCUB, 217 (6%) squamous, 171 (4%) mixed, 45 (1.2%) micropapillary, 44 (1.2%) adenocarcinoma, 36 (1%) sarcomatoid, 26 (<1%) neuroendocrine and 13 (<1%) plasmacytoid. LNI was found in 779 (24%) UCUB, 75 (35%) squamous, 56 (33%) mixed, 25 (56%) micropapillary, 11 (25%) adenocarcinoma, 13 (50%) neuroendocrine, 8 (62%) plasmacytoid and 11 (31%) sarcomatoid cases. In MLR, plasmacytoid (OR = 5.6; 95% CI 1.5-22.7; $P=0.01$), micropapillary (OR = 3.2; 95% CI 1.6-6.4; $P=0.001$), and neuroendocrine (OR = 2.4; 95% CI 1.2-6.1; $P=0.04$) histologies were independent predictors of LNI compared to UCUB. No significant associations were observed for mixed, adenocarcinoma, sarcomatoid, or squamous variants (all $P>0.05$).

CONCLUSIONS: Distinct non-urothelial histological variants demonstrate variable risks of lymph-node invasion. In particular, plasmacytoid, micropapillary, and neuroendocrine subtypes show significantly higher odds of nodal involvement at cystectomy compared with pure UCUB. These findings highlight the need for tailored preoperative nodal assessment and emphasize the aggressive biological behavior of these rare variants.

SC283

Development of a transcriptome-based model for predicting adverse pathology at radical cystectomy

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BACKGROUND: Accurate prediction of adverse pathology (AP) is crucial for optimizing perioperative management in patients undergoing radical cystectomy (RC) for bladder cancer (BLCA). We hypothesized that integrating mRNA expression data into predictive models could improve identification of patients at high risk of AP.

METHODS: NA-seq expression data and clinical information from the TCGA-BLCA cohort were retrieved from the UCSC Xena Data Hub. Expression profiles ($\log_2$ -normalized counts) matched to clinical annotations. The AP outcome was defined as pathological stage $>pT2$ and/or lymph-node invasion (LNI), derived from AJCC T and N categories (AP = $pT3/pT4$ and/or $N+$; noAP = $pT0-2$ and $N0$). Differential expression analysis (DEA) between AP and noAP tumors was performed using Benjamini-Hochberg FDR <0.05 and $|\log_2FC| \geq 0.5$. A LASSO logistic regression with events-per-variable (EPV) cap was applied to identify predictive transcripts, followed by a multivariable logistic model based only on these genes. Model discrimination was evaluated by ROC analysis with 95% confidence intervals (CI).

RESULTS: Overall, the cohort included 361 patients (270 AP, 91 noAP). Among AP patient 36% where $N+$ and 65% had advanced local stage (T3-T4). LASSO regression identified LRRN2, GLIS3, CGREF1, COL10A1, CTHRC1, SFRP4

and LOC146336 as the most predictive genes. The final logistic model including LRRN2, GLIS3, CGREF1, COL10A1 and CTHRC1 achieved an AUC of 0.815 (95% CI 0.79-0.86).

CONCLUSIONS: Integrating transcriptomic data into predictive models could enhance stratification of patients at risk for adverse pathology at radical cystectomy.

SC284

Development and validation of a novel risk stratification tool to de-intensify surveillance after radical cystectomy: reshaping follow-up strategies

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BACKGROUND: There is no standardized, evidence-based follow-up strategy after radical cystectomy (RC) for bladder cancer, and current recommendations rely largely on expert opinion. We aimed to develop a risk stratification model to identify patients at lower risk of 5-year recurrence after RC who may be suitable for de-intensified postoperative surveillance.

METHODS: We conducted a retrospective, multi-institutional study including patients who underwent RC with pelvic

lymph node dissection at 21 tertiary centers between 2003 and 2024. Recurrence was analyzed using competing-risks methods, treating overall mortality as a competing event. Among neoadjuvant chemotherapy-naïve patients (NAC-), a points-based risk score for 5-year recurrence was developed using a Fine-Gray model to classify patients as high (>20%) or low (<20%) risk and internally validated. Landmark Weibull models were used to compare recurrence and other-cause mortality (OCM) hazards over time. Sensitivity analyses evaluated alternative recurrence risk thresholds (10% and 30%). External validation was performed in patients receiving neoadjuvant chemotherapy (NAC+).

RESULTS: Among 4,022 NAC- patients, 5- and 10-year recurrence rates were 23.8% and 26.1%, respectively. A simple risk score (range 0-11), incorporating pathological stage, nodal status, histology, lymphovascular invasion, and sex, stratified patients into Low-Risk (N.=2002, 49.8%) and High-Risk (N.=2,020, 50.2%) groups, with good discrimination (5-year AUC 0.76) and calibration. In Low-Risk patients, OCM exceeded recurrence risk early during follow-up, particularly among older and comorbid individuals, whereas recurrence remained the dominant risk in High-Risk patients. The score retained good performance in the NAC+ cohort (5-year AUC 0.74).

CONCLUSIONS: We developed and externally validated a simple risk stratification tool that identifies patients at lower risk of recurrence who may benefit from shorter postoperative follow-up schedules. Future randomized trials are needed to evaluate the impact of this risk-adapted surveillance strategy on clinical outcomes, cost-effectiveness, and patient quality of life.

SMART COMMUNICATION (SC285 - SC293)

Tumore della prostata: radioterapia e terapia ormonale

SC285

The evolving management of pN1 prostate cancer: temporal trends in adjuvant radiotherapy *versus* observation±salvage RT over 20 years at a tertiary referral centre

SC286

PSA thresholds for salvage therapy after radical prostatectomy in PSMA-negative patients: toward a redefinition of early salvage radiation therapy

SC287

Early metabolic biomarker changes with GNRH agonist *versus* antagonist therapy in prostate cancer: results from a single centre prospective study

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Assessing the optimal androgen deprivation therapy duration in patients with persistently elevated PSA after radical prostatectomy undergoing salvage radiation therapy

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Treatment selection in metastatic hormone-sensitive prostate cancer: a RAND/UCLA study on ARPI-based doublet and triplet therapy

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Impact of ADT duration according to PSMA PET/CT findings in high-risk biochemical recurrence after radical prostatectomy

SC291

ID 6268 - The italian REAL6T study: a descriptive analysis of the use of 6-month triptorelin formulation in patients with prostate cancer. (Ritirato)

SC292

The inside study: uncovering dna damage response vulnerabilities beyond BRCA to guide precision medicine in high-risk advanced prostate cancer

SC293

Purinergic signaling modulation: a novel promising therapeutic strategy for prostate cancer

SC285**The evolving management of pN1 prostate cancer: temporal trends in adjuvant radiotherapy versus observation±salvage RT over 20 years at a tertiary referral centre**

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BACKGROUND: Recent studies supported the oncological safety of observation±salvage radiotherapy (sRT) for low risk pN1. We aimed at assessing the temporal trends of adjuvant radiotherapy (aRT) vs. observation±sRT at a referral centre over a 20-year period. We hypothesized that the use of observation±sRT increased over time without hampering oncological outcomes.

METHODS: We relied on 1,035 pN1 patients treated with RP at a single centre (2000-2023). Men with PSA persistence (first operative PSA ≥ 0.1 ng/mL) were excluded (N.=164). Differences in treatment patterns (aRT vs. observation±sRT) were displayed using the estimated annual percent change (EAPC). The same methodology was applied after stratifying pN1 patients according to nodal burden (1 vs. 2 vs. ≥ 3 nodal metastases). The impact of post-operative treatment (aRT vs. observation±sRT) on the risk of clinical recurrence (CR) was assessed using an inverse propensity score matching (IPTW) after adjusting for age, PSA at diagnosis, pT, ISUP groups, and number of positive nodes.

RESULTS: Overall, 419 (48%), 159 (18%), and 293 (34%) patients had 1 vs. 2 vs. ≥ 3 nodal metastases. The median number of removed and positive nodes were 20 (IQR: 14-27) and 2 (IQR: 1-3). Overall, 694 (84%) patients received aRT while 185 (16%) were initially observed and 82 received sRT at a median follow-up of 65 months. Patients who received aRT had higher PSA and pT compared to those initially observed (12 vs. 9 ng/mL; pT3-T4: 94% vs. 89%). The rate of aRT decreased from 97% to 40% over years, paralleled by an increase in observation±sRT rates (EAPC: +14.3%, 95%CI:11.3-17.5; P=0.01. After stratifying according to nodal burden, there was a decrease in aRT in patients with a low nodal burden compared to those with ≥ 3 nodal metastases (EAPC - 1 nodal metastases: -4.48%, P=0.001; EAPC - 2 nodal metastases: -2.83, P=0.04). After IPTW, patients initially observed had a similar risk of 10-year progression compared to those treated with aRT (28% vs. 31%, IPTW-adjusted HR: 1.20, 95%CI:0.72-2.03, P=0.5).

CONCLUSIONS: The use of observation±sRT has significantly increased by 50% in the most recent years without hampering oncological outcomes of pN1 patients. This is particularly true in low nodal burden patients, where initial observation followed by sRT represents a valuable management option.

SC286**PSA thresholds for salvage therapy after radical prostatectomy in PSMA-negative patients: toward a redefinition of early salvage radiation therapy**

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BACKGROUND: EAU guidelines recommend to deliver salvage therapies in patients with biochemical recurrence (BCR) after radical prostatectomy (RP) at PSA below 0.5 ng/mL. However, this cut-off has never been validated in patients with negative PSMA-PET before salvage therapies. We aimed at identifying the optimal PSA cut-off predicting recurrence among patients with negative PSMA-PET undergoing salvage radiotherapy±androgen deprivation therapy.

METHODS: We relied on 519 patients who experienced BCR following RP and underwent restaging with PSMA-PET and subsequent salvage therapies from 2016 to 2022 at 3 referral centers. Patients receiving adjuvant therapies and those with elevated PSA after RP were excluded. Only patients with negative PSMA-PET were assessed (N.=79). The study outcome was metastasis at any imaging during follow-up. Kaplan-Meier (KM) plot displayed metastasis-free survival (MFS) rates. Multivariable Cox-regression models (MCR) tested the impact of PSA at PSMA-PET on metastatic progression after accounting for pathologic ISUP GG (1-3 vs. 4-5), pT (pT2/3a vs. pT3b) and pN (pNx/0 vs. pN1). Patients were identified as high-risk according to pathological features (pT3b or ISUP 4-5 or pN1). Lowess plots explored relationship between PSA at salvage therapies and 3-yr risk of metastatic progression according to risk features (low vs. high), with the discrimination accuracy of the potential PSA cut-off assessed using the C-index.

RESULTS: Median PSA and age at salvage therapies were 0.33 ng/mL and 69 years. Median follow-up after BCR was 24 months and 23 patients experienced metastases. The 3-year MFS was 65%. PSA at time of salvage therapies predicted metastatic progression (HR: 1.23, 95%CI:1.12-1.36, P<0.001). Lowess plots showed an increase in the 3-yr metastatic progression for patients receiving salvage therapies at PSA ≥ 0.7 ng/mL, with this PSA cut-off exhibiting a C-index of 70%. In low-risk patients (N.=57, 72%), the risk of 3-yr metastatic progression increased in men treated at PSA ≥ 0.7 ng/mL (C-index 66%). Conversely, this cutoff was as low as 0.5 ng/mL among high-risk patients (N.=22, 28%; C-index: 75%).

CONCLUSIONS: In patients with negative PSMA-PET undergoing salvage therapies, those treated at PSA below 0.7 ng/mL exhibited improved PCa control, with this value being as low as 0.5 ng/mL for those exhibiting high-risk features.

SC287**Early metabolic biomarker changes with GnRH agonist versus antagonist therapy in prostate cancer: results from a single centre prospective study**

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BACKGROUND: The phase 3 HERO trial associated the oral GnRH antagonist Relugolix with lower cardiometabolic risk than GnRH agonists, but the molecular metabolic conse-

quences of antagonism *versus* agonism remain unclear. We prospectively compared early changes in three adipokines during treatment with a GnRH antagonist *versus* a GnRH agonist: adiponectin (insulin-sensitizing), irisin (thermogenic/energy-expenditure proxy), and leptin (satiety/adiposity).

METHODS: At a tertiary center, 39 men starting androgen-deprivation therapy (ADT) were enrolled (NCT06187870): 23 received Relugolix and 16 received Triptorelin with 28-day bicalutamide flare protection. Blood was collected at baseline and every 2 months (± 7 days). Plasma adiponectin (Invitrogen KHP0041), irisin (Thermo Fisher EEL081), and leptin (Bender MedSystems BMS2039INST) were quantified by ELISA in duplicate. The prespecified endpoint was the 2-month change (Δ = Month 2 – Baseline). Between-group comparisons used ANCOVA adjusting for baseline; results are least-squares means (LS-means) and adjusted mean differences (Orgovyx – Triptorelin) with 95% CIs.

RESULTS: Baseline features were comparable (median age 74 vs. 73 years; BMI 24.8 vs. 25.3 kg/m²; PSA 7.3 vs. 6.4 ng/mL for Relugolix vs. triptorelin). At two months, adiponectin was maintained with Orgovyx (LS-mean $\Delta +0.24$; 95% CI -0.53 to 1.02) but declined with triptorelin (-1.221 ; -2.00 to -0.44); adjusted difference $+1.47$, $P=0.01$. Leptin increased in both groups, more with Relugolix ($+2.30$; 1.14 to 3.46) than triptorelin ($+0.89$; -0.30 to 2.09); adjusted difference $+1.41$, $P=0.09$. Irisin decreased more with Relugolix (-38.1 ; -51.1 to -25.1) than triptorelin (-13.0 ; -26.0 to 0.03); adjusted difference -25.2 , $P=0.009$.

CONCLUSIONS: Over the first two months of ADT, Relugolix was associated with maintenance of adiponectin and higher leptin, whereas irisin declined more than with triptorelin. This pattern suggests that GnRH antagonism may better preserve insulin-sensitizing signaling relative to GnRH agonism, while possibly exerting greater early suppression of thermogenic pathways. These findings are hypothesis-generating and require confirmation in larger studies.

SC288

Assessing the optimal androgen deprivation therapy duration in patients with persistently elevated PSA after radical prostatectomy undergoing salvage radiation therapy

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BACKGROUND: The RADICALS-HD trial showed a beneficial effect of adding long-term androgen-deprivation therapy (ADT) to postoperative radiotherapy (RT) in prostate cancer (PCa) patients. However, it did not report outcomes stratified according to PSA persistence status after radical prostatectomy (RP), a well-known poor prognostic factor. We aim to assess the added value of ADT to post-operative RT in patients with PSA persistence after RP and to identify men who may benefit from longer ADT.

METHODS: Data from a prospective database of PCa patients undergoing RP (1994-2023) were analyzed. Overall, 267 patients receiving postoperative RT and concomitant ADT for PSA persistence (PSA ≥ 0.1 ng/mL within 6 weeks after RP) were identified. Study outcome was distant metastases

at conventional or molecular imaging. Kaplan-Meier analysis depicted metastases risk and multivariable Cox regression (MCR) models tested the impact of ADT duration on metastases risk after adjusting for PSA at diagnosis, pT, pN, and ISUP GG. LOWESS function explored the relationship between ADT duration and 5-yr risk of metastatic progression according to patient risk (namely, high-risk: pN1 or pT3/4 and ISUP GG 8-10 and low risk: all remaining patients). An interaction test assessed whether the impact of ADT duration varied according to individual patient risk.

RESULTS: Median PSA at persistence was 0.6 ng/mL (IQR: 0.2-2.6) and 179 (69%) patients were pN1. Overall, 69 (25%) and 198 (75%) patients were defined as low- and high-risk, respectively. The median ADT duration was 27 (IQR: 15-48) months. The 5-yr metastases risk was 28% (95%CI: 24-32%). At MCR, ADT duration was associated with reduced risk of metastases (HR: 0.93, 95%CI: 0.90-0.97; $P=0.001$). At LOWESS, the beneficial effect of ADT was visible after 12 months of treatment, reaching a plateau at 30 months of treatment for high risk patients, while no beneficial effect of longer ADT exposure could be observed in patients harboring low-risk features (P at interaction <0.05).

CONCLUSIONS: In patients with persistently elevated PSA after RP receiving immediate postoperative RT with ADT, extended 30-month ADT duration was associated with improved outcomes in men with high-risk pathological features. In patients with favorable pathological characteristics, prolonging ADT did not confer a significant benefit.

SC289

Treatment selection in metastatic hormone-sensitive prostate cancer: a RAND/UCLA study on ARPI-based doublet and triplet therapy

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BACKGROUND: In both low- and high-volume metastatic hormone-sensitive prostate cancer (mHSPC), systemic treatment intensification with androgen deprivation therapy (ADT) and androgen receptor pathway inhibitors (ARPIs) has led to significant improvements in patient survival. In this setting, although several patient- and disease-related factors can guide the choice among available treatments, controversy exists about the optimal regimen to be used. The aim of this work was to produce a consensus document to guide the use and choice of ARPIs combined with ADT $\pm$ chemotherapy (CHT) according to different patient profiles and disease status.

METHODS: We conducted a web-based RAND/UCLA appropriateness method study that consisted of i) a scoping review; ii) two consensus rounds to define the most relevant drivers for treatment choice in patients with mHSPC, and the preferred ARPI ($\pm$ CHT) regimen to use across patient/disease profiles; iii) a final in-person meeting to discuss the results. Examined doublet regimens were apalutamide+ADT, darolutamide+ADT and enzalutamide+ADT, and triplet was darolutamide+ADT+docetaxel. Sixteen expert physicians (7 Oncologists, 5 Urologists, 3 Radiation Oncologists, 1 Nuclear Medicine) working at thirteen different Italian referral Centers were invited to participate.

RESULTS: Four key drivers emerged as most influential in treatment selection: presence of visceral metastases, timing

of metastatic disease (synchronous vs. metachronous), ECOG performance status (0-1 vs. ≥ 2) and number of bone metastases (<4 vs. ≥ 4). The combination of such variables generated 16 distinct patient profiles. Doublet regimens therapy was judged appropriate (*i.e.*, median score 7-9) in the majority of clinical scenarios. In particular, apalutamide and enzalutamide showed high appropriateness across nearly all patient profiles (100% and 94%, respectively), with some variability in expert ratings among the agents. Darolutamide+ADT was judged appropriate in 10/16 profiles (62%), while uncertainty (median score 4-6) was observed in 6/16 scenarios (38%). Performance status and visceral metastasis emerged as the main drivers for treatment intensification with chemotherapy in 7/16 scenarios (43%).

CONCLUSIONS: Our study helped to define the key drivers in the choice of treatment for mHSPC in according to the most recent evidence. Doublet therapy with ADT+ARPI (particularly apalutamide and enzalutamide) emerged as the standard of care in most, if not all, patient/disease profiles, while triplet therapy was judged most suitable in patients with acceptable performance status and high disease burden (visceral metastasis).

SC290

Impact of ADT duration according to PSMA PET/CT findings in high-risk biochemical recurrence after radical prostatectomy

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BACKGROUND: High-risk biochemical recurrence (BCR) after radical prostatectomy is associated with a substantial risk of metastatic progression and prostate cancer-specific mortality. In contemporary practice, prostate-specific membrane antigen positron emission tomography/computed tomography (PSMA PET/CT) guides treatment selection, including the use and duration of androgen deprivation therapy (ADT). However, whether the effect of ADT duration differs according to PSMA PET/CT findings remains incompletely defined. We evaluated outcomes in patients with high-risk BCR managed according to a PSMA PET-guided multidisciplinary strategy, focusing on the relationship between PET-defined disease extent and ADT duration.

METHODS: We retrospectively analyzed consecutive patients with high-risk BCR after radical prostatectomy discussed within a multidisciplinary tumor board at a tertiary referral center. All patients underwent PSMA PET/CT at recurrence, which guided treatment allocation. Primary endpoints were second biochemical recurrence-free survival and progression-free survival (PFS), both measured from the date of PSMA PET/CT. PFS was assessed exclusively by PSMA PET/CT. Outcomes were analyzed using Kaplan-Meier estimates, multivariable Cox regression, and model-based estimates of 36-month progression probability according to ADT duration and PSMA PET/CT category.

RESULTS: A total of 136 patients were included. At PSMA PET/CT, 35% had negative findings or isolated local recurrence, 18% had pelvic nodal recurrence (miN1M0), and 47% had distant metastatic disease (miNanyM1). Median ADT duration differed across PET categories, being 24 months in patients with negative/local recurrence, 24 months in those with miN1M0 disease, and 29 months in those with

miNanyM1 disease. Concomitant ADT was administered in 42%, 42%, and 76% of patients, respectively. Among patients receiving PET-guided treatment, PSMA PET/CT findings were the strongest independent predictors of clinical progression: compared with negative/local recurrence, the risk was significantly higher for miN1M0 disease (HR 2.53, 95% CI 1.05-6.10; $P=0.036$) and markedly higher for miNanyM1 disease (HR 5.07, 95% CI 2.51-10.21; $P<0.001$). Concomitant ADT was independently associated with a lower risk of progression (HR 0.70, 95% CI 0.51-0.89; $P<0.001$). The LOWESS function suggested that the effect of ADT duration varied according to PET-defined disease burden. In particular, longer ADT duration was associated with a marked reduction in the predicted probability of PSMA PET progression by 36 months in patients with miN1M0 disease, whereas this effect appeared less pronounced in patients with negative/local recurrence.

CONCLUSIONS: In high-risk BCR after radical prostatectomy, the prognostic effect of ADT appears to depend on PSMA PET/CT findings. While metastatic disease remains associated with the highest risk of progression despite more frequent and prolonged ADT exposure, patients with nodal-only recurrence may derive the greatest relative benefit from longer treatment duration. These findings support a PET-adapted approach to ADT use and duration and suggest that molecular imaging may help refine treatment intensity in this setting.

SC291

ID 6268 - The Italian REAL6T study: a descriptive analysis of the use of 6-month triptorelin formulation in patients with prostate cancer. (Ritirato)

SC292

The INSIDE study: uncovering dna damage response vulnerabilities beyond BRCA to guide precision medicine in high-risk advanced prostate cancer

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BACKGROUND: Despite significant progress in prostate cancer (PC) management, therapeutic resistance and suboptimal response rates remain major clinical challenges. PC is genomically heterogeneous, with DNA damage repair (DDR) gene mutations detected in 10-19% of primary tumors and up to 27% in metastatic castration-resistant PC (mCRPC). While BRCA mutations are established predictors of response to PARP inhibitor (PARPi) in mCRPC, their clinical relevance in high-risk, locally advanced disease is unclear and the contribution of non-BRCA DDR alterations on treatment response remains poorly defined. In the context of translational precision medicine, patient-derived 3D models represent a valuable experimental platform to recapitulate tumour-specific genomic features. This study aims to identify actionable DDR-related

vulnerabilities and evaluate the clinical impact of genomic alterations beyond BRCA in high-risk PC.

METHODS: The INSIDE study is a prospective observational trial led by the Candiolo Cancer Institute, FPO-IRCCS in collaboration with San Luigi Hospital, focusing on DDR alterations in PC. Since March 2023, 97 patients have been enrolled. The study cohort with currently available diagnosis (90 patients) includes predominantly Gleason score (GS) 7 (45%) and GS 9 (41%) tumors, with GS 8 (13%) and GS 10 (1%) less frequent. Tumour samples are processed to generate patient-derived organoids (PC-PDOs), for integrated histological, genomic and pharmacological analyses. Genomic profiling is performed using the TruSight Oncology 500 HRD assay to assess mutational profiles and genomic instability scores (GIS), thereby identifying DDR-associated targets.

RESULTS: Comprehensive genomic profiling of the initial cohort revealed a heterogeneous landscape of DDR alterations. Preliminary analysis of 48 tumor samples identified variants across multiple DNA repair pathways, including missense mutations in base excision (BER) and nucleotide excision repair (NER) genes. In addition to BRCA alterations, diverse aberrations were observed in homologous recombination (HR) pathways. Interestingly, we identified alterations in replication stress pathway (RS). To functionally interrogate these findings, we established a pharmacological screening pipeline using PC-PDOs derived from the patient's tissue, enabling correlation of genomic alterations with drug sensitivity profiles. Preliminary data suggest a potential association between non-BRCA HR gene alterations and sensitivity to the PARPi olaparib. Additionally, candidate biomarkers associated with response to ATM and ATR inhibitors were identified.

CONCLUSIONS: The INSIDE study highlights the clinical relevance of multi-pathway DDR alterations in high-risk PC and identifies novel therapeutic vulnerabilities beyond the BRCA paradigm. Integration of genomic and functional pharmacological data provides a framework for stratified treatment approaches and supports the advancement of precision oncology.

SC293

Purinergic signaling modulation: a novel promising therapeutic strategy for prostate cancer

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BACKGROUND: Single-cell RNA sequencing from our prior work showed that infiltration and functional exhaustion of CD103+CD8+ T cells increase with Gleason score and prostate cancer aggressiveness, and that these cells express CD39. CD39 is both a marker of exhaustion and an ectonucleotidase that generates extracellular adenosine; adenosine, in turn, can drive tumor growth *via* A2B receptor (A2BR) signaling. These observations led us to hypothesize that the CD39-CD73-adenosine-A2BR pathway actively shapes the prostate tumor microenvironment and contributes to dysfunction of tissue-resident memory T cells (TRMs).

METHODS: TRAMP-C2 cells were used for in vitro assays and orthotopically implanted into C57BL/6 mice to model the tumor microenvironment in vivo. Expression and spatial distribution of CD39, CD73, and the A2B receptor (A2BR) were analyzed by confocal microscopy (CM) on both epithelial tumor cells and immune infiltrates in vitro and ex vivo. Tumor-infiltrating lymphocytes (TILs) were isolated by flow cytometry and cytologically characterized, focusing on CD8+CD103+CD39+ TRMs. In vitro, TRAMP-C2 cells were treated with inhibitors targeting CD39 (POM-1), CD73 (APCP), and purinergic receptors A2A (DMPX) and A2B (MRS1754). Cell viability (MTT) and proliferation (BrdU) were measured, and downstream signaling was evaluated by Western blotting (WB).

RESULTS: CM confirmed CD39, CD73, and A2BR expression on TRAMP-C2 cells in vitro and on orthotopic tumors ex vivo, with enrichment at tumor-stroma interfaces. Flow cytometry of TIL identified an intratumoral CD8+CD103+CD39+ TRM subset, indicating that the murine model recapitulates the dysfunctional phenotype observed in human disease. Pharmacologic inhibition revealed that CD39 blockade and A2BR antagonism produced the strongest and most consistent reductions in tumor-cell viability and proliferation ($P=0.03$ and $P<0.01$, respectively). WB analysis linked these effects to decreased Src/ERK activation following A2BR inhibition.

CONCLUSIONS: The purinergic pathway acts as an active driver of immune suppression and tumor growth rather than a passive set of markers. The co-expression of CD39, CD73, and A2BR on epithelial cells and TRMs provides a strong mechanistic rationale for dual targeting of CD39 and A2BR to restore TRM function and limit prostate cancer progression.

Tumori dell'alta *via* escretrice

SC294

Outcomes of endoscopic kidney-sparing surgery in patients with upper tract urothelial carcinoma and a solitary kidney: a multicenter cohort study

SC295

Kidney-sparing surgery for upper tract urothelial carcinoma: long-term oncological and functional outcomes from a 30-year single center experience

SC296

Laser energy application in endoscopic kidney-sparing surgery for upper tract urothelial carcinoma: a systematic review of oncological outcomes and surgical complications

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Nephroureterectomy for upper tract urothelial carcinoma recurrence among bladder cancer patients treated with radical cystectomy: a multicentric propensity score matched analysis on practice patterns and survival outcomes

SC298

Predictors of final pathology of distal ureterectomy for upper tract urothelial carcinoma (UTUC):

a multicentre study from the european association of urology non-muscle-invasive bladder cancer

SC299

Perioperative and survival outcomes of synchronous vs. Metachronous upper tract urothelial carcinoma among bladder cancer patients treated with radical cystectomy and nephroureterectomy: results from an international multicentre collaborative study – On behalf of the Young Academic Urology (YAU) Urothelial Working Group

SC300

Preoperative and pathological predictors of disease-free and overall survival after nephroureterectomy for upper tract urothelial carcinoma: a contemporary multicenter Italian retrospective study

SC301

Trajectories and predictors of end-stage renal disease among radical cystectomy patients undergoing radical nephroureterectomy for upper tract urothelial carcinoma: results from an international multicentre propensity-score matched cohort

SC294**Outcomes of endoscopic kidney-sparing surgery in patients with upper tract urothelial carcinoma and a solitary kidney: a multicenter cohort study**

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BACKGROUND: Radical nephroureterectomy (RNU) is the standard treatment for high-risk upper tract urothelial carcinoma (UTUC) but, in patients with a solitary kidney, it inevitably results in end-stage renal disease and dialysis dependency. Endoscopic kidney-sparing surgery (eKSS) is therefore recommended in this imperative setting, yet long-term oncological and functional outcomes remain incompletely defined.

METHODS: We conducted a retrospective multicenter cohort study including 62 consecutive patients with UTUC and a solitary kidney treated with primary eKSS at two tertiary referral centers (2006-2024). All patients underwent ureteroscopic biopsy and laser ablation followed by intensified surveillance with second-look ureteroscopy and repeat retreatment as needed. Primary endpoints were upper tract recurrence, progression, cancer-specific mortality, and dialysis dependency. Competing-risk cumulative incidence functions and linear mixed-effects models were used.

RESULTS: Median age was 71 years and baseline eGFR was 48 mL/min/1.73 m. High-grade disease at initial ureteroscopy was present in 12 patients (19%). Over a median follow-up of 65 months, patients underwent a median of 5 ureteroscopies (IQR 3-9), and 16 (26%) ultimately underwent RNU. The cumulative incidence of upper tract recurrence was 70% (95% CI 58-83) at 5 years. The 5-year cumulative incidence of progression was 40% (95% CI 26-54). Cancer-specific mortality was 20% (95% CI 7.9-32) at 5 years. Dialysis dependency occurred in 32% (95% CI 18-45) at 5 years, predominantly among patients with baseline eGFR <30 mL/min/1.73 m² (HR 5.68, 95% CI 1.20-27.0, P=0.029). Mean annual eGFR decline of 2.9 mL/min/1.73 m² (95% CI 1.2-4.6).

CONCLUSIONS: In patients with UTUC and a solitary kidney, eKSS delivered within an intensive surveillance program provides durable renal preservation with acceptable oncological outcomes. Despite frequent recurrences requiring repeated ureteroscopic interventions, cancer-specific mortality remained limited, supporting eKSS as a viable alternative to RNU in imperative clinical settings.

SC295**Kidney-sparing surgery for upper tract urothelial carcinoma: long-term oncological and functional outcomes from a 30-year single-center experience**

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BACKGROUND: Endoscopic kidney-sparing surgery (eKSS) is increasingly used for upper tract urothelial carcinoma (UTUC) to achieve oncologic control while preserving renal function; however, long-term benchmark data remain limited. We report long-term oncologic and functional outcomes from a large single-center cohort using contemporary risk stratification.

METHODS: We retrospectively analyzed a prospectively maintained single-center cohort (1996-2024). After excluding patients who underwent upfront radical nephroureterectomy (RNU) following diagnostic ureteroscopy, had missing index pathology, or lacked oncologic follow-up, 254 patients treated with eKSS were included. Patients were classified as low- or high-risk according to EAU criteria and underwent standardized surveillance, including second-look ureteroscopy at 4-6 weeks and long-term ureteroscopic follow-up. Outcomes included UTUC recurrence, RNU, metastasis, cancer-specific mortality (CSM), and renal function decline (CKD≥IIIB). Cumulative incidence functions and Fine-Gray competing-risk regression were used.

RESULTS: Median age was 71 years; 74% were male and 46% had low-risk disease. After a median follow-up of 67 months, the 5- and 7-year cumulative incidence of recurrence was 43% (95% CI 36-51) and 50% (95% CI 41-58), without significant differences between risk groups (aHR 0.83, 95% CI 0.51-1.36). High-risk disease was associated with higher rates of RNU (aHR 2.36, 95% CI 1.38-4.07; 7-year incidence 32% vs. 10%) and metastasis (7-year incidence 14% vs. 3.2%; HR 3.13, 95% CI 0.99-9.88). Seven-year CSM was 16% (95% CI 9.7-22) overall and higher in high-risk patients (aHR 2.29, 95% CI 1.06-4.98). Among 153 patients with renal follow-up, median eGFR decline was -9 mL/min/1.73 m², and 5-year CKD≥IIIB incidence was 15%, with no significant risk-group differences.

CONCLUSIONS: In this large, long-term single-center experience, eKSS provided durable cancer control with meaningful renal preservation. Although high-risk classification was not associated with recurrence, it predicted greater likelihood of RNU, metastasis, and CSM, supporting risk-adapted counseling and surveillance in expert endoscopic practice.

SC296**Laser energy application in endoscopic kidney-sparing surgery for upper tract urothelial carcinoma: a systematic review of oncological outcomes and surgical complications**

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BACKGROUND: Endoscopic kidney-sparing surgery (eKSS) is an established treatment option for selected patients with upper tract urothelial carcinoma (UTUC). Laser energy is central to endoscopic tumor ablation, but multiple platforms with different physical and thermal properties are currently available, including holmium:YAG (Ho:YAG), thulium:YAG (Thu:YAG), thulium fiber laser (TFL), neodymium:YAG (Nd:YAG), and combination systems. We systematically reviewed the available evidence on oncological outcomes and surgical complications of laser-assisted eKSS for UTUC.

METHODS: A systematic review was conducted according to a predefined PROSPERO-registered protocol and PRISMA guidelines. MEDLINE/PubMed, Embase, and Scopus were

searched for studies published between January 2000 and December 2025. Eligible studies included adult patients with UTUC treated with laser-based eKSS. Outcomes of interest were recurrence, progression, conversion to radical nephroureterectomy (RNU), and complications. Studies were grouped by laser technology, and a descriptive description was performed because of substantial heterogeneity. Weighted proportions were calculated by aggregating events and denominators across studies.

RESULTS: Twenty-five studies published met the inclusion criteria, including 1344 patients. All studies were non-randomized, predominantly retrospective, and showed moderate-to-serious risk of bias. Ipsilateral upper tract recurrence was frequent across all laser categories, with weighted proportions ranging approximately from 27% to 52%. Progression and conversion to RNU were less common overall. Thu:YAG-based series showed the lowest weighted progression (2.4%) and RNU (6.8%) rates, while TFL-based studies reported progression of 3.0% and RNU of 16.6%. Ho:YAG-based series showed higher weighted progression (21.7%) and RNU (18.6%) rates. Major complications (Clavien-Dindo $\geq$ III) were uncommon across all technologies, generally ranging from 1% to 6%.

CONCLUSIONS: Laser-assisted eKSS is a feasible and safe option for selected UTUC patients. Thulium-based lasers and TFL show encouraging descriptive trends, but current evidence is limited by heterogeneity, retrospective design, and shorter follow-up in newer series. No laser platform can currently be recommended as superior.

SC297

Nephroureterectomy for upper tract urothelial carcinoma recurrence among bladder cancer patients treated with radical cystectomy: a multicentric propensity score matched analysis on practice patterns and survival outcomes

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BACKGROUND: Upper Urinary Tract (UUT) recurrence in the remnant urothelium represents a persistent, life-long risk following RC, 4-10% of RC patients develop an Upper Urinary Tract Urothelial Carcinoma (UTUC). Only few risk factors for secondary UUT have been identified. Limited evidence exists regarding the influence of surgical approach during RC, type of urinary diversion, and patient-related risk factors. Moreover, the impact of Radical Nephroureterectomy (RNU) on survival outcomes of cystectomized patients has rarely been assessed. We aimed to determine clinicopathological determinants of metachronous UTUC requiring RNU after RC and to compare long-term survival outcomes of RC and subsequent RNU patients with those of a matched RC only cohort.

METHODS: Cases who underwent subsequent RNU were extracted from an international multi-institutional database of RC patients. Multivariate binary logistic regression analysis was carried out to identify predictors of UUT recurrence. A 1:2 Propensity Score Match (PSM) was performed based on age, gender, BMI, CCI, Smoking Status, and Clinical T Stage to balance baseline characteristics between RC alone and RC + RNU cohorts. Simon-Makuch plots, landmark analyses and Multivariable Cox regressions were adopted to compare Overall Survival (OS) and Cancer Specific Survival (CSS), accounting for the time-dependent impact of RNU.

RESULTS: Overall, 1804 patients were reviewed. Of these, N=85 (4.7%) underwent RNU for an UUT recurrence. At multivariate regression, younger age, positive smoking history, BCG exposure, NMIBC, Carcinoma In Situ (CIS) and positive ureteral margins were identified as positive predictors of UUT recurrence after RC. Urinary diversion of choice and RC approach (open vs. laparoscopic/robotic) had no impact on UTUC development. 157 RC only and 81 RC + RNU patients were identified after PSM. Median time to RNU was 29 (18-47) months, with the majority of UTUC diagnosed at a muscle-invasive stage (70.9%). Simon-Makuch curves demonstrated worse survival outcomes of the RC+RNU cohort (HR: 6.17, 95%CI 3.48-10.94, $P<0.001$ for OS and HR: 6.41, 95%CI 3.16-13.04, $P<0.001$ for CSS). Similarly at landmark analyses, RNU was consistently associated with an increased mortality risk from the 24th month onward. Multivariable Cox regression analysis identified RNU and positive lymph node (pN+) status as the only significant predictors of worse CSS (respectively, HR: 6.55, 95%CI 2.93-14.64, $P<0.001$ and HR: 8.45, 95%CI 3.24-21.99, $P<0.001$).

CONCLUSIONS: Established risk factors, such as concomitant CIS, NMIBC, and positive ureteral margins were confirmed as significant predictors of UUT recurrence, while younger age, BCG-failure and smoking history emerged as possible additional clinical determinants. The worse survival outcomes and high rates of locally advanced disease found at RNU corroborate the need for standardized, risk-stratified, long-term follow-up of the remnant urinary tract in cystectomized patients.

SC298

Predictors of final pathology of distal ureterectomy for upper tract urothelial carcinoma (UTUC): a multicentre study from the european association of urology non-muscle-invasive bladder cancer

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BACKGROUND: Distal ureterectomy (DU) is a kidney-sparing option for low-risk upper tract urothelial carcinoma (UTUC) and may be considered for selected high-risk cases. However, accurate preoperative risk stratification remains challenging. Our aim was to identify preoperative predictors of final pathology of DU.

METHODS: This retrospective multicentre study included 450 patients with non metastatic UTUC in the distal ureter treated with DU and bladder cuff excision between 2010 and 2023. Logistic regression models were used to assess the association between preoperative clinical variables and adverse features at final pathology. Odds ratios (ORs) with 95% con-

fidence intervals (CIs) were calculated to estimate the strength of associations.

RESULTS: On multivariable analysis, positive urinary cytology was significantly associated with adverse pathology (OR 3.66, 95% CI 1.08-12.42; $P=0.037$), as was high-grade disease at biopsy (OR 6.05, 95% CI 1.75-20.99; $P=0.005$). Radiological evidence of $\geq cT2$ disease also emerged as a strong predictor of adverse pathology (OR 6.48, 95% CI 2.95-14.23; $P<0.001$). Other factors, including tumour size, multifocality, and hydronephrosis, were not significantly associated with the outcome. Limitations include the retrospective design, lack of centralised pathology review, and potential heterogeneity in diagnostic assessment and surgical management across centres.

CONCLUSIONS: Preoperative high-grade biopsy, positive urinary cytology, and advanced clinical stage ($\geq cT2$) are significant predictors of adverse final pathology in patients undergoing DU. These factors should be carefully considered in preoperative decision-making and patient counseling, particularly when selecting candidates for kidney-sparing surgery.

SC299

Perioperative and survival outcomes of synchronous vs. Metachronous upper tract urothelial carcinoma among bladder cancer patients treated with radical cystectomy and nephroureterectomy: results from an international multicentre collaborative study – On behalf of the Young Academic Urology (YAU) Urothelial Working Group

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BACKGROUND: Patients undergoing Radical Cystectomy (RC) for Bladder Cancer may present with synchronous or metachronous Upper Tract Urinary Urothelial Carcinoma (UTUC). These two scenarios may differ in oncological outcomes and surgical complexity. This study sought to compare the oncologic and perioperative outcomes of patients who underwent RC and Radical Nephroureterectomy (RNU) for synchronous or metachronous UTUC.

METHODS: Data from 23 tertiary referral centres were retrospectively collected (2002-2024). Perioperative outcomes included: length of stay and complications according to Clavien-Dindo classification. Disease-free survival (DFS), cancer-specific survival (CSS) and overall survival (OS) were estimated from the time of RC using Kaplan-Meier analysis. Multivariable Cox regression modeling was applied to discriminate independent predictors of DFS and OS and explore the impact of RNU timing on oncological outcomes.

RESULTS: Among 177 RC patients (N=142 [80%] males), 106 (60%) underwent RNU subsequent to RC due to metachronous UTUC. Patients who underwent concomitant RC and RNU showed longer length of stay (10 vs. 7 days, $P=0.004$) and higher rates of overall (73% vs. 58.5%, $P=0.06$)

and major complications (Clavien-Dindo $\geq IIIa$, 29.6% vs. 15.1%, $P=0.03$). Patients who had metachronous disease showed better DFS (69.1% vs. 47.6%), CSS (80.3 vs. 66.4%) and OS (69.2% vs. 47.6%) at 60-months. The histological subtype at RNU was independently associated with worse DFS (HR 2.64, $P=0.01$) and OS (HR 3.22, $P=0.01$), metachronous diseases with better DFS (HR 0.36, $P<0.001$) and OS (HR 0.53, $P=0.04$). Limitations include retrospective design and relatively limited sample size.

CONCLUSIONS: Patients with panurothelial disease at time of diagnosis requiring synchronous RC and RNU showed worse perioperative and survival outcomes when compared to those having metachronous disease. Our results support the application of individualized management and follow-up strategies for these patients.

SC300

Preoperative and pathological predictors of disease-free and overall survival after nephroureterectomy for upper tract urothelial carcinoma: a contemporary multicenter Italian retrospective study

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BACKGROUND: Upper tract urothelial carcinoma is a rare and aggressive disease, frequently associated with recurrence even after radical surgery. Although several prognostic factors have been reported, their applicability in contemporary real-world multicenter cohorts remains limited. The aim of this study was to assess the impact of preoperative and pathological features on disease-free survival (DFS) and overall survival (OS) in patients treated with nephroureterectomy for upper tract urothelial carcinoma in a contemporary Italian multicenter cohort.

METHODS: We performed a retrospective multicenter study across 6 Italian centers including patients with localized or locally advanced upper tract urothelial carcinoma treated with nephroureterectomy between January 2015 and December 2023. Patients with metastatic disease at diagnosis were excluded. Preoperative, pathological and follow-up data were collected. A complete-case analytic cohort was built including only patients with all data required for the final mixed multivariable model. DFS and OS were estimated using the Kaplan-Meier method. Associations with outcomes were tested by multivariable Cox regression models.

RESULTS: The final analytic cohort included 144 patients. Median age was 76 years (IQR 67-80); 93 patients (65%) were male, 81 (56%) had hydronephrosis, 87 (60%) had stage greater than or equal to pT2 disease, 46 (32%) had lymphovascular invasion, 10 (6.9%) had positive surgical margins, and 9 (6.3%) had pathological nodal involvement. Median follow-up among censored patients was 14.7 months for disease-free survival and 20.0 months for overall survival. Disease-free survival at 36 months was 51.7%, while 36-month overall survival was 72.4%. Positive surgical margins were independently associated with worse disease-free survival (hazard ratio [HR] 3.61, 95% confidence interval [CI] 1.41-9.20; $P=0.007$). For overall survival, older age (HR 1.046, 95% CI 1.003-1.091; $P=0.035$) and positive surgical margins (HR

4.04, 95% CI 1.56-10.49; $P=0.004$) were independent predictors of poorer outcome.

CONCLUSIONS: In this contemporary Italian multicenter real-world cohort, positive surgical margins were the strongest independent predictor of both disease-free survival and overall survival after nephroureterectomy for upper tract urothelial carcinoma, while increasing age was also associated with worse overall survival. These findings support the prognostic role of standard clinicopathological variables and may improve postoperative risk stratification.

SC301

Trajectories and predictors of end-stage renal disease among radical cystectomy patients undergoing radical nephroureterectomy for upper tract urothelial carcinoma: results from an international multicentre propensity-score matched cohort

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BACKGROUND: Radical Nephroureterectomy (RNU) is the standard treatment for Upper Tract Urothelial Carcinoma (UTUC) recurrences after Radical Cystectomy (RC). In this international multicentre study on behalf of the Young Academic Urologists (YAU) Urothelial Working Group, we

aimed to assess the impact of RNU on renal function impairment following RC and to identify predictors of end-stage renal disease (ESRD).

METHODS: Patients who underwent concomitant or delayed RNU+RC for synchronous or metachronous UTUC across thirteen tertiary centers between 2012 and 2024 were 1:1 Propensity-Score Matched (PSM) with the YAU multicentre database on RC. Matching criteria included age-adjusted Charlson Comorbidity Index, preoperative Chemotherapy (CT) and surgical approach. Trends in renal function decline were evaluated stratified by RNU timing. Multivariable regression modeling was implemented to determine ESRD predictors.

RESULTS: After PSM, $N=75$ RNU+RC ($N=24$ concomitant and $N=51$ delayed) and $N=75$ RC-only patients were reviewed. Median follow-up was 47 months (95%CI 32-61). Baseline estimated glomerular filtration rate (eGFR) was different among groups (68.3 ± 21.6 for RC and delayed RNU vs. 50.0 ± 15.3 for RC and concomitant RNU and 55 ± 18.7 for RC-only, $P<0.001$). Final Δ eGFR was higher for RC and concomitant RNU (-24.6 , 36%) compared to RC and delayed RNU (-11.8 , 23.6%) or RC-only (-4.7 , 7.2%). At multivariable regression, patients with lower baseline eGFR (Odds Ratio [OR]: 0.97, 95%CI 0.94-0.99) and concomitant RC+RNU (OR: 2.1, 95%CI 1.6 - 4-3) were more likely to reach ESRD at last follow-up. Conversely, the type of urinary diversion (*i.e.*, orthotopic neobladder vs. ileal conduit) had no impact on ESRD development (OR: 1.12, 85%CI 0.88-2.23).

CONCLUSIONS: Our analysis of patients developing both Bladder Cancer (BC) and UTUC confirms the detrimental effect of RNU on renal function. Upfront combined RC+RNU regardless of the original urinary diversion significantly impacts the ESRD development over the follow-up.

 SMART COMMUNICATION (SC302 - SC315)

Tumore della prostata: chirurgia III

SC302

Extraperitoneal RARP and extended lymph node dissection in highrisk prostate cancer: what to expect long-term

SC303

A miniaturized endoscopic camera to measure energy spread during bipolar cauterizing in robot assisted radical prostatectomy

SC304

Feasibility and outcomes of robot-assisted radical prostatectomy with the Hugo™ RAS System in patients with locally advanced prostate cancer: insights from a multicentric cohort

SC305

Multicentre outcomes of robot-assisted radical prostatectomy using the Hugo™ RAS System: results from a large italian collaboration

SC306

Extraperitoneal robot-assisted radical prostatectomy using the Hugo™ RAS System: perioperative, functional and oncological outcomes from 100 consecutive cases with learning-curve analysis

SC307

Propensity-matched comparison of extra *versus* trans-peritoneal robotic radical prostatectomy with Hugo RAS System

SC308

Predictors of trifecta achievement and early urinary continence recovery after robot-assisted radi-

cal prostatectomy with the Hugo™ RAS System: results from a multicentre Italian experience

SC309

Impact of learning curve in the transitional phase from Da Vinci to Hugo RAS robotic platform for robot-assisted radical prostatectomy

SC310

Cost-minimization of Hugo RAS *vs.* Da Vinci Xi in robot-assisted radical prostatectomy: a detailed micro-costing analysis

SC311

Robot-assisted radical prostatectomy using novel Toumai MT-1000 robotic platform: initial urological experience in a multiplatform center

SC312

Early postoperative outcomes with the Toumai® surgical system in robot-assisted radical prostatectomy: a prospective comparative study with the Da Vinci® platform

SC313

Telesurgical *versus* on-site robot-assisted radical prostatectomy: a prospective comparative study

SC314

Impact of robotic platform design on docking time and operative workflow efficiency: comparative analysis of three robotic systems

SC315

Age trends of radical prostatectomy over the past 20 years in a regional setting

SC302**Extraperitoneal RARP and extended lymph node dissection in high-risk prostate cancer: what to expect long-term**

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BACKGROUND: High-risk prostate cancer (PCa) carries substantial risk of lymph node metastases and relapse after local treatment. Robot-assisted radical prostatectomy (RARP) with extended pelvic lymph node dissection (ePLND) provides accurate staging and guides postoperative management. The extraperitoneal route (eRARP) is less commonly adopted for ePLND. We report long-term outcomes of a real-world cohort treated with eRARP plus ePLND using the PERUSIA technique.

METHODS: Retrospective single-centre cohort of 265 consecutive European Association of Urology high-risk PCa patients (prostate-specific antigen >20 ng/mL, International Society of Urological Pathology Grade Group ≥ 4 , or stage $\geq T3$) treated between 2013 and 2021. Biochemical recurrence (BCR) was defined as prostate-specific antigen ≥ 0.2 ng/mL on two consecutive measurements; clinical progression (CP) as first radiologic recurrence. Overall (OS), cancer-specific (CSS), recurrence-free (RFS), and progression-free survival (PFS) were estimated by Kaplan-Meier method. Cox regression identified predictors of BCR and CP, with an exploratory analysis of nodal yield and CP in node-positive patients.

RESULTS: Median follow-up was 58 months. pT3 disease occurred in 49.4%, positive surgical margins in 54.0%, nodal involvement in 20.0%. BCR and CP occurred in 24.5% and 14.0%; 6 PCa-related deaths were recorded. Ten-year OS, CSS, RFS, and PFS were 94.3%, 95.6%, 59.6%, and 78.4%. Adjuvant radiotherapy plus androgen deprivation therapy (RT+ADT) reduced BCR ($P<0.001$), improved RFS in node-negative patients ($P<0.001$) and PFS in node-positive patients ($P<0.001$). Positive margins independently predicted BCR (hazard ratio 3.31; $P=0.014$); RT+ADT correlated with lower BCR (hazard ratio 0.11; $P<0.001$) and CP risk (hazard ratio 0.21; $P=0.017$). Each additional removed node reduced CP hazard by 20% in node-positive patients ($P=0.008$).

CONCLUSIONS: Ten-year OS and CSS were excellent despite frequent adverse pathologic features, supporting the oncologic adequacy of extraperitoneal RARP with ePLND. RT+ADT was most consistently associated with improved disease control. The inverse association between nodal yield and CP warrants prospective validation.

SC303**A miniaturized endoscopic camera to measure energy spread during bipolar cauterizing in robot assisted radical prostatectomy**

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BACKGROUND: Robot assisted laparoscopy (RAL) is the gold standard for nerve-sparing prostatectomy. In this setting cauterizing hemostasis is employed although its use is still debated for tissue damage. We manufactured a miniaturized endoscopic thermal camera to measure thermal spread be used during RAL. The aim of this proposal is to present the char-

acteristics of this device with an Italian and European patent, highlighting the current challenges in designing thermal endoscopes to facilitate the detection of potential thermal stress for the tissues surrounding the cauterized area and fusing the data coming from the endoscopes operating in the visible range of the spectrum.

METHODS: We used sensors for measuring the thermal spread. They are microbolometers operating in a region of the spectrum between 7 to 14 mm, not visible at the naked eye. For designing the thermal endoscope we used off-the-shelf ultra-compact microbolometers cores of the FLIR Lepton® series. These devices can be integrated in printed circuit board (PCB) designed specifically for the application. In this study we designed elongated PCBs that can be fit inside a trocar with a diameter of 15 mm. We prototyped different configurations placing the camera in front of the trocar and in one side of it. Finally we tested the effectiveness of the various configurations using a custom phantom with 15 mm trocar entrances.

RESULTS: We were able to produce different prototypes of thermal endoscopes. All the endoscopes met the dimensional requirements of the standard trocars used nowadays in RAL. The testing using the phantom highlighted the importance of fusing the data coming from the thermal endoscope (consisting on video representing temperature gradients on the tissue) with the data of the standard endoscope operating in the visible range of the spectrum.

CONCLUSIONS: The miniaturization of thermal sensors allows the construction of thermal endoscopes able to make the surgeon aware of thermal stresses caused to the tissues during RAL. The fusion of the visible and thermal data is pivotal for the correct use of the informations provided by thermal endoscopes.

SC304**Feasibility and outcomes of robot-assisted radical prostatectomy with the Hugo™ RAS System in patients with locally advanced prostate cancer: insights from a multicentric cohort**

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BACKGROUND: The management of locally advanced prostate cancer (PCa) remains challenging, and evidence on the performance of the Hugo™ Robotic-Assisted Surgery (RAS) System in this setting is still limited. We aimed to compare perioperative, oncological, and early functional outcomes of robot-assisted radical prostatectomy (RARP) using the Hugo™ RAS System between patients with and without radiological evidence of extracapsular extension (ECE) at preoperative MRI.

METHODS: Data from six high-volume centres were prospectively collected between October 2022 and September 2025. A total of 754 patients undergoing RARP w/o pelvic lymph node dissection using the Hugo™ RAS System were included. Patients were stratified by MRI findings as ECE (8.4%) or non-ECE (91.6%). Baseline, perioperative, and pathological variables were analysed. Functional recovery was assessed at 12 months, including urinary continence (0-1 safety pad/day) and potency (erections sufficient for inter-

course with or without oral agents). Biochemical control was defined as PSA <0.2 ng/mL.

RESULTS: All procedures were completed robotically without conversions or additional ports. Patients with ECE were older (66 years [IQR 61-70] vs. 64 years [59-69], $P=0.04$) and had higher PSA (8.1 [5.9-11.8] vs. 6.8 [5.0-10.1] ng/mL, $P=0.03$). Operative time was slightly longer in the ECE group (225 [185-262] vs. 212 [170-248] min, $P=0.02$), while estimated blood loss, intraoperative, and postoperative events were comparable (all $P>0.05$). At final pathology, pT3-4 disease was observed in 44.1% of ECE patients compared with 10.7% of non-ECE patients ($P<0.001$). Positive surgical margins occurred in 24.6% and 14.8%, respectively ($P=0.04$). At 12 months, continence recovery was 94.5% in the ECE group and 96.8% in the non-ECE group ($P=0.21$), and potency recovery was 73% and 80.4%, respectively ($P=0.14$). Biochemical control was achieved in 92.0% and 94.9% of patients ($P=0.68$).

CONCLUSIONS: RARP with the Hugo™ RAS System was feasible in patients with both ECE and non-ECE disease. Although positive surgical margins were more frequent in ECE cases, perioperative, oncological, and 12-month functional outcomes were comparable between groups.

SC305

Multicentre outcomes of robot-assisted radical prostatectomy using the Hugo™ RAS System: results from a large Italian collaboration

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BACKGROUND: Multicentre evidence on robot-assisted radical prostatectomy (RARP) performed with the Hugo™ RAS System remains limited. We aimed to report perioperative, pathological, and early functional outcomes from the largest Italian multicentre series of patients treated with Hugo™ RAS RARP.

METHODS: Data from six prospectively maintained datasets across high-volume centres were merged. A total of 754 patients who underwent RARP with or without pelvic lymphadenectomy since October 2022 were included. Baseline, perioperative, pathological, and early postoperative data were analysed. Trifecta was defined as prostate-specific antigen (PSA) <0.2 ng/mL with confirmatory value, erections sufficient for intercourse with or without oral pharmacological agents, and use of zero or one safety pad.

RESULTS: All procedures were completed robotically without conversion or need for additional port placement. Median age was 64 years (IQR 59-69), and median preoperative PSA was 7.0 ng/mL (IQR 5.2-10.4). Most patients were classified as ISUP grade 2 (35.4%) and EAU risk group 2 (58.1%) at biopsy, while preoperative magnetic resonance imaging suggested extraprostatic extension in 8.4% of cases. Median docking time was 9 minutes (IQR 6.5-12), median console time was 160 minutes (IQR 110-210), and median skin-to-skin operative time was 215 minutes (IQR 170-255). Pelvic lymphadenectomy was performed in 113 patients (19.1%), with a median nodal yield of 14 (IQR 10-20). At final pathology, 94 patients (12.5%) had pT3-4 disease,

while positive surgical margins were observed in 15.6% of cases. Overall, 713 patients (94.6%) achieved undetectable PSA after surgery, early urinary continence recovery at three months was recorded in 90.6%, and trifecta was achieved in 579 patients (76.8%).

CONCLUSIONS: All procedures were completed robotically without conversion or need for additional port placement. Median age was 64 years (IQR 59-69), and median preoperative PSA was 7.0 ng/mL (IQR 5.2-10.4). Most patients were classified as ISUP grade 2 (35.4%) and EAU risk group 2 (58.1%) at biopsy, while preoperative magnetic resonance imaging suggested extraprostatic extension in 8.4% of cases. Median docking time was 9 minutes (IQR 6.5-12), median console time was 160 minutes (IQR 110-210), and median skin-to-skin operative time was 215 minutes (IQR 170-255). Pelvic lymphadenectomy was performed in 113 patients (19.1%), with a median nodal yield of 14 (IQR 10-20). At final pathology, 94 patients (12.5%) had pT3-4 disease, while positive surgical margins were observed in 15.6% of cases. Overall, 713 patients (94.6%) achieved undetectable PSA after surgery, early urinary continence recovery at three months was recorded in 90.6%, and trifecta was achieved in 579 patients (76.8%).

SC306

Extraperitoneal robot-assisted radical prostatectomy using the Hugo™ RAS System: perioperative, functional and oncological outcomes from 100 consecutive cases with learning-curve analysis

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BACKGROUND: The Hugo™ Robotic-Assisted Surgery (RAS) system is a novel robotic platform, and evidence on extraperitoneal robot-assisted radical prostatectomy (eRARP) performed with Hugo™ remains scarce. This study aimed to report perioperative, oncological, and functional outcomes at 12 months and to evaluate the learning curve across 100 consecutive eRARP procedures.

METHODS: Between June 2023 and September 2024, 100 consecutive patients underwent prospectively collected eRARP using the Hugo™ RAS system. Preoperative, intraoperative, pathological, and follow-up data at 1, 3, 6, and 12 months were recorded. To assess temporal changes, the cohort was divided into the first 50 and last 50 cases. Primary endpoints included operative metrics, complications graded according to Clavien-Dindo, positive surgical margins (PSM; defined as clinically significant when ≥ 3 mm or multifocal), and biochemical control (PSA <0.1 ng/mL). Learning-curve dynamics were evaluated using CUSUM analysis for console time. Ethical approval (Institutional Ethics Committee N° 6331) and informed consent were obtained.

RESULTS: All procedures were completed without intraoperative conversion or intraoperative complications. Median operative time was 252.5 min (IQR 200-290), median console time was 180 min (IQR 150-240), and median estimated blood loss was 224 mL (± 125). Major complications (Clavien $\geq$ III) occurred in 2% of cases. At 12 months, 80% of patients had undetectable PSA (<0.1 ng/mL), social continence (≤ 1 pad/

day) was achieved in 87%, and erectile potency sufficient for intercourse was reported in 51%. The overall PSM rate was 40%, including 21% clinically significant PSM. Compared with the first 50 cases, the last 50 showed a reduction in median operative time from 275 to 210 min ($P<0.00001$), with substantial decreases also in console time and total operating room time. Overall complications declined from 26% to 4% ($P=0.0006$), while the rate of undetectable PSA at 12 months increased from 72% to 88% ($P=0.0466$). CUSUM analysis identified proficiency peaks at approximately cases 18-19 for each surgeon.

CONCLUSIONS: In this prospective single-centre series, eRARP performed with the Hugo™ RAS system proved feasible and safe during the early adoption phase. A clear early learning-curve effect was associated with improved efficiency and lower morbidity, while preserving acceptable early oncological and functional outcomes. Continued follow-up, ongoing monitoring, and multicentre comparative studies are warranted.

SC307

Propensity-matched comparison of extra *versus* transperitoneal robotic radical prostatectomy with Hugo RAS System

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BACKGROUND: The HUGO-RAS system has become a well-established robotic platform that enable us to perform the majority of urological procedures. Numerous studies have confirmed the safety and reliability of radical prostatectomy utilizing a transperitoneal approach. However, there is limited data regarding the use of extraperitoneal robotic assisted radical prostatectomy (eRARP) with the Hugo RAS system. This research compares intraoperative, post-operative and histopathological outcomes between the two techniques (transperitoneal *versus* extraperitoneal) performed with the HUGO-RAS system through a propensity score matched analysis.

METHODS: A retrospective multicenter study was conducted on 202 patients with prostate cancer undergoing robot-assisted radical prostatectomy between March 2023 and May 2024 at two institutions. Transperitoneal (tRARP) procedures were performed at one center, while extraperitoneal (eRARP) procedures were performed at the other, both using the HUGO-RAS system. Baseline demographic and clinical variables were collected. Intraoperative and perioperative outcomes included operative time, estimated blood loss, nerve-sparing rate, lymph node dissection, length of stay, catheterization time, positive surgical margins, and postoperative complications (Clavien-Dindo). Functional and oncological outcomes were assessed at 3 months. To reduce selection bias, a 1:1 propensity score matching (PSM) was performed using age, CCI, PSA, prostate volume, ASA score, prior surgery and clinical stage. Univariate and multivariable regression analyses were applied to evaluate the association between surgical approach and outcomes in both matched and unmatched populations.

RESULTS: After PSM 156 patients were included (78 per group), with no significant differences in baseline demographic or clinical characteristics between cohorts (all SMD <0.1). In the matched analysis, transperitoneal RARP (tRARP) was

associated with a significantly shorter operative time compared with extraperitoneal RARP (eRARP) (220 vs. 285 min, $P<0.001$), with regression analysis confirming a mean reduction of 50.05 minutes (95% CI 32.32; 67.78, $P<0.001$). Estimated blood loss was also lower in the tRARP group (100 vs. 180 mL, $P<0.001$), corresponding to a mean reduction of 91.67 mL (95% CI 51.85; 131.50, $P<0.001$). Docking time was comparable between approaches (9 vs. 10 min, $P=0.159$). Pelvic lymph node dissection was performed more frequently in the eRARP group (52.6% vs. 17.9%, $P<0.001$). No intraoperative complications occurred in either cohort. Nerve-sparing rates were similar overall (59.0% for tRARP vs. 56.4% for eRARP, $P=0.746$), although bilateral nerve-sparing was more common in the tRARP group (56.5% vs. 4.6%, $P<0.001$). Specimen weight did not differ significantly (37.0 vs. 37.5 g, $P=0.958$), and positive surgical margin rates were identical in both groups (42.3%, $P=1.000$). Median hospital stay was comparable (4 vs. 4 days, $P=0.730$), whereas Foley catheter duration was shorter in the eRARP group (12 vs. 15 days, $P<0.001$), confirmed at regression analysis (IRR 0.731, 95% CI 0.639-0.835; $P<0.001$). Major 90-day postoperative complications were uncommon and not significantly different (0.0% for tRARP vs. 2.6% for eRARP, $P=0.155$).

CONCLUSIONS: Both transperitoneal and extraperitoneal robotic radical prostatectomy performed with the Hugo-RAS System were safe and feasible, with comparable short-term postoperative and pathological outcomes, including positive surgical margin rates and major complication rates. The transperitoneal approach was associated with shorter operative time and lower blood loss, whereas the extraperitoneal approach allowed earlier catheter removal. These findings suggest that both techniques are valid options for robot-assisted radical prostatectomy with the HUGO-RAS platform, with perioperative differences that may guide individualized surgical planning according to surgeon preference and patient characteristics.

SC308

Predictors of trifecta achievement and early urinary continence recovery after robot-assisted radical prostatectomy with the Hugo™ RAS System: results from a multicentre Italian experience

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BACKGROUND: Multicentre evidence on functional and composite outcomes after robot-assisted radical prostatectomy (RARP) performed with the Hugo™ RAS System is still limited. We aimed to evaluate the rates of early urinary continence recovery and trifecta achievement, and to identify their predictors, in a large multicentre Italian cohort treated with this platform.

METHODS: Data from six prospectively maintained high-volume institutional datasets were merged. Overall, 754 patients who underwent RARP, with or without pelvic lymph node dissection, since October 2022 were included. Baseline clinical, perioperative, and pathological variables were anal-

ysed. Early urinary continence recovery was defined as the use of one safety pad or less per day at three months postoperatively. Trifecta was defined as prostate-specific antigen below 0.2 ng/mL with confirmatory value, erections sufficient for intercourse with or without oral pharmacological agents, and use of zero or one safety pad. Univariable and multivariable logistic regression analyses were performed to identify predictors of both endpoints. For early continence recovery, model discrimination was additionally assessed by area under the receiver operating characteristic curve.

RESULTS: All procedures were completed robotically without conversion or need for additional port placement. Most patients had ISUP grade 2 disease (35.4%) and EAU risk group 2 (58.1%) at biopsy, while suspected extraprostatic extension on preoperative magnetic resonance imaging was reported in 8.4% of cases. Early urinary continence recovery at three months was achieved in 90.6% of patients. On multivariable analysis, younger age (OR 0.95, 95% CI 0.92-0.98; $P=0.002$) and bladder-neck sparing intent (OR 2.35, 95% CI 1.45-3.82; $P=0.001$) were independent predictors of early continence recovery, with good model discrimination (AUC 0.82). Trifecta was achieved in 579 patients (76.8%). On multivariable analysis, previous benign prostatic hyperplasia surgery (OR 0.35, 95% CI 0.18-0.70; $P=0.002$), higher clinical stage (OR 0.70, 95% CI 0.54-0.91; $P=0.007$), and longer time to catheter removal (OR 0.92, 95% CI 0.88-0.97; $P=0.002$) were independent negative predictors of trifecta achievement.

CONCLUSIONS: In this multicentre Italian experience, RARP with the Hugo™ RAS System provided favourable early functional and composite outcomes. Early urinary continence recovery was mainly associated with younger age and bladder-neck preservation, whereas trifecta achievement was negatively influenced by previous benign prostatic hyperplasia surgery, more advanced clinical stage, and delayed catheter removal. These findings may support preoperative counselling, perioperative decision-making, and a more informed postoperative discussion with patients.

SC309

Impact of learning curve in the transitional phase from Da Vinci to Hugo RAS robotic platform for robot-assisted radical prostatectomy

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BACKGROUND: To assess the impact of the learning curve associated with transitioning from the DaVinci Xi to the HUGO RAS platform for robot-assisted radical prostatectomy (RARP), focusing on perioperative metrics, oncologic outcomes, and early functional recovery.

METHODS: Eighty consecutive patients treated with RARP at a single high-volume centre between July 2023 and July 2024 were prospectively enrolled: 40 underwent HUGO RAS RARP (H-RARP) and 40 DaVinci Xi RARP (DV-RARP). All procedures were performed by a single surgeon at the end of the RARP learning curve (250 cases). Procedural times for each standardized surgical step were recorded according to a Delphi Consensus. Complications were classified using the Clavien-Dindo classification and Common Terminology Criteria for Adverse Events v5.0.

Restricted cubic spline modelling within a mixed-effects framework and locally weighted scatterplot smoother (LOWESS) were used to analyse non-linear time trends across sequential cases. Fisher's Exact Test and Mann-Whitney U Test were used for group comparisons.

RESULTS: Baseline characteristics were comparable between groups. Median age was 67 years (IQR 63-70) for H-RARP and 66 years (IQR 62-69) for DV-RARP ($P=0.6$); median PSA was 7.1 ng/mL (IQR 5.0-11.7) vs. 6.5 ng/mL (IQR 5.0-7.9) ($P=0.4$). H-RARP showed significantly longer patient positioning and docking time (22 vs. 12 min, $P<0.001$), console time (160 vs. 133 min, $P<0.001$), and total operative time (190 vs. 145 min, $P<0.001$). Anastomosis time was longer in H-RARP (30 vs. 23 min, $P=0.005$). No significant differences were observed in estimated blood loss (300 vs. 320 mL, $P=0.07$), complication rates (12% vs. 10%, $P=0.3$), positive surgical margins (31% vs. 20%, $P=0.4$), or length of stay (3 vs. 3 days, $P=0.7$). Continence at 6 months was 91% vs. 92% ($P>0.9$); potency recovery was 69% vs. 83% ($P=0.7$). Restricted cubic spline analysis identified non-linear learning trajectories with distinct platform-specific plateau points. Docking time reached a stable plateau at case 28. Anastomosis time, console time, and total operative time all showed a marked late-phase reduction, with H-RARP performance converging towards DV-RARP levels and reaching a plateau at case 34. Beyond this threshold, no further significant improvement in operative times was observed, indicating consolidated proficiency with the HUGO RAS platform.

CONCLUSIONS: Transitioning from DaVinci Xi to HUGO RAS for RARP is associated with a short learning curve, with proficiency achieved after approximately 34 procedures. Initial differences in docking, anastomosis, and operative time did not compromise patient safety, complication rates, or early functional outcomes. HUGO RAS can be effectively integrated in high-volume centres by experienced robotic surgeons without adversely affecting procedural quality.

SC310

Cost-minimization of Hugo RAS vs. Da Vinci Xi in robot-assisted radical prostatectomy: a detailed micro-costing analysis

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BACKGROUND: To perform a detailed micro-costing analysis comparing Hugo RAS and Da Vinci Xi in robot-assisted radical prostatectomy (RARP).

METHODS: A retrospective analysis was conducted on consecutive RARPs performed between December 2023 and September 2024 using either Hugo RAS (N.=106) or Da Vinci Xi (N.=203). Direct costs included OR utilization (2.01 €/min), personnel (5.49 €/min; 2 surgeons, 1 anaesthetist, 3 nurses), sterilization (2 trays × 103.86 €), robotic instrumentation (Hugo fixed at 939 €; Da Vinci average 1,900 € per procedure excluding Easy Kit), and disposables (common materials plus Easy Kit 450 € for Da Vinci; common materials only for Hugo). Indirect costs comprised hospital stay (400 €/day), general expenses (91 €/day), laboratory tests (60 €/day), pre-operative work-up (100 €), and discharge dressing (5 €). Continuous variables were compared using the Wilcoxon

rank-sum test and categorical variables with Fisher's Exact Test; $P < 0.05$ was considered statistically significant. Break-even analysis was performed considering annual maintenance costs (115,900 € for Hugo; 262,300 € for Da Vinci).

RESULTS: Median operative time was 220 min (IQR 200-255) for Hugo vs. 200 min (IQR 180-235) for Da Vinci ($P = 0.04$). Median length of stay was 3 days (IQR 3-4) in both groups ($P = 0.64$). OR costs were higher in Hugo (442 € vs. 402 €, $P = 0.04$), as were personnel costs (1,208 € vs. 1,098 €, $P = 0.04$). Instrumentation costs were significantly lower in Hugo (939 € vs. 1,900 €, $P < 0.001$), and disposable costs were lower in the absence of the Easy Kit (450 €, $P < 0.001$). Hospital stay costs were comparable between groups (1,200 € vs. 1,200 €, $P = 0.64$). Median total cost per procedure was 6,371 € (IQR 6,041-6,754) for Hugo vs. approximately 6,900 € (IQR 6,500-7,300) for Da Vinci ($P < 0.001$), representing a saving of approximately 500-600 € per case (8%). Break-even analysis showed that Hugo reached maintenance sustainability at approximately 178 cases per year, compared to more than 300 cases per year for Da Vinci.

CONCLUSIONS: Hugo RAS demonstrates a significant per-procedure cost advantage of approximately 500 € compared to Da Vinci Xi, driven by lower instrumentation and disposable costs. Despite longer operative times, overall savings remain statistically significant, enabling earlier break-even and improved economic sustainability in high-volume robotic programmes.

SC311

Robot-assisted radical prostatectomy using novel Toumai MT-1000 robotic platform: initial urological experience in a multiplatform center

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BACKGROUND: Toumai MT-1000 is novel robot used primarily in Urology and offering surgical alternative to gold-standard robotic systems so far. Initial reports described easy transition from the Da Vinci. We evaluated the perioperative, early oncological, and functional outcomes of robot-assisted radical prostatectomy (RARP) performed using Toumai MT-1000 in our multiplatform tertiary referral center.

METHODS: This is a prospective study carried out at a referral center for robotic surgery. Since the introduction of Toumai surgical system, 30 RARP have been performed without upfront case selection. A transperitoneal anterior approach was performed in all cases by 7 robotic surgeons. Trocar positioning was like the other platforms at the institution (Hugo and Da Vinci). Data on demographics, perioperative variables, and both early oncological and functional outcomes were analyzed for those patients with availability up to 6-month follow-up. Median, first, and third quartiles were used to describe quantitative variables. Events and frequencies were used to describe qualitative variables.

RESULTS: The cohort included 30 male patients, with a median age of 66.8 (62-71) years. Median IPSS was 11.5 (7-15), and median IIEF score was 14.4 (5-24). 7 (23.3%) patients had palpable ($\geq cT2$) disease, and median preoperative

PSA levels were 7.5 (5.8-15.4) ng/mL. At multiparametric Magnetic Resonance Imaging median prostatic volume was 48 (37-66) cc, median index lesion diameter was 17 (10-30) mm, 3 (10%) patients had locally advanced disease ($\geq iT3a$), and 4 (13.3%) were cN+. Median docking time was 12 (11-17) minutes and median console time was 160 (138-207) minutes. pelvic lymph node dissection was performed in 9 (30%) patients, and nerve-sparing technique was performed in 19 (63.4%) patients. No critical malfunctions, nor related to surgical console nor to the robotic boma, were experienced. Three cases of internal conflicts easily fixed were recorded. Median estimated blood loss was 141 (100-200) mL, and no intraoperative complications stepped in. Only one (3.3%) patient experienced a major postoperative complication (Clavien Dindo > 2). Median length of stay was 2 (2-3) days, and catheter was removed on day 8 (7-10). On final histopathology 3 (10%) had ISUP-1, 15 (50%) had ISUP-2, 8 (26.7%) had ISUP-3, 2 (6.7%) patients had ISUP-4, and 2 (6.7%) had ISUP-5 grade. 9 (30%) had a locally advanced disease ($\geq pT3a$). Positive Surgical Margins (PSM) rate was 20%: 3 (10%) in pT2 disease and 3 (10%) in locally advanced disease, who experienced biochemical recurrence at 3-mo. Median 6-mo PSA was 0.03 (0.01-0.1) ng/mL, undetectable PSA rate at 6-mo was 96.7% after 3 cases of biochemical recurrence treated with salvage radiotherapy. 90% were social continent at 6 mo.

CONCLUSIONS: Toumai MT-1000 is a novel multiport single-boom robotic platform that recently entered the European market. The transition for multiplatform users was immediate and safe. In this study, RARP performed using Toumai are feasible and safe without relevant malfunctioning nor issue related to the novel system. Its outcomes are encouraging, likely to offer an alternative to the gold-standard robotic platform in the market. More studies with longer follow-up are mandatory to fully understand the potential of this novel robotic platform.

SC312

Early postoperative outcomes with the Toumai® surgical system in robot-assisted radical prostatectomy: a prospective comparative study with the Da Vinci® platform

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BACKGROUND: Prostate cancer (PCa) represents a major global health challenge, and robot-assisted radical prostatectomy (RARP) is considered the standard of care for localized disease. Although the da Vinci® Xi system currently dominates the market, the Toumai® MT-1000 has emerged as a potentially more cost-effective alternative, though prospective clinical evidence remains limited. Our aim is to compare perioperative safety, oncological outcomes (primary endpoint: positive surgical margins), early functional recovery (urinary continence), and the surgeon learning curve between the Toumai® MT-1000 (T-RARP) and the Da Vinci® Xi system (DV-RARP) in a high-volume European center.

METHODS: This prospective, single-center comparative study was conducted at Policlinico Gemelli, Rome, between May and November 2025. A total of 80 patients with localized or locally advanced PCa scheduled for radical prosta-

ectomy were enrolled and randomly assigned to undergo surgery using either the Toumai or da Vinci robotic platform. The primary endpoint was the rate of positive surgical margins (PSM). Secondary endpoints included operative time (skin-to-skin), estimated blood loss (EBL), length of hospital stay (LOS), and 45-day postoperative outcomes, specifically Clavien-Dindo complications, urinary continence recovery (0-1 pad/day), and IIEF-5 scores. The learning curve was assessed using cumulative summation (CUSUM) analysis and linear regression of operative times. Statistical analyses were performed using STATA 19, with two-sided tests and significance set at $P < 0.05$.

RESULTS: Baseline characteristics were well balanced between the two groups (standardized mean difference ≤ 0.1 for most variables). Perioperative outcomes were comparable: median operative time was 192.5 minutes (IQR 165-230) for Toumai® and 183.5 minutes (IQR 147-225) for da Vinci® Xi ($P = 0.38$); median EBL was 150 mL in both groups ($P = 0.87$); median LOS was 2 days in both groups ($P = 0.92$). PSM rates were identical at 17.5% ($P = 0.79$). Continence recovery rates were 72.5% in the Toumai group and 80% in the da Vinci group ($P = 0.43$). Complication rates (Clavien-Dindo $\geq II$) were 7.5% versus 12.5% ($P = 0.45$). CUSUM analysis indicated attainment of operative time proficiency after only four cases, while regression analysis showed no significant trend in operative time over the study period ($P = 0.38$).

CONCLUSIONS: The Toumai® MT-1000 system demonstrates comparable performance to the da Vinci® Xi across key RARP outcome measures, with no evident learning curve for surgeons already experienced with the Da Vinci platform. These findings support the potential adoption of likely more cost-effective robotic systems in clinical practice, pending further validation through multicenter randomized studies.

SC313

Telesurgical versus on-site robot-assisted radical prostatectomy: a prospective comparative study

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BACKGROUND: Robot-assisted telesurgery has recently regained interest; however, high-quality prospective comparative data remain limited. Robot-assisted radical prostatectomy (RARP) represents a standardized model to evaluate its clinical implementation. We aimed to compare the safety, perioperative performance, and technical feasibility of telesurgical versus on-site RARP.

METHODS: This prospective, non-randomized pilot study included 20 patients undergoing RARP (10 telesurgical and 10 matched on-site) between two Belgian institutions, AZORG Hospital and Orsi Academy. Patients were matched for key demographic and clinical characteristics. The primary endpoint was intraoperative safety, assessed using the EAU intraoperative adverse incident classification (EAUiaIC). Secondary endpoints included perioperative outcomes, postoperative recovery, pathological, biochemical, and functional outcomes, as well as telesurgery-specific technical parameters, including network latency, system reliability, and surgeon-reported usability and workload (PSSUQ, NASA-TLX).

RESULTS: No intraoperative adverse events occurred in either group. Operative times, blood loss, and postoperative recovery were comparable. No major complications (Clavien-Dindo ≥ 3) were observed. Pathological, biochemical, and early functional outcomes did not differ significantly between groups. Mean network latency was low (10.7 ± 5.3 ms), with stable performance throughout procedures. A single transient connection interruption occurred without clinical consequences or need for local takeover. Usability and workload scores were favorable. Limitations include the small sample size, short inter-institutional distance, and involvement of highly experienced surgical teams.

CONCLUSIONS: Telesurgical RARP is feasible and can be safely performed with perioperative outcomes comparable to on-site surgery under stable low-latency conditions. These findings support the clinical applicability of telesurgery and provide a framework for future larger-scale evaluations.

SC314

Impact of robotic platform design on docking time and operative workflow efficiency: comparative analysis of three robotic systems

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BACKGROUND: The emergence of next-generation robotic platforms has introduced different architectural designs, including single-boom and multi-cart systems, raising questions about their impact on operative workflow efficiency. This study aimed to compare docking time and perioperative workflow metrics between two novel robotic systems (Toumai® and Hugo™ RAS), using the Da Vinci Xi as a reference standard.

METHODS: This single-center comparative study included 62 consecutive patients undergoing robot-assisted radical prostatectomy: 23 with Da Vinci Xi, 24 with Toumai®, and 15 with Hugo™ RAS. The primary endpoint was docking time, defined as the interval between final trocar placement and console start. Secondary endpoints included additional perioperative time metrics and intraoperative variables. Statistical analysis was performed using one-way ANOVA with Bonferroni correction.

RESULTS: Baseline characteristics were comparable across groups, with no significant differences in age (64 ± 7 vs. 66 ± 8 vs. 63 ± 7 years, $P = 0.6$), BMI (25 ± 3 vs. 26 ± 3 vs. 27 ± 4 kg/m², $P = 0.6$), or comorbidity burden. Docking time differed significantly among platforms ($F = 26.56$, $P < 0.001$), with a mean of 5.52 ± 1.90 minutes for Da Vinci Xi, compared to 10.17 ± 3.31 minutes for Toumai® and 11.20 ± 2.51 minutes for Hugo™ RAS. Post hoc analysis confirmed significantly longer docking times for both Toumai® and Hugo™ RAS compared to Da Vinci (mean differences $+4.64$ and $+5.68$ minutes, respectively; both $P < 0.001$), while no difference was observed between the two new systems ($P = 0.731$). Entrance-to-incision time was also significantly different ($P = 0.0095$), being longer with Toumai® compared to Da Vinci ($+9.13$ minutes, $P = 0.022$), whereas no difference was found between Hugo™ RAS and Da Vinci. Estimated blood loss (135 ± 41 vs.

146±72 vs. 160±100 mL, $P=0.5$), intraoperative events (4% vs. 4% vs. 13%, $P=0.4$), and closure-to-exit time ($P=0.26$) were comparable across groups.

CONCLUSIONS: No significant differences in workflow efficiency were observed between single-boom and multi-cart next-generation robotic platforms. However, the da Vinci system demonstrated consistently shorter docking times, suggesting that technological maturity rather than architectural design may play a more relevant role in optimizing operative workflow.

SC315

Age trends of radical prostatectomy over the past 20 years in a regional setting

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BACKGROUND: Our objective is to assess the age and clinical data in a series of radical prostatectomy over a 20 years period of time in a tertiary care regional setting.

METHODS: The data of patients undergoing radical prostatectomy from 2005 to 2025 in a Department of Urology in a regional setting were reviewed. Data were retrieved from

a prospectively maintained database. Patients underwent retropubic (2005-2009), laparoscopic (2009-2011), and robotic prostatectomy (2012-). Patients were analyzed focusing on age at the time of operation, and clinical data (PSA, pathological stage (pT), and Gleason score (pGS). Data were divided into 4 groups according to the years of radical prostatectomy (2005-2009, 2010-2014, 2015-2019, 2020-2025).

RESULTS: 2337 patients underwent radical prostatectomy in the study period: 381, 452, 559, and 945 patients in the 2005-2009, 2010-2014, 2015-2019, 2020-2025 years, respectively.

CONCLUSIONS: An age migration of 3 years occurred in our series of consecutive patients undergoing radical prostatectomy from 66 to 69 years old from 2005-2009 to 2020-2025. The age group younger than <55yo remained stable, whereas the age group >75yo increased steadily through the years. The clinical characteristics (PSA and pGS) were more favorable, with the exception of the local staging: pT3 increased from 2005-2009 to 2020-2025, possibly indicating that biases in patient selection and pathological review might have occurred 15-20 years ago. In conclusion, our series shows that older patients with more favorable features undergo surgery. These findings, if confirmed on a larger scale, might solicit clinicians, researchers, and policy makers about a re-thinking on prostate cancer diagnosis and treatment.

SMART COMMUNICATION (SC316 - SC325)

Patologie uretrali

SC316

Adipose-assisted regenerative urethroplasty: first experience and preliminary results for treatment of recurrent male anterior urethral strictures

SC317

Regenerative medicine in the treatment of urethral strictures: a preliminary study

SC318

Optilume® drug-coated balloon for post-prostatectomy bladder neck stricture: prospective evaluation of functional outcomes and stricture-free survival

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Treatment of recurrent bulbar urethral stricture: a comparison between paclitaxel-drug coated balloon dilation and urethrotomy

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Real-world outcomes of drug-coated balloon (Optilume™) for urethral stricture disease: a multicenter retrospective study

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Early results of Optilume® for bulbar urethral strictures: a two-center study

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Prospective 12-month outcomes of outpatient treatment for recurrent urethral strictures, bladder neck sclerosis and vesicourethral anastomosis strictures with the Optilume® drug-coated balloon

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Outcomes of urethroplasty for failed hypospadias repair related strictures in adults: a single-center retrospective analysis

SC324

Preserving the urethra! Early experience with mucosal-sparing augmented non-transected anastomotic urethroplasty

SC325

Single-stage Kulkarni urethroplasty in the management of long anterior urethral strictures associated with lichen sclerosus

SC316**Adipose-assisted regenerative urethroplasty: first experience and preliminary results for treatment of recurrent male anterior urethral strictures**

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BACKGROUND: Recurrent anterior urethral strictures (RAUS) are a major challenge in reconstructive urology due to spongiobrosis, poor vascularization, and reduced tissue elasticity. Multiple techniques are available, but evidence-based guidelines are lacking, so treatment often relies on surgeon experience. Adipose-assisted regenerative urethroplasty (ARU), were developed through the application of mechanically processed lipoaspirates, aiming to reduce fibrosis, improve vascularization, and support durable tissue regeneration. We present the clinical rationale and outcomes of ARU.

METHODS: We conducted a single-center prospective pilot study on males undergoing ARU for RAUS, performed by a single surgeon and approved by the institutional ethics committee (CET-0104113). Inclusion criteria were males with RAUS; key exclusions were obliterative stricture or posterior stenosis. All pts underwent preoperative assessment with cystourethrography, urethroscopy, uroflowmetry, and abdominal ultrasonography with residual urine assessment. Follow-up was scheduled every 3 mo in year one, every 6 mo in year two, then annually. Uroflowmetry was performed regularly, with annual ultrasound and residual urine assessment. A descriptive statistical analysis was performed.

RESULTS: A total of 41 patients underwent ARU between 2022 and 2024. The mean age was 56.0±14.6 yrs. Stricture etiology was unknown 14 (34.1%), lichen sclerosis (LS) 13 (31.7%), failed hypospadias repair (FHR) 8 (19.5%), iatrogenic 4 (9.8%), traumatic 1 (2.4%) and 1 FHR+LS. A single stricture was in 35 pts (85.4%), while multiple were in 6 pts (14.6%). Stricture site was in the penile urethra 20 pts (48.8%), 15 (36.6%) in the bulb, while penile-bulbar was in 6 (12.2%). Mean stricture length was 5.4±3.6 cm, with a median length of 5.0 cm (IQR 3.0-6.0), reflecting a cohort predominantly composed of long and complex strictures. At the last follow-up, overall surgical success was achieved in 68.3% (28/41) of pts, including full success in 48.8% (20/41) and partial success in 19.5% (8/41). Failure, defined as the need for additional procedures, occurred in 31.7% (13/41) of cases. Failure-free survival was 79.4% at 12 mo and 58.6% at 24 mo, remaining stable thereafter up to the last available follow-up. Kaplan-Meier analysis stratified by etiology demonstrated a significantly lower failure-free survival in pts with LS strictures compared with pts with other etiologies (log-rank $p \approx 0.01$). Failure events in the LS group occurred earlier and more frequently, whereas pts with non-LS strictures showed more durable long-term outcomes. No cases of erectile dysfunction or penile shortening were reported. Two pts developed residual millimetric fistulas that do not request treatment. Of 13 pts failure, 3 underwent perineostomy, 2 underwent uretrotomy, 7 a redo-ARU.

CONCLUSIONS: We report on the first experience and the preliminary results of ARU for RAUS. It is feasible, safe, and potentially effective at medium-term follow-up, being easy to obtain and adaptable to different anatomical defects. ARU is a promising addition to urethral surgery, although larger prospective studies with longer follow-up are needed to confirm their efficacy.

SC317**Regenerative medicine in the treatment of urethral strictures: a preliminary study**

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BACKGROUND: Platelet-rich plasma (PRP) is an autologous blood-derived product rich in growth factors. It has been shown to support tissue healing by promoting cell proliferation, improving blood supply, and reducing inflammation. These properties may be beneficial in conditions characterized by fibrosis and pathological scarring, such as urethral stricture disease. The aim of our study is to evaluate the safety and feasibility of intra-urethral PRP injection as an adjunct to urethral surgery, promoting regeneration of fibrotic and scarred tissues, stimulating neoangiogenesis, and improving clinical outcomes. In graft urethroplasty, an additional objective is to enhance graft take and vascularization.

METHODS: Since September 2025, 58 patients have undergone surgical treatment combined with intra-urethral PRP injection. Inclusion criteria were bulbar and/or penile urethral strictures of any length, including primary and recurrent cases and/or with associated lichen sclerosis. Thirty-two patients were treated with endoscopic urethrotomy and 26 with urethroplasty, including 15 graft urethroplasties. Exclusion criteria included coagulation disorders, anticoagulant therapy, hematologic diseases, and active or previous hematologic or local malignancies. Primary outcome was the treatment success, defined as the absence of need for any postoperative instrumentation including also a simple dilation. Secondary outcomes include any postoperative complications PRP-related.

RESULTS: The procedure was safe and well tolerated in all patients, with no major PRP-related complications. In this setting, 5 patients were affected by concomitant lichen sclerosis. Specifically, only 18 patients (12 urethrotomies and 6 urethroplasties) had at least 3 months of follow-up; the maximum follow-up was 6 months in 6 cases. The currently available follow-up is limited in both duration and sample size, precluding definitive conclusions on efficacy in terms of recurrence reduction or clinical improvement. At this stage, two patients in the endoscopic urethrotomy group have developed stricture recurrence.

CONCLUSIONS: Intra-urethral PRP injections appear to be a safe and promising adjunct in urethral surgery, with a potential role in enhancing tissue regeneration and contrasting fibrotic processes, including those related to lichen sclerosis.

SC318**Optilume® drug-coated balloon for post-prostatectomy bladder neck stricture: prospective evaluation of functional outcomes and stricture-free survival**

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BACKGROUND: Bladder neck stricture (BNS) is a recognized complication following radical prostatectomy (RP), with recurrence rates reported to be as high as 50% after stan-

dard endoscopic treatments. Optilume®, a paclitaxel-coated balloon, combines mechanical dilation with localized antiproliferative drug delivery, potentially reducing the risk of stricture recurrence. This study aimed to evaluate the safety and efficacy of Optilume® in the treatment of post-RP bladder neck strictures.

METHODS: Patients with symptomatic bladder neck stricture following RP were prospectively enrolled. All patients underwent endoscopic dilation using the Optilume® drug-coated balloon. The primary endpoint was stricture-free survival at 6 months. Secondary endpoints included changes in maximum urinary flow rate (Qmax), post-void residual volume (PVR), urinary continence status, and procedure-related complications. Follow-up evaluations were performed at 1, 3, and 6 months postoperatively.

RESULTS: Between February 2024 and May 2025, 56 consecutive patients with symptomatic bladder neck stricture following RP were prospectively enrolled. The median time from RP to Optilume® treatment was 9 months (IQR 6-14). At a median follow-up of 6 months, 43/56 patients (76.8%) remained free from stricture recurrence. Mean Qmax improved significantly from 5.1 ± 2.4 mL/s preoperatively to 16.3 ± 4.1 mL/s at last follow-up ($P=0.002$), while median PVR decreased from 164 mL (IQR 120-240) to 23 mL (IQR 0-45). No significant deterioration in urinary continence was observed during follow-up. Procedure-related complications occurred in 6 patients (10.7%), all classified as Clavien-Dindo grade I-II. No device-related serious adverse events were reported.

CONCLUSIONS: The 6-month stricture-free survival indicates that Optilume® drug-coated balloon dilation offers durable, short- to mid-term relief in managing post-prostatectomy bladder neck strictures, which often recur after standard approaches. Improved urinary flow and lower residual volume show effective bladder outlet opening, and stable continence supports safety. The low minor complications and no serious device-related issues highlight its safety. Overall, combining dilation with antiproliferative drug delivery may overcome limitations of conventional treatments, making Optilume® a promising minimally invasive option for recurrent or refractory strictures. In this prospective cohort, Optilume® drug-coated balloon dilation demonstrated encouraging short- to mid-term efficacy and a favorable safety profile for the management of bladder neck strictures following RP. These findings suggest that Optilume® may represent a valuable minimally invasive option, particularly in recurrent or refractory cases. Larger prospective studies with longer follow-up are warranted to confirm these results and to better define the role of Optilume® within post-prostatectomy stricture management algorithms.

healthcare costs. Short and recurrent strictures (<2 cm), often of iatrogenic origin, are traditionally managed with direct vision internal urethrotomy (DVIU), a simple endoscopic procedure burdened by high recurrence rates (40-80% at 12 months). The introduction of the Paclitaxel drug-coated balloon (DCB) represents an innovative approach aimed at preventing post-dilation fibrotic recurrence through the local delivery of Paclitaxel, an antimitotic and antiproliferative agent. The primary objective of this study was to evaluate and compare the 12-months success rate between patients with recurrent bulbar urethral strictures (<2 cm) treated with DCB *versus* DVIU, using the composite and multidimensional Stricture-Fecta outcome, combining anatomical patency, maximum urinary flow rate ($Q_{max} > 15$ mL/s and at least a 10 mL/s increase compared to preoperative values), freedom from re-intervention, safety, and symptomatic improvement.

METHODS: A single-center retrospective study was conducted on 54 patients with recurrent bulbar urethral strictures shorter than 2 cm (DCB, N.=26; DVIU, N.=28). The two groups were comparable in terms of stricture length and number of prior procedures; however, patients in the DVIU group were significantly older ($P=0.015$). Statistical analysis included the Chi-square Test to compare the primary outcome and Kaplan-Meier analysis to assess recurrence-free survival. Multivariable logistic regression was performed to identify predictors of treatment success.

RESULTS: At 12 months, the Stricture-Fecta success rate was significantly higher in the DCB group (53.8%) compared with the DVIU group (7.1%) ($P<0.001$). The odds ratio (OR) for achieving Stricture-Fecta success with the Paclitaxel-coated balloon *versus* DVIU was 15.17 (95% CI: 3.01-76.28; $P<0.001$). Multivariable analysis confirmed that treatment with DCB was the only significant predictor of success (OR 11.65). Kaplan-Meier analysis demonstrated a significantly longer re-intervention-free time in the DCB group ($P<0.001$). Functional and symptomatic outcomes at 12 months showed significantly higher Qmax values and better IPSS and QoL scores in patients treated with DCB. No significant differences were observed in perioperative or postoperative complication rates between groups.

CONCLUSIONS: In patients with short (<2 cm) recurrent bulbar urethral strictures, treatment with a Paclitaxel drug-coated balloon demonstrated significantly superior efficacy compared with endoscopic urethrotomy, achieving a Stricture-Fecta-based success rate more than 15-fold higher on bivariate analysis and 11-fold higher on multivariable analysis. The Paclitaxel-coated balloon appears to be a highly promising endoscopic therapeutic option for this patient population.

SC319

Treatment of recurrent bulbar urethral stricture: a comparison between paclitaxel-drug coated balloon dilation and urethrotomy

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BACKGROUND: Male urethral stricture disease, particularly bulbar strictures (the most frequently affected segment), is a common and complex condition associated with obstructive urinary symptoms, recurrent infections, and substantial

SC320

Real-world outcomes of drug-coated balloon (Optilume™) for urethral stricture disease: a multicenter retrospective study

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BACKGROUND: Drug-coated balloon (DCB) technology has shown promising results in the endoscopic management of urethral strictures, mainly in recurrent bulbar disease. However, evidence in real-world populations, including treatment-naïve patients and non-bulbar locations, remains

limited. This multicenter retrospective study aimed to evaluate the effectiveness and safety of Optilume™ in a heterogeneous real-life cohort and to explore the impact of clinical and procedural variables – particularly postoperative catheterization and tadalafil use – on functional and clinical outcomes.

METHODS: A multicenter retrospective observational study was conducted on 21 consecutive patients treated with Optilume™ between March 2024 and November 2025 at three tertiary referral centers. Patients with urethral strictures ≤ 4 cm of any etiology and location were included, both treatment-naïve and previously treated, excluding prior urethroplasty or concomitant endoscopic procedures for bladder outlet obstruction. Stricture locations included fossa navicularis (N=3), penile urethra (N=6), bulbar urethra (N=16), and vesico-urethral anastomosis after radical prostatectomy (N=5). Primary outcomes were changes in uroflowmetry parameters (Qmax, Qmean, post-void residual volume [PVR]), symptom scores (IPSS, QoL), and freedom from reintervention. Non-parametric analyses (Mann-Whitney U, Fisher's Exact Test) were used; $P < 0.05$ was considered statistically significant.

RESULTS: Median age was 67 years, with a median follow-up of 10.5 months. Overall, Optilume™ resulted in significant functional and symptomatic improvement: median Qmax increased from 7.3 to 17.5 mL/s (+10.2 mL/s), Qmean from 3.1 to 10.2 mL/s (+7.1 mL/s), and median PVR decreased from 55 to 15 mL. Median IPSS improved by 14 points, with 63.15% of patients classified as responders ($\geq 50\%$ IPSS reduction). Freedom from reintervention was 90% (28/31). By location, excellent outcomes were observed in fossa navicularis strictures, with marked improvements in flow and symptoms and no reinterventions. Bulbar strictures showed good results, with 70% achieving $\geq 50\%$ IPSS reduction. Penile strictures demonstrated modest uroflowmetric improvement but relevant symptomatic benefit. Vesico-urethral anastomotic strictures showed heterogeneous outcomes, with poorer responses in patients previously treated with radiotherapy. Radio-induced strictures overall showed limited efficacy, with reintervention required in 50% of cases. Postoperative catheterization (catheter vs. no catheter: N=14 vs. N=16) was not associated with differences in functional outcomes ($\Delta Q_{\max}$ $P=0.85$; ΔQ_{mean} $P=0.72$; ΔPVR $P=0.57$), IPSS improvement ($P=0.806$), QoL improvement ($P=0.52$). Similarly, postoperative tadalafil use was not associated with significant differences in functional outcomes, symptom scores, or reintervention rate (all $P > 0.05$). No major intraoperative complications occurred.

CONCLUSIONS: In a real-world multicenter cohort including diverse stricture locations and treatment histories, Optilume™ demonstrated favorable safety and clinically meaningful improvements in urinary function and symptoms, with a low short-term reintervention rate. Outcomes varied according to stricture location and etiology, with reduced efficacy in radio-induced disease. Selective omission of postoperative catheterization did not negatively impact outcomes. Larger prospective studies are needed to better define patient selection and long-term durability across different urethral stricture subtypes.

SC321

Early results of Optilume® for bulbar urethral strictures: a two-center study

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BACKGROUND: Urethral strictures represent a condition that significantly impacts quality of life and is one of the leading causes of lower urinary tract symptoms. Drug-coated balloon (DCB) dilation with paclitaxel is a treatment that has shown promising efficacy. The Optilume® DCB combines mechanical dilation for immediate relief with localized paclitaxel delivery to maintain urethral patency. The aim of our study is to evaluate the effectiveness of the Optilume® device in the treatment of recurrent bulbous urethral strictures.

METHODS: We performed a retrospective, two-center analysis of patients who underwent urethral dilation with the Optilume® device between November 2023 and May 2025 for bulbous urethral strictures ≤ 3 cm. All patients had undergone at least one cold knife urethrotomy. Preoperative assessment included cystoscopy, retrograde, and voiding cystourethrography to evaluate the length and characteristics of the stricture. The International Prostate Symptom Score (IPSS), Quality of Life (QoL), and maximum urinary flow rate (Qmax) were assessed using uroflowmetry both pre and post-operatively.

RESULTS: A total of 32 patients with bulbous urethral strictures were enrolled. Seventeen had prior endourological procedures, four had a history of radical prostatectomy, four had idiopathic forms, three had previous pelvic radiotherapy for prostate cancer, and four had recurrent urinary tract infections. The mean length of the stricture was 2.1 cm (range: 1.5-3 cm). The average caliber of the stricture was 12 Fr (range: 8-15 Fr). The median preoperative IPSS value was 24 (IQR 17-29). The median IPSS values at 1, 3, and 6 months were 12 (IQR 4-18), 15 (IQR 5-20), and 15 (IQR 5-22), respectively. The median preoperative QoL value was 5 (IQR 3-6). At 1, 3, and 6 months, the median QoL values were 2 (IQR 2-3), 2 (IQR 2-3), and 2 (IQR 2-4), respectively. The median preoperative Qmax value was 7.2 mL/s (IQR 5-12). At 1, 3, and 6 months, the median Qmax values were 19 mL/s (IQR 10-32), 18 mL/s (IQR 9-29), and 16 mL/s (IQR 7-25), respectively. Four patients repeated intervention (12.5%), with a mean time to recurrence of 8 months (range: 7-9 months). No intra or post operative complication were encountered. The mean follow-up was 12.1 months, ranging from 6 to 20 months.

CONCLUSIONS: The Optilume® DCB has proven to be a safe and effective treatment for bulbous urethral strictures ≤ 3 cm in length. It represents a simple yet effective treatment with sustained outcomes over time. The limitations of the study include the small number of patients treated and the short follow-up period.

SC322

Prospective 12-month outcomes of outpatient treatment for recurrent urethral strictures, bladder neck sclerosis and vesicourethral anastomosis strictures with the Optilume® drug-coated balloon

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BACKGROUND: Urethral stricture disease represents a challenging condition in urological practice, particularly in patients with recurrent anterior urethral narrowing following prior endoscopic interventions. The Optilume® drug-coated balloon (DCB) combines mechanical dilation with localized delivery of paclitaxel, aiming to reduce urethral restenosis and improve short-term durability. This study aims to evaluate

the short-term functional outcomes and safety profile of the Optilume® DCB in patients with recurrent anterior urethral strictures as well as in those with posterior urethral strictures following prostate surgery.

METHODS: We prospectively evaluated 50 male patients (mean age 60.50±12.52 years) with urethral strictures ≤3 cm: 42 with anterior urethral strictures and 8 with posterior urethral strictures following prostate surgery (3 bladder-neck sclerosis following prior endoscopic treatment and 5 vesicourethral anastomosis strictures following radical prostatectomy) treated with Optilume® DCB at a single tertiary center. Forty-eight patients had ≥1 prior urethral surgery and forty-one had ≥2 prior endoscopic treatments. Mean stricture length was 1.57±0.6 cm. Most procedures were performed in the office/ambulatory setting under sedation, by two experienced endoscopic surgeons. Mean follow-up was 12 months; patients were assessed at 1, 3, 6 and 12 months with IPSS, IPSS-QoL, uroflowmetry (Qmax), post-void residual (PVR) and IIEF-5. Recurrence was defined as symptomatic deterioration, Qmax <10 mL/s, or need for retreatment. Paired *t*-tests were used for pre/post comparisons (significance *P*<0.05).

RESULTS: No Clavien-Dindo grade ≥II complications or ejaculatory dysfunction were observed; only transient early storage symptoms were reported. IPSS significantly decreased from 19.4±6.2 at baseline to 8.2±4.9 at 3 months (*P*<0.0001), with a slight increase to 8.8±4.9 at 6 months and 9.6±5.4 at 12 months (both *P*<0.0001 vs. baseline). Quality of life (IPSS-QoL) improved from 4.6±0.9 to 1.8±1.2 at 3 months (*P*<0.0001), remaining stable at 6 months (1.9±1.3) and slightly worsening at 12 months (2.2±1.4; *P*<0.0001 vs. baseline). Mean Qmax increased from 6.8±2.9 mL/s at baseline to 18.5 ± 6.7 mL/s at 3 months (*P*<0.0001), followed by a slight decline at 6 months (17.9±6.5 mL/s) and 12 months (16.8±6.3 mL/s), while remaining significantly higher than baseline (both *P*<0.0001). PVR volume decreased from 97.9±64.3 mL to 26.2±13.7 mL at 3 months (*P*<0.001), and remained low, if compared to baseline, at 6 months (29.2±17.1 mL) and 12 months (32.4±19.1 mL; both *P*<0.001 vs. baseline). At 12 months, 63.6% of patients (32/50) achieved Qmax ≥15 mL/s, and 70.0% (35/50) achieved a ≥50% reduction in IPSS. Erectile function showed a small, non-significant improvement (IIEF-5: 15.7±5.8 at baseline vs. 17.9±8.0 at 6 months; *P*=0.056). Recurrence occurred in 14% of patients (7/50) by 12 months; among these, 5 underwent endoscopic retreatment. No patient required urethroplasty during follow-up.

CONCLUSIONS: In this single-centre series, including bladder-neck sclerosis and vesicourethral anastomosis strictures following prostate surgery, Optilume® DCB produced rapid and sustained improvements in symptoms, urinary flow, and quality of life at 12 months, with low early morbidity and preservation of sexual and ejaculatory function. Despite the need for randomized multicenter studies with larger cohorts of bladder neck sclerosis and vesicourethral stenosis and longer follow-up, these preliminary findings confirm the tolerability and feasibility of DCB treatment in an outpatient setting.

SC323

Outcomes of urethroplasty for failed hypospadias repair related strictures in adults: a single-center retrospective analysis

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BACKGROUND: To assess mid-term surgical outcomes after urethroplasty for strictures from failed hypospadias repair in adults and evaluate the role of lichen sclerosus (LS) in these patients.

METHODS: We conducted a retrospective analysis of 246 patients who underwent urethroplasty between 2005 and 2024. For this study we enrolled only patients with a history of previous failed hypospadias repair who underwent urethroplasty at our center, with a stricture involving the site of the previous hypospadias repair. A follow-up <6 months and an isolated stricture outside the repaired urethra were the exclusion criteria. The primary outcome was the treatment failure, defined as the need for any postoperative instrumentation including also a simple dilation. Secondary outcomes included rates of postoperative urethrocutaneous fistula, the concomitant presence of LS in some of these patients and finally the impact of the number of previous hypospadias repair on the surgical results.

RESULTS: The median follow-up was 25 months. Respectively 40, 180, 9 and 17 patients had a navicularis, penile, peno-bulbar and panurethral stricture. Among the most performed techniques, 142 patients underwent first stage Johanson intervention (group 1), 34 ones were treated by single-stage urethroplasty (group 2) and 27 patients underwent staged-urethroplasty (group 3). The success rate was respectively 95, 88 e 92.5% in the groups 1, 2 and 3, without any significant differences between them. Globally, fifteen patients underwent treatment failure, with a total success rate of 93%. Postoperative fistula rate was present in 11 cases, but only two of them required re-intervention, in absence of significant differences between groups 2 and 3. Moreover, 37 patients (14%) received diagnosis of LS. The failure rate resulted significantly higher in the lichen sclerosus group (16% vs. 4,5%). The rate of sclerotic and scarred urethral plates following first-stage Johanson urethroplasty was significantly higher in patients with LS, with a statistically significant difference between the two groups. Finally, we divided patients into three groups based on the number of previous hypospadias repairs. No significant differences were found between them in terms of failure.

CONCLUSIONS: Urethroplasty for strictures following hypospadias repair demonstrates high success rates, regardless of the surgical technique employed but a longer follow-up period is necessary. The presence of LS is associated with an increased incidence of sclerotic and fibrotic changes at the urethral plate and may potentially increase the risk of recurrence, although larger patient cohorts are required to confirm this observation. The number of previous operations needed for primary hypospadias repair is not associated with the risk of failure.

SC324

Preserving the urethra! Early experience with mucosal-sparing augmented non-transected anastomotic urethroplasty

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BACKGROUND: Augmented urethroplasty is the gold standard for non-traumatic strictures. Although transecting

anastomosis is similarly effective, it often causes sexual dysfunction. However, augmented techniques still show a 15-20% recurrence rate. Successful repair requires not only lumen enlargement but also proper reconstruction of the native urethral plate to prevent premature closure. To address these issues, the mucosal-sparing augmented non-transected anastomotic (MsANTA) urethroplasty was developed. This approach preserves the urethral plate and avoids tissue resection. Here, we report postoperative outcomes of MsANTA urethroplasty.

METHODS: We retrospectively analyzed 43 men with urethral stricture treated by a single surgeon at one reconstructive center between April 2022 and December 2025. The procedure re-approximates strictured mucosal edges with interrupted sutures using a true non-resecting technique. During dorsal onlay augmentation, the ventral urethral wall is widened by transposing healthy distal and proximal mucosa (plication) without segment resection. Lumen reconstruction is completed with a dorsal onlay graft. All patients underwent preoperative evaluation, including prior interventions and urethrography for stricture site and length. Perioperative data included uroflowmetry, complications, and pre- and postoperative IIEF-5 and IPSS scores. Descriptive statistics were used.

RESULTS: Overall, 30 (69.8%) men underwent MsANTA with one plication and 13 (30.2%) ≥ 2 plications. The main etiology was idiopathic (46.5%); fifteen (34.8%) had preoperative catheter, either transurethral (2) or suprapubic (13). Median age was 53 (41-66) years and BMI 24.3 (23.6-27.9) kg/m². Overall, 33 patients (76.7%) had undergone at least one prior urethral surgery, including either urethroplasty and/or endoscopic procedures such as coated balloon dilation (Optilume), urethral incision, and disobstructive surgeries (e.g., TURP, HoLEP, or TURBN). Bulbar stenosis was the most common presentation (58.1%), followed by mixed (18.6%) and panurethral stenosis (14%). Grafts used were buccal (88.4%), preputial (11.6%), and abdominal skin (2.4%). Within the first two years of follow-up, the overall patency rate was 93%. Median symptom scores improved by 13 points on the IPSS and 7 points on the USS ($P < 0.05$). Notably, IIEF-5 scores remained unchanged throughout. No intraoperative complications were recorded. Postoperatively, 9 patients (20.9%) experienced complications, all graded Clavien-Dindo ≤ 2 , including urinary leak (4.6%), urinary tract infection (9.3%), fever (2.4%), and deep vein thrombosis (2.4%). Finally, no patient required readmission within 90 days of discharge.

CONCLUSIONS: This is the first case series reporting postoperative outcomes of MsANTA urethroplasty. Our findings demonstrate that MsANTA is a feasible procedure with a low complication rate. At 2-year follow-up, recurrence was observed in 3 patients. The comparison of pre- and postoperative urinary and sexual outcomes is encouraging, suggesting that MsANTA is an effective technique without adverse impact.

SC325

Single-stage Kulkarni urethroplasty in the management of long anterior urethral strictures associated with lichen sclerosus

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BACKGROUND: Long-segment anterior urethral stricture disease secondary to lichen sclerosus (LS) remains reconstructively demanding; because genital tissues may be involved, non-genital substitutes – particularly oral mucosa – are preferred. Single-stage approaches are increasingly favored due to reduced treatment burden. We present a two-year, single-centre experience focused on single-stage Kulkarni urethroplasty (one-sided dorsolateral dorsal onlay oral mucosal graft), adopting a pragmatic functional definition of success.

METHODS: A retrospective analysis was conducted on 12 consecutive men treated over the last 2 years with single-stage Kulkarni urethroplasty for LS-associated long anterior strictures (mean length 9 cm). Preoperative assessment included clinical evaluation, urine culture, uroflowmetry, and retrograde plus voiding urethrography. The Kulkarni technique was performed with one-sided urethral mobilization, dorsal urethrotomy, and dorsolateral oral mucosa graft augmentation, with penile invagination when required to access the penile urethra. Postoperative management included urethral catheterization with removal at approximately 4 weeks following imaging. Follow-up consisted of clinical assessment and uroflowmetry at 3, 6, 12, and 24 months (up to 12 months in more recent cases). Functional success was defined as Qmax > 10 mL/s associated with patient-reported satisfactory voiding and no need for further instrumentation.

RESULTS: All 12 patients completed at least 12 months of follow-up, with 6 patients reaching 24 months. Median Qmax improved from 4 mL/s (IQR 3-8) preoperatively to 14 mL/s (IQR 12-18) at last follow-up. Based on paired analysis (Wilcoxon signed-rank test), this improvement was statistically significant ($P < 0.001$). Functional success (Qmax > 10 mL/s with good subjective outcome) was achieved in 11/12 patients (91.7%). One patient developed a focal stricture recurrence, potentially amenable to endoscopic management. Early postoperative complications occurred in 2/12 patients (16.7%), consisting of one perineal abscess and one hematoma, both managed conservatively without long-term sequelae.

CONCLUSIONS: Single-stage Kulkarni urethroplasty provides significant functional improvement in patients with LS-associated long anterior urethral strictures, with satisfactory short-term outcomes and acceptable complication rates. A pragmatic definition of success integrating uroflowmetry and patient-reported outcomes appears appropriate in this setting. Given the need for penile invagination during surgery, meticulous skin disinfection and targeted perioperative antibiotic therapy are crucial, potentially more so than in standard urethroplasty, to minimize infectious complications.

SMART COMMUNICATION (SC326 - SC339)

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SC326

Artificial intelligence *versus* urologists in BPH surgical decision-making: evaluation of the agreement in a real-world cohort

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Clinical characteristics associated with concordance between artificial intelligence and the surgeon in the treatment of benign prostatic hyperplasia

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The impact of artificial intelligence (ChatGPT) on health literacy, expectations, and satisfaction in patients scheduled for radical prostatectomy: a prospective comparative study

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The role of an AI-based model to predict long-term oncological outcomes in prostate cancer treated with radical prostatectomy

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AI-driven *vs.* human manual contouring in prostate fusion transperineal biopsy: improving efficiency and saving time

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AI-driven reconstruction of the periprostatic neurovascular network from MRI for personalized nerve-sparing during robot-assisted radical prostatectomy: a pilot feasibility study

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Comparison between clinical decision-making and artificial intelligence suggestions on minimally-invasive surgical therapy (MIST) recommendations for benign prostate hypertrophy

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Assessing large language models (LLM) for multi-disciplinary team (MDT) decision support in prostate cancer

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Intraoperative phase analytics identify complexity, predict trifecta, and quantify proficiency gain during robot-assisted partial nephrectomy

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A tiered AI-enhanced curriculum for urology residents: integrating ChatGPT to improve guideline adherence and clinical reasoning

SC337

Virtual reality-assisted counseling for flexible cystoscopy: impact on anxiety and pain perception in a University Hospital

SC338

Artificial intelligence *versus* multidisciplinary tumor board in uro-oncology: a real-world analysis of agreement and clinical decision-making

SC339

Evaluating symptomatic's diagnostic concordance in urological diseases: variability, limitations and the necessity of clinical integration

SC326**Artificial intelligence *versus* urologists in BPH surgical decision-making: evaluation of the agreement in a real-world cohort**

J. Pagnotta, P. Mangione, G. Vacilotto, A. Mohammadi, A. Vitale, A. Paladini, E. Mearini, G. Cochetti (Perugia)

BACKGROUND: Benign prostatic hyperplasia (BPH) is a common condition in aging men, often associated with lower urinary tract symptoms (LUTS) that impair quality of life. Management ranges from conservative and pharmacological treatments to surgery and is traditionally guided by clinical expertise and established guidelines. Artificial intelligence (AI) may support clinical decision-making, but its agreement with urologists remains unclear. This study aimed to compare AI-based therapeutic strategies with those selected by urologists in BPH management.

METHODS: We performed a retrospective study including 109 consecutive male patients who underwent surgical treatment for benign prostatic obstruction between January and December 2025. Preoperative data included comorbidities, prostate-specific antigen (PSA), prostate volume, uroflowmetry, post-void residual, catheter status, symptom severity assessed by the International Prostate Symptom Score (IPSS) and quality of life (QoL), erectile function (IIEF-5), and medical therapy. For each patient, the urologist's treatment choice was recorded. The same anonymized dataset was processed by two AI models (Open AI GPT-4.1 and Claude). AI outputs were limited to available treatments (transurethral resection of the prostate, holmium laser enucleation, GreenLight laser vaporization, Rezūm, prostatic urethral lift, TPLA, prostatic artery embolization, transvesical adenectomy, robot-assisted simple prostatectomy). We stratified the study population into two subgroups: patients with BPH-related complications and those without complications. Agreement was assessed using percentage agreement and Cohen's kappa.

RESULTS: A total of 109 patients were analyzed. Overall agreement between AI and urologists was low. ChatGPT showed 27.5% agreement ($k=0.11$, Cohen's kappa), while Claude showed 25.7% agreement ($k=0.003$, Cohen's kappa). Concordance was higher in patients with complications due to BPH, reaching 57.7%, particularly in those with larger prostate volume, higher PSA, severe obstruction (low Qmax, high post-void residual) or indwelling catheter. In contrast, agreement dropped to near 0% in patients without complications and moderate severity symptom. In these patients, AI proposed standardized strategies, whereas urologists more frequently adopted individualized approaches. ChatGPT showed slightly higher agreement, while Claude demonstrated greater variability.

CONCLUSIONS: AI showed poor agreement with urologists in BPH management, while concordance was higher in cases with complication due to BPH. AI may support guideline-based decisions but does not fully replicate individualized clinical reasoning and may be considered a complementary tool.

SC327**Clinical characteristics associated with concordance between artificial intelligence and the surgeon in the treatment of benign prostatic hyperplasia**

P. Mangione, J. Pagnotta, G. Vacilotto, A. Mohammadi, A. Vitale, A. Paladini, E. Mearini, G. Cochetti (Perugia)

BACKGROUND: Artificial intelligence systems are increasingly proposed as decision-support tools in urology. This study aimed to identify the clinical characteristics of patients with benign prostatic hyperplasia (BPH) that determine concordance between the therapeutic proposal generated by two generative artificial intelligence systems (ChatGPT and Claude) and the surgical decision made by the treating urologist.

METHODS: One hundred and nine consecutive patients with BPH who underwent deobstructive surgery at the Urology Unit of the Hospital of Perugia between January and December 2025 were prospectively evaluated. Each artificial intelligence system independently received complete clinical data – prostate volume, prostate-specific antigen, uroflowmetry parameters, symptom scores (International Prostate Symptom Score, quality of life, International Index of Erectile Function-5, International Consultation on Incontinence questionnaire), comorbidities, home medication and presence of an indwelling urinary catheter – and generated a therapeutic proposal according to the 2026 European Association of Urology guidelines. Concordance with the surgeon's decision was defined as a dichotomous variable. Clinical characteristics were compared between concordant and discordant patients using the Mann-Whitney Test for continuous variables and Fisher's Exact Test for categorical variables.

RESULTS: Prostate volume measured by magnetic resonance imaging was the strongest predictor of concordance: concordant patients had a significantly larger prostate than discordant ones (102 mL vs. 69 mL, $P=0.004$ for ChatGPT; 103 mL vs. 77 mL, $P=0.005$ for triple concordance). The presence of an indwelling urinary catheter was more frequent among concordant cases (33% vs. 15%, $P=0.042$ for ChatGPT; 37% vs. 13%, $P=0.007$ for triple concordance). Quality-of-life score was significantly higher in patients concordant with Claude (5 vs. 4 on a 0-6 scale, $P=0.047$). Age, prostate-specific antigen, uroflowmetry parameters, International Prostate Symptom Score and home medication were not significant predictors.

CONCLUSIONS: Artificial intelligence systems align with the surgeon's choice most reliably when the clinical picture is unambiguous: large prostate volume and indwelling catheter – both markers of severe bladder outlet obstruction – are the strongest predictors of concordance. When obstruction is less severe and the clinical scenario more complex, artificial intelligence proposals diverge more frequently from the surgeon's decision. These findings suggest that current artificial intelligence systems perform best as decision-support tools in clearly defined clinical presentations, and that their integration into routine urological practice requires careful patient selection.

SC328**The impact of artificial intelligence (ChatGPT) on health literacy, expectations, and satisfaction in patients scheduled for radical prostatectomy: a prospective comparative study**

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BACKGROUND: Robot-Assisted Radical Prostatectomy (RARP) entails functional risks that impact patients' quality of life. Adequate preoperative education is crucial for post-

surgical management. This study aims to compare the level of health literacy, psychological preparation, and postoperative satisfaction between RARP candidates undergoing standard counseling integrated with the guided use of artificial intelligence (ChatGPT) and those receiving only traditional verbal and paper-based information.

METHODS: A prospective, randomized controlled trial was conducted on 200 patients (age <75 years) diagnosed with prostate adenocarcinoma and scheduled for RARP. The cohort was divided into two arms: Group A (N.=100) received standard counseling combined with a predefined list of text commands (certified “prompts”) to input into ChatGPT to further explore surgical details, recovery times, and associated risks; the control Group B (N.=100) received exclusively verbal counseling and printed informational materials. Evaluation was performed using preoperative questionnaires (T0) to measure anatomical/surgical knowledge and anxiety levels (STAI-Y scale), and postoperative questionnaires at 3 months (T1) to measure informational satisfaction (adapted CSQ-8 scale) and the alignment between expectations and the actual clinical experience. Statistical analysis was performed using Student's *t*-test and the Chi-square Test (significance at $P<0.05$).

RESULTS: The clinical and demographic characteristics of the 200 analyzed patients were comparable. At T0, Group A demonstrated significantly higher procedural knowledge compared to Group B (mean score 8.4/10 vs. 6.1/10, $P=0.002$), highlighting, in particular, a greater perceived confidence in the future home management of the urinary catheter (4.15 vs. 3.05 on a 1-5 scale). No significant differences were detected in preoperative anxiety levels between the two groups (mean STAI-Y score: 42.3 in Group A vs. 43.1 in Group B, $P=0.34$). At 3 months post-surgery (T1), 78% of Group A patients described their physical recovery as “exactly as expected,” compared to 55% of Group B ($P<0.05$). Regarding incontinence management, 92% of Group A considered the information received realistic and accurate, compared to 68% of Group B ($P<0.01$). The evaluation of overall informational quality was significantly higher in Group A (mean CSQ-8: 3.8/4 vs. 2.9/4, $P<0.001$).

CONCLUSIONS: The integration of chatGPT, subject to the use of physician-validated prompts, improves health literacy levels in patients undergoing RARP. The use of this tool objectively increases understanding of the surgical procedure and confidence in complication management, effectively aligning patient expectations with the actual postoperative course, without inducing cognitive overload or increasing anxiety levels.

SC329

The role of an AI-based model to predict long-term oncological outcomes in prostate cancer treated with radical prostatectomy

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BACKGROUND: Prediction of long-term outcomes after radical prostatectomy (RP) in prostate cancer (PCa) patients remains challenging. Existing prognostic tools rely on static clinical and pathological features and are unable to incorporate longitudinal followup data. We developed and internally

validated BertPCa, a novel artificial intelligence (AI) model designed to integrate follow-up information for dynamic, continuously updated prediction of oncological outcomes in PCa patients treated with RP.

METHODS: We analyzed 4,634 RP patients treated at a referral center between 1990-2024, each with at least two years follow-up. After excluding patients with insufficient follow-up, 3,971 patients were included for BCR and 4,634 for CSM analyses. Patients were followed-up for up to 15 years. Patients were divided into training (80%), validation (10%), and test (10%) sets. An AI-driven method identified the most important predictive factors for each outcome among 100 clinical variables. We developed BertPCa, a deep learning model specifically designed to integrate follow-up for dynamic risk prediction that uses an architecture that learns relationships between clinical features over time and continuously updates predictions as new follow-up data becomes available. We compared BertPCa's performance against five other models: Dynamic DeepHit (AI model), conventional statistical models (Cox and Random Survival Forest adapted for follow-up data), and established clinical tools (CAPRA-S and MSKCC nomograms). Performance was evaluated on the control group using a time-dependent accuracy metric at multiple time points.

RESULTS: The AI feature selection identified key predictors of CSM: follow-up PSA levels, clinical recurrence, percentage of positive lymph nodes, adjuvant hormonal therapy, and intra-operative transfusion. For BCR, predictive factors included: follow-up PSA, pathological ISUP grade, positive surgical margins, percentage of positive biopsy cores, percentage of positive lymph nodes, PSA at diagnosis, and seminal vesicle invasion. BertPCa outperformed all other models for both outcomes. For BCR prediction, BertPCa achieved a mean concordance index of 78% compared to 74% for Cox, 74% for MSKCC, 74% for Dynamic DeepHit, 73% for CAPRA-S, and 69% for Random Survival Forest. For CSM prediction, BertPCa reached a mean concordance index of 96% versus 94% for Dynamic DeepHit, 94% for Random Survival Forest, 94% for MSKCC, 91% for Cox, and 87% for CAPRA-S.

CONCLUSIONS: BertPCa, an AI model that integrates follow-up, achieved superior accuracy in predicting both BCR and CSM compared to existing tools. By continuously updating risk predictions as new follow-up information becomes available, BertPCa has the potential to refine surveillance strategies, enabling earlier intervention for high-risk patients while supporting less intensive monitoring for those at lower risk.

SC330

AI-driven vs. human manual contouring in prostate fusion transperineal biopsy: improving efficiency and saving time

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BACKGROUND: With the advent of AI, automatic Prostate MRI fusion software are now available for trans perineal biopsies in the diagnosis of prostate cancer (PCa). However, there is no reported consensus on the impact of these new software on daily practice and technique performance. The aim of this study was to compare standard manual contouring of the prostate with a novel device equipped with an AI-driven automated-contouring fusion system. We also

wanted to estimate the reduction of pre-biopsies workload and the clinical time saved to set up the procedure.

METHODS: Data from patients who underwent MRI-targeted and systematic prostate fusion biopsy with a standard manual-contouring technique (UroNav, N.=72) and the AI-integrated system (UroFusion, N.=125) were prospectively collected. Time to perform prostate contouring and overall procedure were recorded. All biopsies were performed on an outpatient clinic under local anesthesia and with antibiotic prophylaxis. Biopsy samples were reviewed to rule out PCa.

RESULTS: The contouring and fusion procedure before biopsy with manual contouring required an average time 16.5 ± 3.5 minutes. In contrast, the same operations using the AI-guided fusion technique required an average time of 1.5 ± 0.5 minutes ($P < 0.05$). This significant time saving allowed for a substantial increase in the number of procedures performed per session, that during the observation time increased from 4 to 6 per session. There was no statistical difference in the percentage significant PCa detection (83.4% vs. 84.1%). The procedure was evaluated as easy to learn and intuitive from all dedicated urologists. Patients discomfort was comparable and between the two cohorts, and overall low.

CONCLUSIONS: This initial experience with the AI-driven auto-contouring device resulted in a 50% increase in the number of biopsies that could be performed in a single session, with corresponding reductions in pre-procedural preparation, workload, waiting lists, and time to diagnosis. The procedure is simple and easy to learn, especially when compared to the previously used device. AI automated prostate contouring is an example of how new technologies can improve and streamline urologist daily practice.

SC331

Improving biopsy decision-making in prostate cancer using AI-assisted biparametric MRI

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BACKGROUND: To evaluate the biopsy benefit-to-harm ratio of biparametric MRI (bpMRI) alone *versus* AI-assisted bpMRI in a decision-support setting.

METHODS: This retrospective study included patients undergoing pre-biopsy MRI between 2021 and 2024. The MRIs were analysed in two sequential phases with a 45-day washout period. Initially, five readers (2 experts according to 3 basics according to ESUR-ESUI criteria) independently assigned PI-RADS on bpMRI. After, AI-generated reports (Lucida Medical Pi™) were available, and readers reassessed bpMRI with AI decision support. Benefit-to-harm metrics were biopsy selectivity ($GG \geq 2 / GG1$) and biopsy efficiency ($GG \geq 2 / [GG1 + \text{benign}]$). They were calculated across two different biopsy thresholds: PI-RADS ≥ 3 and a combined threshold of PI-RADS ≥ 4 or PI-RADS 3 with PSA density (PSAd) ≥ 0.15 ng/ml². Metrics were computed per reader and summarised as overall and subgroups (experts and basics readers) means ($\pm$ SD).

RESULTS: AI assistance improved benefit-to-harm metrics overall. At PI-RADS ≥ 3 , biopsy selectivity increased from 3.889 ± 0.884 to 5.078 ± 1.602 and efficiency from 1.688 ± 0.404 to 1.992 ± 0.053 . At the composite threshold (PI-RADS ≥ 4 or PI-RADS 3 with PSAd ≥ 0.15 ng/mL²), selectivity increased from 4.317 ± 0.735 to 5.400 ± 1.188 and

efficiency from 2.166 ± 0.699 to 2.363 ± 0.250 . Basic readers showed the greatest benefit: at PI-RADS ≥ 3 , efficiency reached 2.000 and NNB 0.50; at the composite threshold, efficiency reached 2.260, with higher selectivity at both thresholds. Among experts, selectivity improved at PI-RADS ≥ 3 (from 4.688 to 5.378) and at the composite threshold (from 4.989 to 5.833), while efficiency remained stable.

CONCLUSIONS: Across the evaluated thresholds, the composite criterion – combining PI-RADS with PSAd – consistently provided the highest biopsy selectivity and efficiency. With AI decision support, basic readers achieved performance comparable to experts, while expert metrics remained stable (efficiency) or slightly improved (selectivity). Collectively, these findings support AI-assisted bpMRI interpretation to improve biopsy decision-making.

SC332

AI-driven reconstruction of the periprostatic neurovascular network from MRI for personalized nerve-sparing during robot-assisted radical prostatectomy: a pilot feasibility study

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BACKGROUND: Precision surgery in prostate cancer has evolved with 3D reconstructions, enabling accurate tumor localization and tailored planning. However, current imaging provides limited information on periprostatic neurovascular anatomy, restricting personalization of nerve-sparing strategies aimed at preserving functional outcomes. We aimed to develop and evaluate a workflow integrating advanced MRI and artificial intelligence to reconstruct the periprostatic neurovascular network for patient-specific planning of nerve-sparing RARP.

METHODS: We developed a workflow integrating MRI acquisition, manual segmentation, and AI-based reconstruction of the periprostatic neurovascular network. Preoperative mpMRI included high-resolution sequences optimized for nerve visualization, including diffusion-based imaging and 3D-STIR sequences. A biomedical engineer manually segmented visible neurovascular elements, generating a discontinuous 3D model due to signal fragmentation. Segmented data were processed using skeletonization and cost-based pathfinding algorithms. Skeletonization extracted centerlines preserving topology, while pathfinding iteratively identified the most probable connections between segments by minimizing a cost function based on spatial distance and signal intensity, reconstructing continuous nerve trajectories. The model was refined, smoothed, and converted into a parametric tubular 3D representation. Final patient-specific models were integrated into preoperative planning to visualize tumor-nerve relationships and support intraoperative nerve-sparing.

RESULTS: Fourteen consecutive low-risk PCa patients were included (mean age 67 years, SD ± 5.4). All had MRI-visible disease; tumor contact with the capsule was observed in 10/14 (71%), with no extracapsular extension. Median preoperative IIEF-5 was 20 (IQR 18-22). Neurovascular reconstruction was successfully achieved in 12/14 patients (85.7%). In 2/14 cases (14.3%), reconstruction was not feasible due to

suboptimal image acquisition, with insufficient nerve signal visualization on diffusion-based and 3D-STIR sequences. In reconstructed cases, the workflow provided detailed NVB mapping, enabling tailored nerve-sparing: bilateral full NS in 6/14 (42.9%), unilateral partial with contralateral full NS in 5/14 (35.7%), and bilateral partial NS in 1/14 (7.1%). Final pathology confirmed PCa with ISUP 2 in 10/14 (71%) and ISUP 3 in 4/14 (29%). One positive margin (7.1%) occurred in a pT3a tumor, not involving reconstructed NVB. At 3 months, PSA was undetectable in all patients (100%), with recovery of erectile function in 10/14 (71%).

CONCLUSIONS: This study demonstrates the feasibility of an AI-driven workflow for reconstruction of the periprostatic neurovascular network from MRI. Despite technical limitations related to image quality, this approach enables patient-specific nerve-sparing and represents a step toward precision, function-preserving surgery.

SC333

Comparison between clinical decision-making and artificial intelligence suggestions on minimally invasive surgical therapy (MIST) recommendations for benign prostate hypertrophy

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BACKGROUND: To compare clinical decision-making and Artificial Intelligence (AI) recommendations for men-candidates to minimally invasive surgical therapy (MIST).

METHODS: Data of patients undergone Water Vapor Therapy (WVT) in our Center in the last two years were provided to the open AI system ChatGPT 5.2. Patient's history, data of office evaluation, comorbidities, rectal examination, PSA, urinary symptoms, sexual function/ejaculation, UF, PVR, prostate volume were included. Clinical indications to WVT were compared to AI recommendations for the surgical management and AI was asked what surgical treatments would be suggested for these patients after conservative ones.

RESULTS: Data were completed on 63 males with mean age 67.3 yrs, IPSS 14.6, IIEF-5 11.9, Qmax 9.8, PVR 128 mL, PSA 2.2 ng/mL, prostate volume 52.1 cc. AI recommended WVT in 34 (53%) patients, Prostatic Urethral Lift (PUL) in 12 (19%), Temporary Implanted Nitinol Device (I-TIND) in 3/63 (4.7%), Aquablation in 2 (3.3%), and major prostate ablative surgery in the remaining 12/63 (19%). AI suggested the use of major ablative procedure (TURP, HoLEP) or WVT in candidates with low IIEF-5 and high IPSS score. In case of high IIEF-5 and high IPSS score, PUL and Aquablation were the favorite surgeries for AI. Males with low IPSS score regardless of erectile function were mainly recommended for WVT. A low concordance was found between our indications to WVT and AI suggestions. AI recommended WVT or major ablative surgery in the same cluster of patients with poor erectile function and severe urinary symptoms. Aquablation and PUL were the preferred treatments in case of good erectile function and severe urinary symptoms, likely because these procedures are known to be the most preserving ejaculation. So, these two latter procedures were suggested in males with the most conserved sexual activity. In case of mild/moderate urinary symptoms regardless of erectile function, WVT was the AI choice, likely for the good success of WVT to relief-

mild/moderate urinary symptoms with poor interference with erectile function/ejaculation. AI based the choice of treatment mainly on the severity of urinary symptoms and sexual function/ejaculation. Interestingly, in a not negligible rate of cases, AI suggested major surgeries.

CONCLUSIONS: Severity of urinary symptoms and sexual function/ejaculation were the parameters most used by AI for the choice of treatment. Concordance between clinical decision-making and AI recommendations was low.

SC334

Assessing large language models (LLM) for multi-disciplinary team (MDT) decision support in prostate cancer

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BACKGROUND: To establish the accuracy and completeness of the assistance of two LLM in multi-disciplinary decision-making process in patients affected by prostate cancer (PCa).

METHODS: A cross-sectional study was conducted including all PCa patients discussed at our MDT from June 2023 to August 2025. Only patients with complete clinical information and MDT recommendations were included. Clinical data were entered into ChatGPT-5 Thinking and Grok 4 using the standardized prompt: "As a highly specialized expert in urological tumors, please provide high-level diagnostic and treatment recommendations for the following condition." Three senior urological oncologists, blinded to MDT decisions and to each other's assessments, independently rated the LLM-generated outputs on a 4-point Likert scale for accuracy (correctness vs. MDT recommendations) and completeness (coverage of MDT recommendations). Hallucinations were defined as inaccurate or inconsistent outputs, including misinterpretations of guidelines, incorrect therapeutic suggestions, or staging inconsistencies. Additional variables included age, gender, ECOG, decisional step (diagnostic/re-staging; treatment with radical intent, management of biochemical recurrence and management of systemic disease), and LLM reasoning time. Wilcoxon signed-rank tests compared accuracy and completeness between LLMs. Within-model variability was assessed using Kruskal-Wallis and Holm-corrected pairwise tests. Interrater reliability was evaluated using Kendall's coefficient of concordance.

RESULTS: Ninety-two cases were analyzed. The mean age was 71.0±8.9 years (range 49-88). ECOG performance status was 0 in 92.4%, 1 in 5.4%, and 2 in 2.2% of cases. Decisional steps included diagnostic or re-staging in 44.6%, radical treatment in 23.9%, biochemical recurrence in 2.2%, and systemic disease management in 29.3% of cases. ChatGPT-5 Thinking demonstrated significantly higher accuracy (median 12, IQR 9-12) than Grok 4 (median 9, IQR 7-10; $P<0.001$). Completeness was likewise greater for ChatGPT-5 Thinking (median 12, IQR 10-12) than for Grok 4 (median 10.5, IQR 9-12; $P=0.003$). Across decisional steps, ChatGPT-5 Thinking outperformed Grok 4 in both accuracy and completeness for diagnostic/re-staging ($P<0.001$) and systemic disease ($P<0.001$) cases. Differences in radical treatment and biochemical recurrence steps did not reach statistical significance. Hallucination rates were low and not significantly dif-

ferent (2.5% vs. 0.5%; $P=0.064$ for Grok 4 and ChatGPT-5 Thinking, respectively). Within ChatGPT-5 Thinking, both accuracy and completeness scores varied significantly across decisional steps ($P<0.001$). Post-hoc comparisons showed the highest values in diagnostic/re-staging and systemic disease cases, significantly exceeding those observed in radical treatment and biochemical recurrence steps ($P<0.01$). Within Grok 4, neither accuracy nor completeness scores differed significantly across decisional steps ($P=0.52$ and $P=0.79$, respectively). Interrater reliability was very high in all domains (Kendall's $W>0.85$). Median reasoning time for Grok 4 was 74 s (IQR 43-92), significantly longer than for ChatGPT-5 Thinking (35 s, IQR 29-48; $P<0.001$).

CONCLUSIONS: ChatGPT-5 Thinking consistently outperformed Grok 4 in accuracy and completeness for MDT-level evaluation of PCa cases, despite lower reasoning time.

SC335

Intraoperative phase analytics identify complexity, predict Trifecta, and quantify proficiency gain during robot-assisted partial nephrectomy

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BACKGROUND: To evaluate whether automated intraoperative phase analytics can objectively reflect surgical complexity, predict high-quality outcomes, and quantify performance improvement during robot-assisted partial nephrectomy with the Hugo RAS System.

METHODS: We analyzed 95 consecutive off-clamp robot-assisted partial nephrectomies performed by a single surgeon without previous robotic experience and recorded on the Touch Surgery Enterprise platform. Each video was automatically segmented into predefined surgical phases. Phase durations were correlated with tumor complexity and postoperative outcomes using Spearman correlation. Trifecta was defined as negative surgical margins, no Clavien-Dindo grade 3 or higher complications, and 30% or lower estimated glomerular filtration rate decline. Multivariable logistic regression tested predictors of Trifecta failure. Chronological, cumulative, and rolling-mean analyses were used to assess the effect of surgical experience on phase efficiency and outcome stability.

RESULTS: Median preoperative estimated glomerular filtration rate was 81.2, decreasing to 72.9 at 6 months and recovering to 79.0 at 12 months. Median phase durations were 10.3 minutes for port placement, 3.0 for colon mobilization, 17.6 for kidney mobilization, 13.6 for tumor excision, and 14.7 for renorrhaphy. Trifecta and Pentafecta were achieved in 78.9% and 49.3% of cases. Tumor excision time strongly correlated with lesion size and tumor complexity ($r=0.73$ and 0.75), while longer renorrhaphy correlated with greater postoperative renal function decline ($r=-0.21$). On multivariable analysis, renorrhaphy duration was the only independent predictor of Trifecta failure (odds ratio 1.001 per second, 95% confidence interval 1.000-1.002; $P=0.037$), corresponding to an approximately 10% higher risk of missing Trifecta for every additional 100 seconds. With increasing experience, phase durations progressively decreased, with the largest reductions observed in kidney mobilization (-27%) and ren-

orrhaphy (-31%) after the 30th case. Rolling-mean analysis showed renorrhaphy time stabilization around the 35th procedure, concomitant with sustained Trifecta rates above 80%.

CONCLUSIONS: Automated intraoperative phase analytics provide an objective readout of anatomical complexity, technical quality, and proficiency acquisition during robot-assisted partial nephrectomy. Among all phases, renorrhaphy appears to be the most informative benchmark, as it was linked both to postoperative functional results and to consolidation of surgical performance. These findings support phase-based analytics as a practical tool for surgical training, feedback, and benchmarking on new robotic platforms.

SC336

A tiered AI-enhanced curriculum for urology residents: integrating ChatGPT to improve guideline adherence and clinical reasoning

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BACKGROUND: Traditional urology training often provides fragmented exposure to guideline-based management, leading to variable progression from diagnostic reasoning to advanced clinical decision-making. The expansion of the EAU Guidelines further increases the challenge of ensuring consistent, evidence-based education. AI tools may help bridge this gap by providing adaptive, interactive, and structured learning experiences tailored to different residency stages. This study aimed to evaluate the impact of a tiered AI-assisted curriculum on knowledge improvement, guideline adherence, and clinical reasoning among urology residents.

METHODS: A single-center study was conducted over a 10-week period, involving 16 urology residents participating in a structured program. The curriculum was organized into 3 progressive learning levels. The initial stage focused on the fundamentals of diagnostic criteria, risk stratification, LUTS/BPH management, urolithiasis, and urinary infections. Intermediate modules were based on oncological guidelines. The final stage emphasized the management of multimodal and refractory cases, perioperative strategies, and complication handling. Residents used ChatGPT through interactive case discussions simulating clinical reasoning and required justification of diagnostic and therapeutic choices. Pre- and post-intervention assessments evaluated guideline-based knowledge and decision accuracy. Self-reported confidence was measured using a Likert scale. All AI responses were reviewed by faculty for clinical accuracy and Guideline adherence.

RESULTS: Completion of the program led to a significant overall improvement in knowledge, with mean scores increasing from 64.3% to 85.1% ($P<0.01$). The most pronounced gain was observed among senior residents, who demonstrated a 25.4% increase in performance for complex case management. Confidence rose from 2.8 to 4.4 ($P<0.01$). Improved clarity in diagnostic reasoning (87.5%), stronger understanding of algorithms (81.3%), and greater time efficiency in clinical decision-making (68.8%) was reported. Faculty confirmed high guideline consistency (93.6%) across ChatGPT outputs, with minor inaccuracies in 8.1% of responses, involving risk stratification nuances and therapeutic sequencing in advanced disease.

CONCLUSIONS: The tiered ChatGPT-enhanced curriculum effectively improved residents' knowledge, guideline adherence, and confidence across all levels of training, highlighting the potential of AI-assisted education to standardize learning in urology. Limitations were observed, including occasional oversimplification and dependence on the user's ability to formulate precise clinical prompts. While AI cannot replace expert supervision, its integration into structured residency programs may serve as a valuable adjunct to traditional mentorship.

SC337

Virtual reality-assisted counseling for flexible cystoscopy: impact on anxiety and pain perception in a University Hospital

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BACKGROUND: To evaluate the impact of virtual reality-based counseling on anxiety and pain perception in patients undergoing flexible cystoscopy in a routine outpatient setting, and to explore its effect in a population with high prior procedural exposure.

METHODS: A prospective monocentric study was conducted between August 2025 and March 2026 at a tertiary referral center (Southampton University Hospital, United Kingdom), including 101 consecutive patients undergoing flexible cystoscopy. All procedures were performed in an outpatient setting. Patients received a standardized virtual reality-based counseling session prior to the procedure, consisting of an immersive and structured educational module describing procedural steps and expected sensations. Anxiety was assessed using the State-Trait Anxiety Inventory before and after the intervention. Pain perception was evaluated using a visual analogue scale, comparing expected and experienced pain. Paired comparisons were performed using the Wilcoxon signed-rank test; subgroup analyses using the Mann-Whitney U Test; correlations using Spearman's rank correlation coefficient.

RESULTS: A total of 101 patients were included, with age data available for 98 individuals (mean age 69.65 ± 13.88 years). Most patients were male (78.2%, N=79), and the majority had prior cystoscopic experience (92.1%, N=93). Mean anxiety scores increased from 45.55 ± 5.40 before counseling to 46.43 ± 6.34 after the intervention, corresponding to a mean change of $+0.88$ ($Z = -2.79$; $P=0.005$; $r = 0.28$). At the individual level, anxiety increased in 57.4% of patients, decreased in 26.7%, and remained unchanged in 15.8%. No statistically significant difference in anxiety variation was observed between patients with and without prior cystoscopy ($U = 964.5$; $P=0.075$). Expected pain scores (3.56 ± 2.46) were higher than experienced pain (3.24 ± 2.07), with a mean reduction of -0.32 ($P=0.026$). No significant correlation was observed between changes in anxiety and pain perception ($p = 0.024$; $P=0.810$).

CONCLUSIONS: Virtual reality-based counseling is associated with measurable changes in peri-procedural perception, with a small increase in anxiety scores and a modest reduction in experienced pain compared to expectations. These findings are observed in a predominantly experienced population, with no association between anxiety and pain outcomes.

SC338

Artificial intelligence versus multidisciplinary tumor board in uro-oncology: a real-world analysis of agreement and clinical decision-making

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BACKGROUND: Multidisciplinary Tumor Boards (MTBs) are a cornerstone in uro-oncology, ensuring evidence-based, patient-tailored decision-making, as recommended by EAU Guidelines 2026. However, variability in clinical decisions and challenges in guideline adherence persist, particularly in complex scenarios. Artificial intelligence (AI), especially large language models (LLMs), capable of processing clinical data and generating treatment recommendations, has emerged as a potential decision-support tool. This study evaluated concordance between AI-generated recommendations and MTB decisions in a real-world uro-oncological setting.

METHODS: This retrospective observational study included 29 consecutive uro-oncological patients discussed at our MTB between February and April 2026. Cases included prostate cancer, bladder cancer, renal cell carcinoma, and upper tract urothelial carcinoma. For each patient, demographic data, comorbidities, prior treatments, and clinicopathological features (clinical, radiological, pathological) were collected. An LLM-based AI system independently analyzed each case using the same input data and generated recommendations according to EAU Guidelines 2026. AI outputs were compared with MTB decisions and classified as concordant or discordant. The primary endpoint was agreement rate; secondary analyses assessed concordance by tumor type and clinical setting.

RESULTS: A total of 29 cases were analyzed. Overall concordance between AI and MTB recommendations was observed in 14/29 cases (48.3%), whereas discordance occurred in 15/29 cases (51.7%). Concordance was higher in standard clinical scenarios characterized by well-established guideline-based management. In contrast, discordance was more frequent in complex cases, particularly in metastatic, oligometastatic, and locally advanced disease, as well as in patients with multiple comorbidities or requiring highly individualized treatment strategies. Agreement varied across tumor types and clinical settings, with consistently lower concordance in advanced and non-standard disease presentations.

CONCLUSIONS: AI-based decision support systems showed limited concordance with MTB decisions in a real-world setting, with agreement observed in less than half of cases. While AI demonstrated better performance in standard, guideline-driven scenarios, it showed significant limitations in complex clinical conditions requiring individualized and multidisciplinary evaluation. These findings highlight the current gap between AI-generated recommendations and real-world clinical decision-making, supporting the continued central role of MTBs, particularly in complex uro-oncological cases.

SC339

Evaluating symptomate's diagnostic concordance in urological diseases: variability, limitations and the necessity of clinical integration

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BACKGROUND: Digital symptom-checking tools are increasingly adopted as adjuncts in clinical decision-making, offering rapid triage and diagnostic suggestions. However, their reliability in specialties such as urology – where overlapping symptomology complicates diagnoses (*e.g.*, urinary urgency in both infections and prostate disorders) – remains inadequately explored. Symptomate, a widely used digital tool, lacks validation in urological contexts despite its potential to streamline care. This study evaluates Symptomate's diagnostic concordance with final clinical diagnoses in urological patients while characterizing demographic and comorbidity profiles to identify factors influencing algorithmic performance.

METHODS: A retrospective cohort study analyzed 69 patients (mean age 52.6±19.9 years; 73.9% male) presenting with urological complaints at a tertiary care center between January 2022 and December 2023. Data extraction included demographics, comorbidities (hypertension: 36.2%, hypercholesterolemia: 50.7%, obesity: 29.0%, current smoking: 68.1%), Symptomate-generated diagnoses, and final clinician-determined diagnoses. Statistical analysis employed Chi-square Tests to assess symptom-diagnosis associations and Cohen's kappa to quantify tool-clinician agreement.

RESULTS: Symptomatology suggested diverse conditions, most frequently urinary tract infections (21.7%), benign prostatic hyperplasia (11.6%), erectile dysfunction (10.1%), and

sexually transmitted infections (10.1%). Chi-square analysis revealed a significant association between reported symptoms and final diagnoses ($P<0.0001$), though Symptomate aligned with clinicians in only 59.4% of cases (kappa = 0.41, moderate agreement), with discrepancies in 40.6%. Notably, 78.3% of patients reported no comorbidities, yet modifiable risk factors like smoking (68.1%) and hypertension (36.2%) were prevalent, suggesting underreported chronic disease or acute presentations. Discordant cases often involved nonspecific symptoms (*e.g.*, hematuria attributed to infections rather than underlying malignancies) or lacked comorbidity-adjusted interpretations.

CONCLUSIONS: While Symptomate demonstrates moderate diagnostic utility, its high discordance rate (40.6%) underscores inherent limitations in standalone digital tools, particularly in symptomatically complex fields like urology. Clinicians must integrate algorithmic outputs with comprehensive histories, physical examinations, and contextual risk factors (*e.g.*, smoking's link to malignancy). Future iterations should prioritize refining symptom-disease algorithms, incorporating comorbidity-driven risk stratification, and validating tools in diverse, prospectively enrolled cohorts. Enhancing human-AI collaboration, rather than replacement, is critical to optimizing diagnostic accuracy and reducing errors in urological care.

SMART COMMUNICATION (SC340 - SC349)

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SC340

Risk of climacturia after laser enucleation of the prostate for benign prostatic obstruction

SC341

Aquablation vs. Rezūm in medium-sized prostates: does the approach influence outcomes? A propensity score-matched analysis

SC342

A risk-based model to identify active surveillance patients requiring confirmatory biopsy: a contemporary MRI-based cohort study

SC343

Assessing the number needed to treat for an extended pelvic lymph node dissection in PSMA-PET negative patients: contextualizing MSKCC trial findings in the molecular imaging era

SC344

Single-session pelvic pre-habilitation to enhance functional recovery after robot-assisted radical prostatectomy: results from a prospective comparative single-centre study

SC345

International MDT Delphi consensus for advanced

practice in nonmetastatic upper tract urothelial carcinoma - Impact UTUC

SC346

Radical cystectomy vs. Trimodal therapy for non-metastatic bladder cancer in the united states: contemporary trends of practice patterns, perioperative outcomes, health-care costs and progression-free survival outcomes

SC347

ASCVD risk-guided management in men with suspected vasculogenic erectile dysfunction: clinical impact and cost-effectiveness

SC348

Histopathological outcomes after renal surgery: insights from the EAU-YAU RCC US-KIDNET (United States Kidney Cancer Data Network) collaborative

SC349

Does skin-to-stone distance affect the outcomes of suction mini-percutaneous nephrolithotripsy? Results from the prospective multicenter suction technology utility in mini-PCNL study (STUMPS)

SC340**Risk of climacturia after laser enucleation of the prostate for benign prostatic obstruction**

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BACKGROUND: Anatomical endoscopic laser enucleation of the prostate (AEEP) is considered a first-line surgical treatment for benign prostatic obstruction (BPO) and is associated with a high rate of retrograde ejaculation, with possible negative impacts on orgasmic function. Similarly, patients treated with AEEP may experience transitory urinary incontinence (UI). Climacturia is defined as orgasm-associated UI and has been extensively reported after radical prostatectomy in association with UI. The aim of this study was to investigate the prevalence and risk of climacturia in patients treated with AEEP for BPO.

METHODS: We analyzed data from a prospectively maintained database including 202 consecutive patients treated at a single center with either holmium or thulium laser AEEP for BPO by three experienced surgeons. Preoperative and perioperative clinical and functional data, including the International Prostate Symptom Score (IPSS) and Sexual Encounter Profile (SEP) 2-3 questionnaire, were collected. All patients were reassessed at regular follow-up visits after surgery. The prevalence of postoperative climacturia was assessed with a dedicated questionnaire. Kaplan-Meier analysis was used to estimate the risk of UI over time. A landmark analysis was used to assess preoperative predictors of reporting climacturia within 3 months after surgery.

RESULTS: Overall, 75 (37%) and 127 (63%) patients were treated with HoLEP and ThuLEP, respectively. Median (IQR) age was 71 (65, 75) years with a body mass index (BMI) of 22.4 (20.6, 25.8). Patients had a high median prostate volume [94 (65, 113) cc] with a median PSA of 3.3 (1.4, 6.9) ng/mL and an IPSS of 20 (11, 25). A total of 118 (58%) patients were sexually active with normal erection according to SEP 2-3 questions. At 3 months after surgery, estimated urinary continence recovery was 93% (95% CI: 80%, 99%). Climacturia was reported by 16% (N=33) of cases at 3 months after surgery, with 46% (N=92) of patients reporting being sexually active after surgery. At logistic regression analysis, prostate volume (PV) emerged as the only preoperative predictor of climacturia (OR: 1.01; 95% CI: 1.00, 1.02; P=0.01). The adjusted risk of climacturia for a patient with a PV of 40 cc was 9% (95% CI: 2-15%) compared to 22% (95% CI: 14-30%) for one with a PV of 100 cc. Of note, all patients recovered from climacturia at 12 months post-treatment.

CONCLUSIONS: This is the first study reporting the risk of climacturia after AEEP. Patients should be counseled regarding a non-negligible risk of transient climacturia after surgery, which appears higher for patients with larger prostate volumes.

SC341**Aquablation vs. Rezūm in medium-sized prostates: does the approach influence outcomes? A propensity score-matched analysis**

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BACKGROUND: Rezūm and Aquablation are two novel surgical options for the treatment of benign prostatic hyperplasia (BPH) in patients with medium-sized prostates (30-80 mL). However, direct comparative data between these techniques are lacking. This study aimed to compare the efficacy and safety of Rezūm and Aquablation in patients with BPH and medium-sized prostates.

METHODS: We conducted a multicenter comparative study between 01.2023 and 02.2025. Consecutive BPH patients with prostate volume (PV) 30-80 mL undergoing Aquablation or Rezūm were included. Clinical assessment was performed at baseline and at 6 months using uroflowmetry and the International Prostate Symptom Score (IPSS). Ejaculation presence and urinary continence were also assessed at follow-up. Post-operative complications were classified according to Clavien-Dindo (CD). To minimize selection bias, 1:1 propensity-score matching was applied based on prostate volume and baseline IPSS. Descriptive statistics and linear regression models were used to investigate predictors of functional outcomes.

RESULTS: Overall, 110 patients were enrolled (61 Aquablation, 49 Rezūm). Median (IQR) patient's age and PV were 66 (60-72) years and 50 (40-61) mL, respectively. Median preoperative IPSS score was 18 (16-22). Groups were comparable in terms of age, baseline IPSS and PV. Mean baseline maximum urinary flow (Qmax) in Aquablation and Rezūm group was 9.5 mL/s and 11.2 mL/s, respectively. Operative time and hospitalization were longer in Aquablation cohort while catheterization time was longer in Rezūm group (all P<0.01). In both groups, median IPSS scores and Qmax showed statistically significant improvements at 6 months compared to baseline (all P<0.001). At follow-up, median IPSS score was similar between groups. Conversely, median Qmax was higher in Aquablation group compared to Rezūm one (24 mL/s vs. 18 mL/s, P<0.001). The rate of postoperative complications was similar for Aquablation (16%) and Rezūm (12%), with comparable CD severity. Overall, 51 (84%) and 42 (86%) patients reported antegrade ejaculation at 6 months follow-up after Aquablation and Rezūm, respectively (P=ns). Multivariable linear regression analysis showed that Aquablation treatment (β -4.4, P=0.001) was associated with better Qmax scores at 6 months, even after accounting for age and prostate volume.

CONCLUSIONS: Aquablation and Rezūm provide comparable symptom relief and safety in patients with medium-sized prostates, with similar preservation of ejaculatory function. Aquablation achieves greater improvement in urinary flow at the expense of longer operative time and hospitalization, while Rezūm offers a less invasive profile with shorter hospital stay but longer catheterization. These results support a patient-tailored approach based on functional goals and recovery priorities.

SC342**A risk-based model to identify active surveillance patients requiring confirmatory biopsy: a contemporary MRI-based cohort study**

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BACKGROUND: Confirmatory biopsy (CBx) is recommended in active surveillance (AS) to rule out diagnostic misclassification. The DETECTIVE consensus suggests CBx may be omitted in men assessed with high-quality MRI and targeted and systematic cores (TBx+SBx). Yet, some patients may still harbor undetected clinically significant cancer (csPCa). We developed a risk-based model integrating clinical, histologic, and MRI factors to better identify AS patients who truly benefit from CBx.

METHODS: We retrospectively analyzed 1,033 men in an institutional AS program (2014-2024). Those with ISUP 1 disease at index biopsy, TBx+SBx, 1-year follow-up MRI, and confirmatory biopsy were included. The endpoint was csPCa (ISUP ≥ 2) at CBx. A multivariable logistic model predicting csPCa including PSA density (PSAd), PRECISE score, % of positive cores, and maximum cancer involvement per core was fitted. A normalized composite score (0-15) was derived and stratified into four risk categories (low, intermediate, high, very high) by means of AIC. Model performance was evaluated using logistic and time-to-event analyses for upgrading-free survival (UFS).

RESULTS: Of 247 included men, median age was 63 years and PSA density 0.13 ng/mL/cc. PRECISE scores were ≤ 3 in 78%, 4 in 18%, and 5 in 2%. Median percentage of positive cores was 13%. Independent predictors of csPCa were PSAd (OR: 1.27 per 0.15 increase), % of positive cores (OR: 1.34 per 10% increase), cancer involvement per core (OR: 1.01 per %), and PRECISE (OR: 1.30 per point; all $P < 0.05$). The risk of csPCa increased stepwise across risk groups (29%, 37%, 46%, 62%; $P < 0.001$), with ORs 2.12, 3.24, and 4.64 (low-risk as ref., all $P < 0.05$). Stable MRI findings were seen in 79% of high- and 82% of very-high-risk men. The 30-month UFS was 70% in low-risk vs. 30% in very high-risk patients ($P < 0.001$).

CONCLUSIONS: Even after MRI-guided assessment, men with higher PSAd, greater tumor burden, and multiple positive cores remain at risk of harboring csPCa and should undergo CBx despite stable MRI. The proposed model supports selective, evidence-based CBx decisions, balancing accuracy with reduced invasiveness in AS protocols.

SC343

Assessing the number needed to treat for an extended pelvic lymph node dissection in PSMA-PET negative patients: contextualizing MSKCC trial findings in the molecular imaging era

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BACKGROUND: The MSKCC randomized trial demonstrated a metastasis-free survival benefit for extended pelvic lymph node dissection (ePLND) at radical prostatectomy (RP), particularly among pN1 patients. PSMA-PET staging substantially reduces the likelihood of occult nodal metastases, potentially altering the absolute benefit and risk-benefit balance of ePLND. To inform clinical decision-making in the molecular-imaging era, we aimed at estimating the number of ePLND procedures needed to prevent one metastatic event at 10-year follow-up among patients with a negative PSMA-PET scan (miN0).

METHODS: We relied on the 10-year survival estimates reported within the MSKCC trial (Touijer *et al.*, Eur Urol 2025) to estimate the absolute risk difference (ARD) for MFS between ePLND and limited PLND. We assumed a clinical scenario where no benefit is associated with a limited PLND, and ePLND being beneficial among pN1 patients only. Hypothesizing improved survival outcomes for patients triaged with a negative PSMA-PET (miN0), the ARD for metastasis at 10 years was recalculated, using the hazard ratio (HR: 0.7) reported by Ettema *et al.* (Eur Urol Oncol 2025) as effect size for the stage migration phenomenon introduced by PSMA-PET primary staging. Here, we made the assumption that the HR associated with the stage migration phenomenon would be constant at longer-term follow-up. Finally, the number needed to treat (NNT) to prevent one metastasis at 10-years of follow-up was calculated ($1/ARD \times pN1$ prevalence) using pN1 rates reported within the Briganti 2023 nomogram cohort (Gandaglia *et al.*, Eur Urol Oncol 2023) for each specific cut-off (*i.e.* >2 vs. 5 vs. 7 vs. 10 vs. 15%).

RESULTS: Within the MSKCC trial an ARD of 16.8% in favour of ePLND in terms of distant metastasis at 10 years of follow-up among pN1 patients was reported. Assuming an effect size of 0.7 for the stage migration phenomenon associated with PSMA-PET primary staging, we estimated an ARD of 14% for miN0pN1 patients receiving an ePLND. Within the Briganti 2023 miN0 patients cohort the pN1 rates among patients with an individual lymph node invasion risk of >2 vs. 5 vs. 7 vs. 10 vs. 15% were 11 vs. 17 vs. 20 vs. 24 vs. 28%, respectively. Assuming that the beneficial effect of an ePLND was observed among pN1 patients, a NNT of 73 vs. 47 vs. 40 vs. 33 vs. 26 for the use of 2 vs. 5 vs. 7 vs. 10 vs. 15% Briganti 2023 cut-off could be estimated.

CONCLUSIONS: In contemporary PCa patients, PSMA-PET reduces occult nodal disease, which may attenuate – but not eliminate – the oncologic benefit of ePLND. Using MSKCC trial data adjusted for PSMA-PET stage-migration, ePLND remains clinically meaningful in selected PSMA-PET-negative patients, particularly those with higher predicted nodal risk.

SC344

Single-session pelvic pre-habilitation to enhance functional recovery after robot-assisted radical prostatectomy: results from a prospective comparative single-centre study

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BACKGROUND: Post-prostatectomy urinary incontinence (PPI) represents the functional complication with the greatest negative impact on the patient's global quality of life (QoL). Although the role of Pelvic Floor Muscle Training (PFMT) is widely established within perioperative clinical management, it is mostly delivered after surgery on demand. This study primarily evaluates the clinical efficacy of systematic application of pelvic pre-habilitation compared to usual care.

METHODS: This trial analyzed two consecutive cohorts of patients scheduled for robot-assisted radical prostatectomy (RARP) for a total of 214 subjects, at a single referral institution. The prospective intervention cohort ("Pre-op Physio YES", N=107), undergoing a single group pre-habilitation

session during the pre-admission phase, was compared with an immediately preceding historical control cohort ("Pre-op Physio NO", N=107), managed without preventive instruction. Objective continence recovery (defined as no use of pads vs. ≥ 1 pad/di) and functional outcomes (UCLA-PCI, SF-36) were prospectively evaluated at 1, 3, and 6 months. Secondary endpoints were the actual incidence of recourse to postoperative PFMT, and a formal cost-avoidance analysis.

RESULTS: The features of the 2 groups overlapped from demographic, oncological and surgical features. At 6 months post-surgery, the pre-habilitated cohort demonstrated a significantly higher objective continence rate of 82.0% (73/89) compared to the 66.7% (58/87) observed in the unexposed cohort ($P=0.030$). This superiority was reflected in the scores of the Urinary Function domain of the UCLA-PCI (57.9 vs. 51.7, $P=0.045$). Actual recourse to individual postoperative cycles was marginal (3.7% in the intervention group vs. 5.6% in the control group), against an estimated clinical need of 11.2% vs. 16.1%. Cost-avoidance analysis showed that prehabilitation guaranteed an estimated net saving of €165 per patient.

CONCLUSIONS: A single session of neuromotor prehabilitation significantly improves continence recovery at 6 months after RARP and proved to be economically sustainable.

SC345

International MDT Delphi consensus for advanced practice in non-metastatic upper tract urothelial carcinoma - Impact UTUC

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BACKGROUND: Non-metastatic upper tract urothelial carcinoma (UTUC) is characterized by limited high-level evidence and substantial heterogeneity across diagnosis, staging, and treatment. We aimed to develop an international, expert-driven consensus to reduce variability in clinical practice and improve patient management through the IMPACT UTUC initiative.

METHODS: IMPACT UTUC is an international, multidisciplinary, two-round web-based Delphi consensus involving 74 UTUC experts (urologists and medical oncologists) from Europe, the Americas, and Asia. Forty statements covering two domains – diagnosis and staging (imaging; cystoscopy/cytology/markers; genetic assessment; ureteroscopy; risk stratification) and treatment (kidney-sparing approaches, radical nephroureterectomy, systemic therapy) – were rated using a 9-point Likert scale. Predefined thresholds for agreement and disagreement were applied. Statements were developed and refined by a multidisciplinary steering committee.

RESULTS: Overall, consensus was achieved for 32 out of 40 statements (80%) across the two Delphi rounds, spanning both diagnostic/ staging and treatment domains.

CONCLUSIONS: IMPACT UTUC provides the first structured international Delphi consensus across the entire non-metastatic UTUC care pathway. These expert-informed recommendations may support harmonization of clinical practice and inform the design of future prospective studies.

SC346

Radical cystectomy vs. Trimodal therapy for non-metastatic bladder cancer in the united states: contemporary trends of practice patterns, perioperative outcomes, health-care costs and progression-free survival outcomes

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BACKGROUND: Retrospective series suggest that trimodal therapy (TMT) could achieve comparable survival outcomes to Radical Cystectomy (RC) in selected cT2N0M0 Bladder Cancer (BC) patients. This study evaluated practice trends, perioperative outcomes, healthcare costs, and progression-free survival (PFS) among RC vs. TMT treated patients in a large US insurance claims database.

METHODS: ICD-9/10 BC patients who underwent RC or TMT between 2007 and 2023 were identified from the Merative™ MarketScan® Commercial and Medicare databases. 1:1 Propensity-Score Matching (PSM) was applied based on age, gender, smoking, obesity, and Charlson Comorbidity Index. Treatment trends were analyzed in the unmatched cohort. Multivariable regression modeling assessed the impact of RC and TMT on complications, re-hospitalizations, discharge status, and healthcare costs. Kaplan-Meier and Restricted Mean Survival Time (RMST) analyses were adopted to explore PFS.

RESULTS: 9607 BC patients were included (N.=7367 RC and N.=2240 TMT). The relative adoption of RC compared to TMT declined over the years, accounting for 85% of cases in 2007 and 68% in 2021. 4462 patients were identified after 1:1 PSM. TMT was associated with significantly lower risk of overall perioperative complications (adjusted OR: 0.65; 95% CI: 0.58-0.74). Of note, TMT demonstrated higher risk of 90-day re-hospitalizations (aOR: 1.19; 95%CI: 1.03-1.37) and median overall healthcare costs (TMT: 80,494\$ vs. RC: 72,867\$; aOR 1.12; 95%CI 0.97-1.29). Kaplan-Meier analysis highlighted longer PFS for RC ($P=0.026$). RMST analysis confirmed a progressively increasing PFS advantage of RC over TMT beyond 24 months, with an absolute PFS difference of 7.15 months (95% CI: -10.94 to -3.37) at 108 months.

CONCLUSIONS: Although RC maintains its well-recognized profile of higher perioperative morbidity, it provides significantly more durable oncologic control compared with TMT. Conversely, TMT, despite its increasing utilization, carries substantially higher direct healthcare costs and greater indirect and readmission-related burdens.

SC347

ASCVD risk-guided management in men with suspected vasculogenic erectile dysfunction: clinical impact and cost-effectiveness

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BACKGROUND: Despite current Princeton IV consensus and EAU 2025 Guidelines recommending the ASCVD score for men with vasculogenic erectile dysfunction (ED),

its real-life clinical relevance and its cost-effectiveness have not been comprehensively evaluated. We therefore aimed to assess, for the first time, the clinical and economic impact of systematically applying the ASCVD score in men presenting with suspected vasculogenic ED at a tertiary referral center.

METHODS: Data from 2383 white-European men presenting with suspected vasculogenic ED were analyzed. The ASCVD score was computed among patients aged 40-79 years with complete sociodemographic and clinical data (N=534). Patients were then stratified according to ASCVD score values into three categories: <5% (low risk), 5-20% (intermediate risk), and >20% (high risk). Severe ED was defined as an IIEF-Erectile Function domain score <11. Logistic regression models tested the association between ASCVD score and severe ED. A Markov model, developed from the perspective of the Italian National Health Service (NHS) with a 10-year time horizon, was used to compare the cost-effectiveness of an ASCVD-guided strategy *versus* usual care in intermediate-risk patients. Quality-adjusted life-years (QALYs), costs and incremental cost-effectiveness ratios (ICERs) were calculated.

RESULTS: Of 534 patients, 165 (31%), 253 (47%) and 116 (22%) were considered as low, intermediate and high risk according to ASCVD score, respectively. Higher ASCVD risk was associated with progressively older age and a greater burden of cardiometabolic risk factors (all $P < 0.001$). Notably, nearly half of patients were classified as intermediate risk and would be candidates for coronary CT and CAC assessment, despite 58.3% of them presenting with only mild or moderate ED. Higher ASCVD scores were independently associated with increased odds of severe ED (OR 1.03, $P = 0.002$). Compared with usual care, the ASCVD-guided strategy resulted in QALY gains (+27.34) at an incremental cost of €150,290.98 over 10 years, yielding an ICER of €5,495 per QALY gained. As this value was below the €25,000 willingness-to-pay threshold, the ASCVD-guided strategy was considered cost-effective.

CONCLUSIONS: Systematic ASCVD risk assessment in men with suspected vasculogenic ED identifies a substantial proportion of patients eligible for further cardiovascular evaluation, even in the presence of mild symptoms, and captures a gradient of disease severity across risk categories. From a health-economic perspective, the ASCVD-guided strategy appears cost-effective compared with usual care in intermediate risk patients, supporting its potential implementation in routine clinical practice.

SC348

Histopathological outcomes after renal surgery: insights from the EAU-YAU RCC US-KIDNET (United States Kidney Cancer Data Network) collaborative

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BACKGROUND: Clinical and surgical management of newly diagnosed renal masses remains widely heterogeneous worldwide due to the different international patient care pathways. In this scenario a relevant proportion of patients addressed to partial (PN) or radical nephrectomy (RN) still prove a benign final pathology, thus raising questions about

patient selection, imaging accuracy, and the role of preoperative biopsy. Parallely, the identification of patients eligible for adjuvant systemic therapy has gained increasing clinical importance, thus highlighting the lack of quantitative data on its potential adoption worldwide. This study aims to characterize the histopathological spectrum of surgically treated renal masses and identify preoperative predictors of benign pathology within a large trans-continental cohort.

METHODS: This multicentre, retrospective study included patients who underwent partial (PN) or radical nephrectomy (RN) between 2014 and 2024 across 9 EAU-YAU RCC and 9 US-KIDNET centres. Clinicopathological data were merged into a shared database and retrospectively assessed. Univariable and multivariable logistic regression analyses were performed to identify predictors of benign histology, including demographics, comorbidities, ASA score, and prior renal biopsy. Descriptive analyses were conducted for pathological subtypes, positive surgical margins (PSM), and adjuvant therapy eligibility according to KEYNOTE-564 criteria.

RESULTS: A total of 20,036 patients were included, with a median age of 60 years (IQR 51-69) and 64% males. The predominant histology was clear cell RCC (56%), followed by papillary RCC (13%) and chromophobe RCC (6.5%). Benign pathology was found in 2,671 patients (13.3%), most commonly oncocytoma (4.9%) and angiomyolipoma (2.9%). A preoperative renal biopsy was available in 263 cases (2.3%) and was independently associated with a lower likelihood of benign histology after PN or RN (OR 0.20, 95% CI 0.07-0.44, $P < 0.001$). No significant differences were also found in its adoption between the US and EAU centres ($P = 0.7$). Positive surgical margins were identified in 5.5% of cases. Based on pathological and clinical data, 6.5% of patients met eligibility criteria for adjuvant therapy, with 0.7% classified as high-risk. Moreover, the 8.4% of the adjuvant-eligible population would have been excluded due to positive surgical margins.

CONCLUSIONS: In this large real-world cohort, benign histology accounted for approximately one in twelve surgically excised renal masses, emphasizing the need for improved preoperative diagnostic pathways. Preoperative renal biopsy was significantly protective against unnecessary surgery for benign lesions. Given the relatively low overall proportion of patients meeting adjuvant therapy eligibility criteria, the risk of PSM potentially impairing postoperative treatments should be considered during the treatment selection processes.

SC349

Does skin-to-stone distance affect the outcomes of suction mini-percutaneous nephrolithotripsy? Results from the prospective multicenter suction technology utility in mini-PCNL study (STUMPS)

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BACKGROUND: Skin-to-stone distance (STSD) is an established predictor of shockwave lithotripsy failure, yet its influence on percutaneous nephrolithotripsy (PCNL) remains poorly defined. This study aimed to evaluate the association between STSD and outcomes of suction mini-PCNL.

METHODS: Prospectively collected data from 1456 adult kidney stone patients treated with suction mini-PCNL (14-22

Fr suction access sheath) across 30 centers in 21 countries (March-November 2024) were analyzed. Patients were stratified by STSD: Group 1 (≤ 8 cm; N=752) and Group 2 (> 8 cm; N=704). The primary outcome was stone-free rate (SFR), defined as zero residual fragments on a 30-day low-dose CT scan. Multivariable logistic regression identified predictors of zero residual fragments.

RESULTS: Group 2 patients were older, had higher BMI, greater comorbidity burden (diabetes, chronic kidney disease, ASA ≥ 2), larger stone volumes, and a higher prevalence of lower pole stones. Despite these baseline differences, overall complication rates were comparable between groups (10.1% vs. 11.8%; $P=0.34$). However, SFR was significantly lower in Group 2 (78.2% vs. 88.7%; $P<0.001$), operative times were longer (median 55 vs. 38 minutes; $P<0.001$), and 72-hour

readmission rates were higher (2.7% vs. 0.8%; $P=0.01$). On multivariable analysis, STSD > 8 cm was independently associated with lower odds of being stone-free (OR 0.52, 95% CI 0.38-0.71; $P<0.001$), alongside stone volume (OR 0.95, 95% CI 0.92-0.97; $P<0.001$) and sheath size < 20 Fr (OR 0.22, 95% CI 0.12-0.37; $P<0.001$). Single-step dilation (OR 2.45, 95% CI 1.65-3.64; $P<0.001$) and disposable sheath (OR 1.50, 95% CI 1.09-2.05; $P=0.01$) were associated with higher odds of complete clearance.

CONCLUSIONS: This study shows that STSD > 8 cm is independently associated with lower odds of complete stone clearance and longer operative times following suction mini-PCNL, without significantly increasing complications. Preoperative STSD measurement could inform patient counseling, surgical planning, and technical strategy selection.

SMART COMMUNICATION (SC350 - SC363)

Tumore della prostata: chirurgia IV

SC350

Validation of the EAU favorable and unfavorable intermediate-risk prognostic groups for predicting biochemical recurrence after radical prostatectomy in contemporary prostate cancer patients: the added value of MRI-features

SC351

Refining PSA doubling time thresholds to predict metastases after biochemical recurrence in prostate cancer patients treated with radical prostatectomy

SC352

The learning curve of Retzius sparing robot-assisted radical prostatectomy: a cumulative sum analysis from a single institution study

SC353

Long term oncological and functional outcomes of anterior transperitoneal robotic-assisted radical prostatectomy: results at a median follow-up duration of 12 years

SC354

Bleedings after robot-assisted radical prostatectomy: clinico-radiologic features and role of anatomic variants

SC355

Early urinary continence recovery after nerve-sparing and non-nerve sparing robot-assisted radical prostatectomy

SC356

Assessment of lymph node invasion in patients with ISUP2 prostate cancer at biopsy treated with radical prostatectomy and lymph node dissection

SC357

Prognostic value of perineural and lympho-vascular invasion in patients eligible for adjuvant therapy after radical prostatectomy: a single center retrospective cohort study

SC358

Prevention of secondary lymphedema after robot-assisted radical prostatectomy with pelvic lymph node dissection: results from a prospective randomized study with MELIVEN® TOP

SC359

Predicting trainee responses to live intraoperative feedback during vesicourethral anastomosis in robot-assisted radical prostatectomy

SC360

Thermosensitive nanoLDH-ICG@hydrogel for image-guided prostate cancer surgery: preclinical and early clinical evaluation

SC361

Impact of central biopsy review on the risk of positive surgical margins and biochemical recurrence in prostate cancer patients undergoing radical prostatectomy

SC362

Oncological impact of adherence to 2023 EAU guidelines on pelvic nodal dissection omission in intermediate-risk prostate cancer

SC363

The influence of germline pathogenic variants in dna repair genes on a cohort of patients who underwent curative surgery for prostate cancer

SC350**Validation of the EAU favorable and unfavorable intermediate-risk prognostic groups for predicting biochemical recurrence after radical prostatectomy in contemporary prostate cancer patients: the added value of MRI-features**

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BACKGROUND: D'Amico risk group has been subdivided into favorable and unfavorable groups. However, this classification was developed in pre-MRI era, when staging relied on digital rectal examination and systematic biopsies. Hence, it may not reflect contemporary PCa patients undergoing MRI and targeted biopsies (TBx). We aimed to evaluate whether the integration of MRI features could refine recurrent risk stratification, leading to patient reclassification and improved selection for conservative management.

METHODS: We identified 2026 patients with intermediate-risk PCa who underwent MRI, SBx+TBx, and RP between 2012 and 2024 at a single center. The outcome was biochemical recurrence (BCR, two consecutive PSA ≥ 0.2). Multivariable Cox model included MRI stage (organ-confined vs. ECE vs. SVI), diameter of index lesion (<10 vs. $10-20$ vs. >20 mm), TBx ISUP (1-2 vs. 3), and PSA (<5 vs. $5-10$ vs. >10 ng/mL). Based on Cox-derived coefficients, a weighted score was assigned to each variable, and patients were stratified into favorable (score 1-4) and unfavorable (score >4) groups (MRI-groups). The C-index compared the models' discrimination.

RESULTS: According to EAU classification, 1,261 (62%) and 765 (38%) patients were categorized as intermediate-favorable and unfavorable, respectively. At multivariable Cox regression, the strongest predictors of BCR were lesion diameter >20 mm (HR 5.2, $P<0.01$), ISUP3 (HR 1.8, $P<0.01$), PSA >10 ng/mL (HR 1.72, $P<0.01$), and SVI at mpMRI (HR 1.2, $P=0.048$). In the new MRI-groups, 614 patients (30%) were reclassified, resulting in 1,463 (72%) intermediate-favorable and 563 (28%) intermediate-unfavorable cases. Specifically, 206 (10%) patients were reclassified from favorable to unfavorable, while 408 (20%) moved from unfavorable to favorable. Within EAU-groups, 24- and 48-mo. BCR-FS was 93% and 86% for favorable vs. 81% and 69% for unfavorable patients. In MRI-groups, 24- and 48-mo. BCR-FS was 95% and 88% for favorable, vs. 74% and 60% for unfavorable. C-index of MRI-groups was higher than EAU-groups (70% vs. 61%).

CONCLUSIONS: Approximately one out of three patients were reclassified after integrating MRI features into stratification of intermediate-risk PCa, leading to improved risk discrimination.

SC351**Refining PSA doubling time thresholds to predict metastases after biochemical recurrence in prostate cancer patients treated with radical prostatectomy**

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BACKGROUND: Patients with biochemical recurrence (BCR) after radical prostatectomy (RP) are stratified by EAU guidelines according to PSA-doubling time (PSA-DT) and ISUP grade groups. Similarly, the EMBARK trial defined high-risk BCR patients with PSA ≥ 1 ng/mL and PSA-DT ≤ 9 months. However, these stratifications do not account for nodal staging and burden. We hypothesized that PSA-DT may significantly vary according to aggressiveness features.

METHODS: We retrospectively identified 1411 patients treated with RP and extended pelvic lymph node dissection at a tertiary center from 1987 to 2023 who experienced BCR (*i.e.*, PSA ≥ 0.2 ng/mL). Patients with PSA persistence (N=296) were excluded. Patients were stratified according to nodal status (pN0 vs. pN1). The primary outcome was progression after BCR, defined as the detection of metastases by any imaging. Multivariable Cox regression (MCR) models assessed the impact of PSA-DT on progression after adjusting for pT, ISUP groups, and adjuvant RT (aRT). An interaction test assessed whether the impact of PSA-DT on progression varied according to nodal status. The C-index identified the PSA-DT cut-off with the highest accuracy after stratifying patients according to nodal status.

RESULTS: Overall, 841 (68%) and 274 (32%) patients were pN0 and pN1. There were 118 (43%) and 156 (57%) patients with 1 and ≥ 2 positive nodes. pN1 patients more often received aRT than pN0 (81% vs. 21%, $P<0.001$). Median follow-up was 78 months (IQR: 40-132). At MCR, PSA-DT, $\geq pT3$, ISUP 4-5, and aRT were predictors of progression (all $P<0.05$). At interaction analysis, the impact of PSA-DT on progression varied according to nodal status (HR: 0.65, 95%CI: 0.32-0.98, $P=0.03$). The PSA-DT cutoff associated with the highest accuracy in predicting progression was 12 months for pN0 patients (c-index: 80%). When pN0 individuals were stratified according to the 12-month cut-off, the 10-year progression-free survival rates were 84% vs. 72%. In pN1 patients, 10-year progression risk was consistent across PSA-DT values, with no cut-off reaching a c-index $\geq 60\%$.

CONCLUSIONS: In defining high-risk BCR patients, EAU and EMBARK criteria omit nodal staging, where pN1 is an independent predictor of progression regardless of PSA-DT. Patients with pN1 disease who experience BCR should be considered as men with high-risk BCR regardless of PSA-DT values.

SC352**The learning curve of Retzius sparing robot-assisted radical prostatectomy: a cumulative sum analysis from a single institution study**

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BACKGROUND: To evaluate the robot-assisted Retzius-sparing radical prostatectomy (RS-RARP) learning curve using the cumulative sum (CUSUM) method.

METHODS: From October 2020 to August 2025, 965 patients underwent RS-RARP using the da Vinci surgical system. Intraoperative and postoperative complications were stratified using the Satava classification and the Clavien-Dindo grading system, respectively. Continuous variables were reported as medians with interquartile ranges (IQR).

The surgical learning curve of the four main surgeons was evaluated *via* CUSUM analysis based on operative time, surgical margin status, and sexual potency recovery among a highly selected cohort of patients with uncompromised baseline erectile function (estimated using the IIEF-5 score). The acceptable positive surgical margin (PSM) target rate was set at 25%, while the functional potency cut-off was defined as a postoperative IIEF-5 ≥ 17 . To accurately identify the inflection point representing the transition from the learning phase to proficiency, polynomial regression models of varying degrees were applied to the CUSUM curve for operative time.

RESULTS: The median patient age was 67 years (IQR: 61-72), median BMI was 26 kg/m² (24-28), and median Charlson Comorbidity Index (CCI) was 3 (2-3). A total of 259 patients (27%) had a history of previous abdominal surgery. The median initial PSA was 6.7 ng/mL (5.1-9.3). The clinical T stage on MRI was cT2 in 659 cases (93%). The most frequent ISUP grade group at biopsy was 2 (306 cases, 38%). The median preoperative IIEF-5 score was 15 (9-18). Surgically, the median operative time was 135 min (105-180), and the estimated blood loss was 200 mL (100-400). A bilateral nerve-sparing approach was utilized in 397 patients (47%). Satava 1-2 intraoperative complications occurred in 15 cases (1.5%). Postoperative complications occurred in 81 patients (8.4%) within 90 days, with major complications (Clavien-Dindo ≥ 2) seen in only 19 cases (1.9%). The median length of hospital stay was 2 days (1-2). Pathological staging revealed T2 tumors in 562 cases (65%), while negative surgical margins were achieved overall in 549 patients (63.4%). CUSUM analysis revealed that surgical proficiency for operative time was reached at case 127 for surgeon 1 and at case 71 for surgeon 2. Conversely, the learning curve for PSM was notably longer. The highest-volume operator (surgeon 1) reached the inflection point for oncological proficiency only after approximately 250 cases, following which the PSM rate successfully stabilized below the 25% threshold. Surgeon 2 exhibited a continuous upward trend, indicating the target PSM rate had not yet been achieved. Regarding functional recovery, the actual success rate (IIEF-5 ≥ 17) for the highest-volume operator (surgeon 1, N=127 patients with uncompromised baseline function) was 25.2%, with the remaining surgeons ranging from 7.7% to 20.8%. Consequently, the Quality Control CUSUM analysis revealed a continuous upward trend for all operators, indicating that the predefined proficiency target of 60% recovery had not yet been maintained.

CONCLUSIONS: The learning curve for RS-RARP is multidimensional and sequential. While technical proficiency in operative time can be safely achieved relatively early (70-130 cases) with a low overall complication rate, oncological mastery requires a significantly longer experience. Furthermore, functional proficiency in sexual potency recovery represents the most challenging and prolonged aspect of the learning curve, extending well beyond the cases required for basic surgical speed. These findings highlight the necessity of structured, step-by-step mentorship programs.

SC353

Long term oncological and functional outcomes of anterior transperitoneal robotic-assisted radical prostatectomy: results at a median follow-up duration of 12 years

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BACKGROUND: To evaluate the long-term oncological and functional outcomes associated with anterior transperitoneal robotic-assisted radical prostatectomy (RARP) in patients with low- to high-risk prostate cancer (PCa).

METHODS: Data from 844 patients who underwent RARP between 2006 and 2016 at a single institution were retrospectively reviewed. Patients with at least 10 years of follow-up were included. Baseline, perioperative, and pathological data were collected. Long-term outcomes included biochemical recurrence-free survival (BRFS), metastasis-free survival (MFS), overall survival (OS), continence, and potency rates. Outcomes were assessed through standardized telephone interviews. Continuous variables were summarized using median and interquartile range. Functional outcomes were assessed using validated questionnaires (IPSS, ICI-Q, IIEF-5). Kaplan-Meier curves were used to estimate BRFS, MFS, and OS.

RESULTS: The median age at surgery was 63.3 years (58.3-67.9), and the median initial PSA was 6.5 ng/mL (4.9-9.3). The median operative time was 228 minutes (185-265), and median blood loss was 250 mL (100-400). A nerve-sparing approach was employed in 59.9% of patients. Positive surgical margins were observed in 26.3% of cases. A total of 481 patients (57%) underwent an extended pelvic lymph node dissection; the pN1 rate was 1.9%. Postoperatively, 4.8% of patients received adjuvant radiotherapy. At a median follow-up of 153 months, 13.4% of patients experienced biochemical recurrence, and 5.7% developed metastases. Salvage pelvic radiotherapy was the most common salvage treatment used (50%), followed by systemic hormone therapy alone (25.6%). Cancer specific mortality was 5%, while all-cause mortality was 30%. Median survival was not reached for BRFS, MFS, or OS. Regarding functional outcomes, 675 patients responded to the questionnaires. At the last follow-up, 67.8% of patients were pad-free, while 20.2% required only a security pad. A total of 641 patients were considered continent at the last follow-up. Surgical treatment for stress urinary incontinence was performed in 4.5% of patients. The median IPSS and ICI-Q scores were 9 (IQR: 7-12) and 4 (IQR: 0-6), respectively. Erectile dysfunction (ED) was common, with a median IIEF-5 score of 0 (IQR: 0-10). Among patients with moderate-to-severe ED, 78.4% were not using any medication.

CONCLUSIONS: This long-term follow-up study demonstrates that RARP offers effective and durable cancer control in patients with localized PCa. However, stress urinary incontinence and ED remain significant concerns, particularly in younger patients with long life expectancy.

SC354

Bleedings after robot-assisted radical prostatectomy: clinico-radiologic features and role of anatomic variants

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BACKGROUND: To assess the occurrence, vascular anatomy, and surgical steps involved in major bleedings after robotic radical prostatectomy (RARP).

METHODS: Patients undergoing RARP with transperitoneal anterior approach from January 2015 to June 2025 at S. Chiara Hospital were retrospectively reviewed from a prospectively maintained database. Cases undergoing embolization/revision were reviewed by a senior Urologist and a

Radiologist with angiographic expertise. CT imaging was combined with angiographic or operative findings. Primary outcomes were transfusion, revision, and embolization rate, radiologic features (injured artery, hematoma location and amount, surgical step involved). Secondary outcomes were clinical and laboratory presentation.

RESULTS: Overall, 91 (6.3%) of 1444 patients experienced bleeding complications: asymptomatic anemia/hematoma treated conservatively was observed in 28 (1.9%) while transfusion was the only treatment required in 38 (2.6%); hemostasis was required in 25 (1.7%), *i.e.* surgical revision (N.=13), embolization (N.=11), or both (N.=1). The surgical steps/arteries associated with Clavien 3 bleedings included: dissection of prostate apex (obturator/accessory pudendal artery, 8/25), lateral pedicles (vesico-prostatic artery, 7/22), and lymph nodes (obturator or superior vesical artery, 5/22). Intraperitoneal (epigastric/ epiploic, 3/22) and Retzius access (superior vesical artery, 2/22) accounted for the remaining bleedings. Considering injuries of accessory pudendal artery (APA) 7 cases were associated with apical variant. Hemoglobin dropped >2gr/dL at 6-14 postoperative hours in 2%, 27%, and 86% of Clavien 0-1, Clavien 2, and Clavien 3 complications, respectively.

CONCLUSIONS: The acquaintance of arteries/surgical steps involved (obturator/apex, vesico-prostatic/pedicles, superior vesical/ lymph node dissection) and an early recognition (postoperative hemoglobin drop >2gr/dL) might help prevent a major postoperative bleeding or contribute to its prompt surgical/angiographic resolution. Unrecognized vascular variants of the obturator artery territory might imply a higher risk of significant apex bleeding.

SC355

Early urinary continence recovery after nerve-sparing and non-nerve sparing robot-assisted radical prostatectomy

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BACKGROUND: Several surgical techniques have been described to favour recovery of urinary continence after robot-assisted radical prostatectomy (RARP), which indeed represents a major factor in quality of life after surgery. We evaluate the recovery of urinary continence after RARP with nerve sparing (NS) and non-nerve sparing (NNS) techniques, with a specific focus on recovery of early continence within the first 3 months after surgery.

METHODS: Patients treated with RARP at our Institution between 2014 and 2025 were included. Patients were divided into two groups according to NS status (NS vs. NNS) and NS technique (unilateral vs. bilateral). Differences in clinical characteristics, histological features and continence (defined as use of 0-1 pad/day) were evaluated. Univariate and multivariable logistic regression models predicting recovery of urinary continence at fixed time points (1, 3, 6, 12 and 24 months) were also evaluated. Covariates were NS status, age at surgery, BMI, pathological ISUP, pT stage, pN stage, adjuvant/salvage radiation therapy.

RESULTS: 1014 patients treated with RARP were included, of whom 541 NS (53.4%) vs. 473 NNS (46.6%). Among NS patients, 307 (56.7%) were unilateral and 234 (43.6%) bilateral. At baseline, patients treated with NS RARP were

younger (median age 65 [IQR 60-69] vs. 70 [IQR 66-73], $P<0.001$), had lower PSA (median 7 ng/mL [IQR 5-10] vs. 8 ng/mL [IQR 6-14], $P<0.001$) and less aggressive disease (biopsy ISUP 1-2 75.7% vs. 36.4%, $P<0.001$ and cT stage $\geq$ cT2 33% vs. 59.1%, $P<0.001$). No differences were found in pre-operative IPSS. At final pathology, NS RARP patients were confirmed to have less aggressive disease (ISUP $\geq$ 3 34.9% vs. 50.3%, pT2 73.1% vs. 44.9%, pT3 26.8% vs. 39.3%, pN1 4.2% vs. 16.1%, all $P<0.001$). Analyzing the recovery of continence in NNS, monolateral NS and bilateral NS groups, continent patients (0-1 pad per day) at the fixed time points were: 50.1% vs. 58.4% vs. 74.7% at 1 month; 73.3% vs. 81.3% vs. 86.7% at 3 months; 86.3% vs. 90.2% vs. 93.3% at 6 months; 90.9% vs. 93.6% vs. 95.3% at 12 months and 93.1% vs. 96.5% vs. 100% at 24 months [$P<0.0001$]. At multivariable analyses, performing a NS RARP was an independent predictor of urinary continence recovery at 1 month (OR 0.6, 95% CI 0.4-0.8, $P=0.006$) and 3 months (OR 0.7, 95% CI 0.4-0.9, $P=0.04$), but not at 6, 12 and 24 months after surgery.

CONCLUSIONS: Performing RARP with a nerve-sparing technique is associated with consistently better urinary continence outcomes after surgery, independently from a unilateral vs. bilateral approach. After adjusting for possible confounders, NS RARP was significantly associated with early recovery of continence within 3 months after surgery, suggesting that a NS approach should be adopted even in patients with poorer baseline erectile function when oncologically safe and technically feasible.

SC356

Assessment of lymph node invasion in patients with ISUP2 prostate cancer at biopsy treated with radical prostatectomy and lymph node dissection

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BACKGROUND: Clinical ISUP2 remains a gray area in prostate cancer (PCa). Indeed, some of these patients may harbor aggressive disease at final pathology. We aimed to identify predictive factors of lymph node involvement (LNI) at final pathology in patients treated with radical prostatectomy (RP) and lymph node dissection (LND) for ISUP2 prostate cancer at biopsy.

METHODS: Patients treated with RP and LND at our Institution between 2014 and 2025 for a clinical ISUP2 (GS 3+4) PCa were included. Indications for LND were based on MSKCC and Briganti nomograms as recommended by the guidelines. Patients were divided into two groups according to LN status at final pathology (pN0 vs. pN1) and differences in clinical characteristics and histological features between the groups were compared.

RESULTS: Patients with clinical ISUP2 PCa were treated with RP + LND. The majority of RPs were robot-assisted, while only 13.6% were laparoscopic. At final pathology, 18 (15.3%) patients were pN1 (median positive LN 1 [IQR 1-2.25]). Compared to pN0, pN1 patients were younger (median age 64 [IQR 59-69] vs. 68 [62-72], $P=0.04$) and had higher baseline PSA (median iPSA 12 [IQR 9-36] vs. 8 ng/mL [6-13], $P=0.004$). Conversely, no differences were found in terms of clinical T stage distribution (50 vs. 34.7% cT1c and 50.1 vs. 63.2% cT2), clinical N stage (15% vs. 5.1% cN1)

and percentage of positive samples (mean $51.7 \pm \text{SD } 18.5\%$ vs. $52.3 \pm \text{SD } 20.3\%$). mpMRI was not performed in 28 patients (23.7%), without significant differences between pN0 and pN1 groups (25% vs. 16.7%). In terms of pathological features, median number of LN removed were comparable (19 [IQR 14.5-22] vs. 17 [IQR 11-21]). Conversely, pN1 patients had consistently higher ISUP upgrade (ISUP3 27.8 vs. 27.3%, ISUP4 16.7 vs. 14.1% and ISUP5 33.3 vs. 2.2%, $P < 0.001$), as well as higher pT stage (5.6 vs. 51% pT2, 22.2 vs. 40% pT3a and 72.2 vs. 9% pT3b, $P < 0.001$).

CONCLUSIONS: A small proportion of ISUP2 PCa at biopsy with indication to LND were found to be pN1 at final pathology. Although differing only in terms of baseline PSA, this subgroup of patients showed consistently higher rates of upgrading, with one third of patients upgraded to ISUP5, and all of them had a locally advanced PCa at final pathology. A better preoperative characterization of the disease with multiparametric MRI as well as a deeper understanding of tumor biology behind ISUP are needed in order to identify patients with ISUP2 PCa who are at higher risk of harboring more aggressive disease.

SC357

Prognostic value of perineural and lymphovascular invasion in patients eligible for adjuvant therapy after radical prostatectomy: a single center retrospective cohort study

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BACKGROUND: The role of adjuvant vs. salvage radiotherapy in case of biochemical recurrence (BCR) after radical prostatectomy (RP) for prostate cancer is still debated. We evaluated the prognostic role of perineural (PNI) and lymphovascular invasion (LVI) on biochemical recurrence (BCR) in patients eligible for adjuvant radiotherapy.

METHODS: We retrospectively reviewed our cohort of RP patients (2014-2025) and included patients with undetectable postoperative PSA, pN0/NX stage, and at least one high-risk feature (ISUP Grade Group ≥ 4 , stage $\geq \text{pT3}$, or positive surgical margins). PNI and LVI were assessed on permanent pathological sections. BCR was defined as two consecutive PSA values ≥ 0.2 ng/mL. Kaplan-Meier curves and log-rank test assessed BCR-free survival. Multivariable Cox regression models evaluated the association of PNI and LVI with BCR, adjusting for age, pathological stage, ISUP grade, surgical margins, and use of adjuvant RT.

RESULTS: Of 1161 patients treated with RP, 454 (39%) met the inclusion criteria. Of these, 369 (81%) presented PNI and 39 (8.6%) patients exhibited LVI. PNI was significantly associated with ISUP grade 4-5 (41.2% vs. 30.6%, $P = 0.02$), stage $\geq \text{pT3a}$ (56.9% vs. 34.1%, $P = 0.001$), and positive surgical margins (71.3% vs. 54.1%, $P = 0.002$). LVI was significantly associated with ISUP grade 4-5 (53.8% vs. 30.6%, $P = 0.01$) and stage $\geq \text{pT3a}$ (79.5% vs. 50.0%, $P < 0.001$). Overall, adjuvant RT was administered to 46 (10.1%) patients, more frequently to those with LVI (31.6% vs. 8.5%, $P < 0.001$) and PNI (12.1% vs. 3.6%, $P = 0.02$). Median follow-up was 45 (IQR 24-64) months. Overall, 96 (21.1%) BCR events occurred. At 36-month, BCR-free survival was 76% vs. 84% in patients with vs. without PNI ($P = 0.3$) and 59% vs. 79% in patients with

vs. without LVI ($P = 0.04$). At multivariable Cox regression models, PNI was not a predictor of BCR (HR 1.15, 95%CI 0.61-2.18, $P = 0.6$), whereas LVI was an independent predictor of BCR (HR 2.01, 95%CI 1.01-4.02, $P = 0.048$). Other independent predictors of BCR were ISUP grade ($P < 0.001$) and positive surgical margins ($P < 0.001$). Adjuvant RT was associated with a significant reduction in BCR risk (HR 0.24, 95%CI 0.10-0.57, $P = 0.001$).

CONCLUSIONS: Despite its high prevalence and association with adverse pathology, PNI is not an independent predictor of BCR. In contrast, LVI is associated with an increased risk of recurrence. Therefore, LVI may represent a valuable parameter for postoperative risk stratification during counseling for adjuvant vs. salvage RT.

SC358

Prevention of secondary lymphedema after robot-assisted radical prostatectomy with pelvic lymph node dissection: results from a prospective randomized study with MELIVEN® TOP

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BACKGROUND: To assess whether bromeline-diosmin-melilotus-hesperidin (MELIVEN® TOP) reduces postoperative lymphedema after robot-assisted radical prostatectomy (RARP) with pelvic lymph node dissection (PLND) for prostate cancer.

METHODS: In this single-center, open-label randomized controlled trial, patients undergoing RARP with PLND were assigned (1:1) to MELIVEN® TOP (1 tablet/day for 30 days, starting 1-4 days postoperatively) or no supplementation. Lower limb volumes (thigh and shank) were quantified using the truncated cone method at baseline, 1 and 3 months. Genital examination and symptoms were recorded. The primary endpoint was 3-month limb volume change. Secondary endpoints included genital symptoms. A total of 98 patients were analyzed (49 per group). Between-group comparisons were performed using ANCOVA adjusted for baseline volume, BMI, and number of lymph nodes removed, with Holm correction.

RESULTS: Baseline characteristics were comparable between groups. No significant differences in adjusted limb volumes were observed at 1 or 3 months across all segments (all $P > 0.1$). At 3 months, between-group differences were negligible (e.g., right thigh +8 cm³, $P = 0.965$; right shank +112 cm³, $P = 0.526$), with consistent findings for whole-limb analysis. Conversely, genital outcomes differed. Genital pain at 1 month was significantly higher in the control group (18% vs. 2%, $P = 0.008$), while no difference persisted at 3 months. Genital swelling was reduced in the treatment group at 3 months (0% vs. 8%, $P = 0.041$), despite similar rates at 1 month. Lymphocele rates were comparable (12% vs. 6%, $P = 0.309$).

CONCLUSIONS: MELIVEN® TOP did not impact objective limb volume changes after PLND, questioning its role in lymphedema prevention. However, it significantly improved early genital symptoms, reducing postoperative pain and persistent swelling. These findings suggest a symptomatic – rather than structural – benefit, supporting its use to enhance early postoperative recovery after RARP with PLND.

SC359**Predicting trainee responses to live intraoperative feedback during vesicourethral anastomosis in robot-assisted radical prostatectomy**

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BACKGROUND: The vesicourethral anastomosis (VUA) step of robot-assisted radical prostatectomy (RARP) is a key suturing step in urologic training, where trainees operate and trainers provide real-time verbal feedback. We aimed to understand which aspects of trainer feedback elicit observable trainee responses such as behavioral change and verbal acknowledgment.

METHODS: We prospectively collected 32 synchronized audio-video recordings of training VUAs from two tertiary centers (Feb-Sep 2025). Six residents (PGY-4-5) and seven attending surgeons participated in robotic teaching cases where trainees held console control for at least part of the procedure. Feedback events were time-stamped, transcribed and coded utilizing a previously described classification of feedback dialogue characteristics (*e.g.*, types of triggers, feedback content). Four trained raters demonstrated high interrater reliability across feedback coding ($\kappa=0.84$ 95% CI 0.72-0.96). Utilizing the feedback characteristics, a random forest model predicted trainee acknowledgment or behavioral change with 10-fold cross-validation. Univariate analysis evaluated associations between characteristics and outcome.

RESULTS: In total, 5978 teaching-related instances of live surgical feedback were analyzed: 2086 (34.9%) during trainee console time, and 3892 (65.1%) while the trainer was operating. Utilizing the defined characteristics of feedback dialogue, the predictive performance was moderate for trainee verbal acknowledgment (AUC 0.65, 95% CI 0.62-0.67) and strong for behavioral change (AUC 0.84, 95% CI 0.82-0.86). Our analysis revealed anatomical feedback (OR 1.28, 95% CI 1.09-1.51, $P<0.001$) and technical feedback (OR 1.36, 95% CI 1.12-1.65, $P<0.001$) as independent predictors of trainee verbally acknowledging feedback. Errors of omission (*e.g.*, not performing a relevant task) (OR 2.44, 95% CI 1.68-3.54, $P<0.001$) and errors provoked (*e.g.*, “don’t grab that”) (OR 2.01, 95% CI 1.55-2.60, $P<0.001$) were strongly predictive of trainee behavioral change.

CONCLUSIONS: During the VUA step of RARP, anatomical and technical feedback mainly elicited verbal acknowledgment, whereas behavioral change was most likely to occur when trainers addressed explicit trainee errors. Our analyses may help future trainers identify best practices in live feedback to optimize opportunity for trainees to modify their behavior.

SC360**Thermosensitive nanoLDH-ICG@hydrogel for image-guided prostate cancer surgery: preclinical and early clinical evaluation**

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BACKGROUND: Indocyanine Green (ICG) is a fluorescent dye widely used in urologic surgery. Near-infrared (NIR) fluo-

rescence cameras integrated into robotic platforms such as Da Vinci enable its visualization. ICG is typically injected into the bloodstream or lymphatic system; however, its liquid nature limits its use for marking specific sites in solid tissues due to rapid diffusion. The project Nanotechnology for image-guided surgery: clinical validation of a novel fluorescent compound (nanoLDHICG@hydrogel) investigates an innovative use of ICG to mark prostatic areas affected by cancer, as identified by MRI and targeted biopsy. This approach aims to improve surgical precision during robot-assisted radical prostatectomy. The compound transitions from a liquid state at low temperature to a semisolid gel at body temperature, enabling localized and stable marking. This behavior was demonstrated in preclinical *in vivo* animal models and human *ex vivo* studies.

METHODS: This is a proof of principle study promoted by the Azienda Ospedaliera Universitaria Integrata (AOUI) of Verona. Preclinical phases have been completed, while the study on human subjects is currently ongoing, in collaboration with the Department of Urology of the “Vito Fazzi” Hospital (Lecce). The nanoLDH-ICG@hydrogel is a multifunctional contrast agent for *in vivo* imaging. In liquid form, it is injected into the target site and enables visualization through both near-infrared fluorescence imaging and magnetic resonance imaging, due to the presence of gadolinium in its composition. In murine models, we have shown that the injection allows stable delineation of target areas in solid tissues without rapid diffusion. Further, at temperatures above 15-18°C, the solution undergoes gelation, allowing it to remain localized at the injection site for a clinically useful period.

RESULTS: The thermosensitive behavior ensures stable and confined marking of the injection site over time. This property prevents rapid dispersion and allows persistent localization, facilitating intraoperative identification of target areas.

CONCLUSIONS: The main innovation of nanoLDH-ICG@hydrogel lies in its ability to provide prolonged, localized marking of anatomical sites of interest without nonspecific diffusion. Due to these characteristics, the compound may be applied as an injectable marker for multimodal *in vivo* imaging, with potential applications in image-guided and robotic surgery. The direct injection into the prostate of the nanoLDH-ICG@hydrogel to mark the site of the index prostate cancer might provide a rapid mean for real-time intraoperative navigation during radical prostatectomy and improve the quality of surgical dissection. Funded by the European Union – Next Generation EU – NRRP M6C2 – Investment 2.1 Enhancement and Strengthening of Biomedical Research in the NHS.

SC361**Impact of central biopsy review on the risk of positive surgical margins and biochemical recurrence in prostate cancer patients undergoing radical prostatectomy**

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BACKGROUND: Grading discrepancies between low- and high-volume pathologists in prostate biopsy interpretation are

well documented. Expert pathological review can influence clinical decision-making in prostate cancer (PCa) patients. However, its impact on oncological outcomes remains unclear. We aimed to assess the association between central biopsy review and upgrading, positive surgical margins (PSM), and biochemical recurrence (BCR) in PCa patients undergoing radical prostatectomy (RP).

METHODS: We relied on 652 intermediate- and high-risk PCa patients diagnosed with biopsy performed at community hospitals and treated with RP±lymph node dissection at a high-volume center (2018-2024). Patients who received biopsy revision (N=260; 40%) were identified. Multivariable logistic regression analysis (MLA) tested the association of biopsy revision with ISUP upgrading and PSM. Kaplan-Meier (KM) analyses depicted BCR-free survival (BCR-FS). Multivariable Cox regression analysis (MCA) assessed the impact of biopsy revision on BCR, adjusting for age, PSA, and ISUP-GG at the original biopsy report. We calculated the absolute BCR risk difference (%) between revised vs. non-revised groups and the number needed to revise biopsy (NNR) for avoiding one BCR event.

RESULTS: Overall, median age and PSA at diagnosis were 65 (59-70) years and 6.7 (5.0-9.7) ng/mL. In the non-revised group, upgrading at RP occurred in 33% (N=130) patients. In the revised group, ISUP upgrading at RP occurred in 35% (N=91) vs. 24% (N=62) patients before vs. after revision. PSM rates were 19% vs. 27% in the revised vs. non-revised groups, respectively. At median follow-up of 36 months, BCR occurred in 36 vs. 82 of revised vs. non-revised cases. KM analysis showed 96-months BCR-FS of 74% vs. 61% in revised vs. non-revised cases (P=0.043). At MLA, biopsy revision was significantly associated with lower risk of upgrading at RP (OR: 0.83, 95% CI 0.67-0.96, P=0.038) and PSM at RP (OR: 0.87, 95% CI 0.61-0.98, P=0.041). At MCA, biopsy revision was significantly associated with reduced BCR risk (HR: 0.66, 95% CI 0.44-0.99, P=0.044). The absolute BCR risk reduction was 7%, yielding a NNR of 14 biopsy revisions to avoid one BCR event.

CONCLUSIONS: Central review of prostate biopsy specimens may provide a more accurate assessment of tumour grade and extent, offering valuable information to the surgeon at the time of RP. This improved pathological characterization can guide the surgical approach and potentially reduce the risk of PSM and BCR.

SC362

Oncological impact of adherence to 2023 EAU guidelines on pelvic nodal dissection omission in intermediate-risk prostate cancer

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BACKGROUND: Pelvic nodal dissection (PND) has played a role in the staging and management of intermediate-risk prostate cancer, with its indication largely guided by validated nomograms estimating the risk of lymph node involvement. However, the 2023 European Association of Urology (EAU) guidelines have removed the recommendation for routine PND in this patient category, potentially leading to a shift in clinical practice. The omission of PND may result in understaging and undertreatment of patients

harboring occult nodal disease, potentially increasing the risk of early biochemical persistence or recurrence (BCR). The present study aims to evaluate whether adherence to the updated EAU guidelines, specifically the systematic omission of PND in intermediate-risk patients, is associated with a higher rate of PSA persistence or early BCR compared to a cohort in which PND was performed based on nomogram-derived risk stratification.

METHODS: We conducted a retrospective study on a prospectively maintained database at a high-volume referral center, including patients with intermediate-risk prostate cancer who underwent robotic radical prostatectomy. Two cohorts were identified: a pre-guideline cohort treated before the implementation of the 2023 EAU recommendations, in which PND was performed according to nomogram-based risk assessment, and a post-guideline cohort (from 2024 onwards), in which PND was systematically omitted in accordance with updated guidelines. The primary endpoint was the rate of PSA persistence (defined as PSA ≥0.1 ng/mL within 6-8 weeks postoperatively) or early BCR within one year from surgery. Clinical, pathological, and follow-up data were collected. Comparative analyses between groups were performed using Chi-square or Fisher's Exact Test for categorical variables.

RESULTS: The cohort included 146 patients, with a median age of 67 (62-71) years. 37 (25.3%) RARP were performed before the guidelines' revision, and 109 (74.7%) RARP after the revision. Median Charlson's Comorbidity Index was 4 (3-5), median preoperative PSA levels were 12.2 (5.2-16.2) ng/mL, and 17 (8.9%) were on 5-ARI therapy before biopsy. Median IPSS was 9.5 (5-15), and median IIEF score was 18 (11-23). At mpMRI, median prostatic volume was 47 (34-89) cc, median index lesion diameter was 11 (8-15) mm. At biopsy, 71 (48.6%) showed a bilateral tumor, 14 (9.6%) were ISUP-1, 87 (59.6%) were ISUP-2, and 45 (30.8%) were ISUP-3. At surgery, 13 (8.9%) were ISUP-1, 102 (69.9%) were ISUP-2, and 31 (21.2%) were ISUP-3. Only patient presented an upgrade (Gleason Score 3+5). Totally, 14 (9.6%) PND were performed (3 [2.1%] pre-new guidelines and 11 [7.5%] after), and in 7 (4.8%) patients BCR occurred. No statistically significant association was found between adherence to the new guidelines' edition and BCR (P=0.20).

CONCLUSIONS: According to our results, the adherence to the new guidelines and the avoidance of PND in intermediate risk prostate cancer does not increase the risk for BCR. Larger studies with longer follow-up are needed, but our results are encouraging.

SC363

The influence of germline pathogenic variants in dna repair genes on a cohort of patients who underwent curative surgery for prostate cancer

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BACKGROUND: Family history represents a significant risk factor for prostate cancer (PCa), emphasizing its genetic basis. Early identification of germline pathogenic variants (PVs) in DNA repair genes (DRGs) is crucial for timely PCa diagnosis, prognosis, and for informing at-risk relatives. Conversely, the presence of variants of uncertain significance

(VUS) has been associated with worse clinical outcomes. This study aimed to assess how the presence of germline PVs and VUS affect clinical and pathological outcomes in a monocentric cohort of patients who underwent robot-assisted laparoscopic prostatectomy (RALP) for PCa.

METHODS: This prospective study, supported by AIRC - Fondazione AIRC per la Ricerca sul Cancro (registered and emended with the number ID-IG-25027-V1.3), was conducted at a tertiary referral center in collaboration with the Departments of Oncology, Urology, Pathology, Radiology, and Medical Genetics. A total of 179 men aged 58-70 years who underwent RALP for localized PCa were screened for germline PVs and VUS in DRGs prior to surgery. Patients were enrolled if they had an ISUP grade ≥ 3 at biopsy and/or a confirmed PCa diagnosis at ≤ 50 years of age. Individuals harboring a VUS or PVs were compared to those with negative genetic results.

RESULTS: Of the 179 patients screened between 2021 and 2024, 162 shared the results of genetic testing. Median age at surgery did not differ between groups (65 years, IQR 59-70). Among them, 114 (69.9%) tested negative, while 39 (29.4%) and 9 (5%) carried a VUS or PVs in DRGs, respectively. The

most frequent VUS involved ATM (22.2%), CHEK2 (15.6%), BRCA2 (13.3%), ATR (6.7%), NBN (6.7%), RAD51D (6.7%), and MSH6 (4.4%). The nine PVs identified were: BRCA2, PALB2 + NBN, PALB2 + BRCA2, BRCA1/PALB2, CHEK2 + PMS2, CHEK2, and ATM. A family history of cancer was reported in 50% of VUS/PV carriers compared to 34.6% of non-carriers. High-grade PCa (ISUP >3) was found in 46.3% of carriers *versus* 38.0% of non-carriers. A pathological stage $\geq pT3$ occurred in 53.6% of carriers *versus* 45.1% of non-carriers, while nodal involvement (pN1) was more frequent among carriers (21.4% *vs.* 12.6%). Biochemical recurrence (BCR) occurred in 36.8% of carriers *versus* 30.4% of non-carriers.

CONCLUSIONS: This study provides valuable insight into the role of germline VUS, by the first, and PVs in DRGs among PCa patients, suggesting that such variants may confer a less favorable disease course. Although differences did not reach statistical significance, carriers tended to present with higher-grade and more advanced disease at final pathology. Genetic screening for PCa may therefore aid not only in early detection among high-risk individuals but also in guiding clinical management and follow-up strategies.

SMART COMMUNICATION (SC363 - SC378)

Tumore della prostata: diagnosi III

SC364

BPMRI and PSA density in an organized prostate cancer screening program: PI-RADS distribution and biopsy candidate selection in the Basilicata regional initiative

SC365

Multiparametric MRI for extraprostatic extension prediction in prostate cancer: tumor size, pirads score, and implications for surgical planning

SC366

The impact of PI-QUAL score on diagnostic and economic efficiency of MPMRI for prostate cancer: results from a prospective evaluation of external scans after central review

SC367

Prostate MRI quality strongly influences the diagnostic yield of systematic and targeted biopsies: insights from a prospective study

SC368

Exploring the diagnostic yield of prostate MRI for prostate cancer detection in younger men: implications for mri interpretation across different age thresholds

SC369

Predictive factors for negative prostate biopsy in PI-RADS 4-5 patients: a multivariate analysis of clinical and imaging-based variables

SC370

Prospective multicenter study on the predictive role of node-RADS score in patients with prostate cancer candidates for radical Prostatectomy: comparative analysis with validated nomograms and PET CT scan

SC371

Prostate cancer detection in patients with PI-RADS 3 lesions undergoing prostate biopsy in a non-academic center: a retrospective study

SC372

Comparison of micro-ultrasound and multiparametric magnetic resonance imaging in detecting clinically significant prostate cancer: a single-center experience

SC373

Complementary diagnostic value of micro-ultrasound in equivocal prostate MRI: an updated retrospective analysis from a tertiary referral center

SC374

Can micro ultrasound identify clinically significant prostate cancer in patients with negative MPMRI? A single-center exploratory analysis

SC375

Tracking the cognitive learning curve in microus imaging: how operators learn to see clinically significant prostate cancer

SC376

Combining PSA density and PRI-MUS score improves risk stratification for clinically significant prostate cancer: a single-center analysis

SC377

Validation of the PRI-MUS score for the detection of clinically significant prostate cancer: a single-center analysis

SC378

MUSeg-PSV: a real-time deep-learning segmentation of the prostate gland and seminal vesicles on 29 mhz micro-ultrasound

SC364

BPMRI and PSA density in an organized prostate cancer screening program: PI-RADS distribution and biopsy candidate selection in the Basilicata regional initiative

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BACKGROUND: The Basilicata regional prostate cancer (PCa) screening program employs biparametric MRI (bpMRI: T2-weighted + diffusion-weighted imaging, without contrast enhancement) as the third-tier examination in subjects selected by the urological gatekeeping visit. The aim of this study is to describe the PI-RADS v2.1 score distribution within the screening cohort and to evaluate the added value of PSA density (PSAd) in risk stratification for clinically significant prostate cancer (csPCa, ISUP Grade Group ≥ 2), with particular focus on the PI-RADS 3 category as the primary grey zone for biopsy decision-making.

METHODS: Prospective cohort study including all subjects referred to bpMRI within the screening program. Variables collected: total PSA (ng/mL), free PSA and free-to-total ratio (F/T, where available), prostate volume on MRI, PSA density (PSAd; ng/mL/cm³), global PI-RADS score (1-5), lesion location (peripheral/transitional/anterior zone), number of target lesions, and biopsy referral decision (yes/no). Subjects with PI-RADS ≥ 3 and/or PSAd ≥ 0.15 ng/mL/cm³ underwent transperineal ultrasound-guided fusion biopsy (targeted cores + systematic cores). Statistical analysis: frequencies and proportions with 95% CI for categorical variables; median and IQR for continuous variables; 2×2 contingency tables for sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV); ROC curve analysis with area under the curve (AUROC) for PI-RADS alone and in combination with PSAd.

RESULTS: Among 151 subjects with bpMRI and a conclusive report (median age 63 years, IQR 57-68; median PSA 4.8 ng/mL, IQR 3.4-6.9), PI-RADS score distribution was: 1-2 in 68 cases (45.0%; 95% CI 37.1-53.1%), 3 in 42 (27.8%; 95% CI 21.0-35.6%), and 4-5 in 41 (27.2%; 95% CI 20.5-34.9%). Median prostate volume was 42 mL (IQR 32-58), with a median PSAd of 0.11 ng/mL/cm³ (IQR 0.07-0.18). Sixty-eight subjects (45.0%) underwent fusion-guided biopsy. The overall PCa detection rate was 52.9% (36/68); csPCa (ISUP GG ≥ 2) was detected in 32.4% of biopsied patients (22/68). In the PI-RADS 3 category, a PSAd ≥ 0.15 ng/mL/cm³ increased the PPV for csPCa from 19.0% to 38.5%, while maintaining NPV >90%. The AUROC for PI-RADS alone was 0.81 (95% CI 0.74-0.88); the addition of PSAd increased the AUROC to 0.88 (95% CI 0.82-0.94).

CONCLUSIONS: bpMRI integrated with PSAd represents an effective and reproducible risk stratification tool within an organized screening setting. In particular, in PI-RADS 3 lesions – the category carrying the greatest clinical uncertainty – a PSAd threshold of ≥ 0.15 ng/mL/cm³ significantly refines the biopsy decision by improving specificity without compromising NPV. The model adopted in the Basilicata screening program, which does not require lesion diameter measurement, demonstrates that readily available clinical parameters (PSA, prostate volume, PI-RADS score) are sufficient to achieve clinically meaningful and operationally sustainable risk stratification in a population-based screening context.

SC365

Multiparametric MRI for extraprostatic extension prediction in prostate cancer: tumor size, PIRADS score, and implications for surgical planning

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BACKGROUND: Accurate preoperative prediction of extraprostatic extension (EPE) in prostate cancer (PCa) is essential for optimizing surgical margins and nerve-sparing decisions. While nomograms estimate statistical risk, multiparametric MRI (mpMRI) provides anatomic localization of EPE. This study evaluates mpMRI's diagnostic performance, correlates radiologic features with histopathologic EPE extent, and identifies predictors of MRI diagnostic gaps.

METHODS: In this retrospective study of 211 patients undergoing robot-assisted radical prostatectomy (RARP) (2022-2024), preoperative mpMRI (34% 3T, 66% 1.5T) was reviewed by two radiologists using PI-RADS v2. Direct (capsular breach, rectoprostatic angle obliteration) and indirect (tumor bulging, capsular irregularity) EPE signs were assessed. Pathologic EPE, margin status, and tumor dimensions were analyzed per ISUP guidelines. Diagnostic accuracy (sensitivity, specificity, PPV, NPV) was calculated using contingency tables. Pearson's correlation evaluated the association between MRI-derived EPE likelihood and histopathologic EPE area. Multivariable logistic regression identified independent predictors of EPE, and ROC analysis compared models (MRI alone vs. MRI + clinical variables). Subgroup analyses (tumor size, location) used *t*-tests and Fisher's Exact Test. Inter-reader agreement was quantified with Cohen's kappa.

RESULTS: mpMRI demonstrated moderate sensitivity (62% [95% CI: 54-70]) and high specificity (89% [82-94]) for EPE detection, with PPV 78% [70-85] and NPV 81% [74-87]. Larger tumors (>20 mm) had higher EPE risk (68% vs. 12% for ≤ 15 mm; $P < 0.001$). PIRADS 5 lesions showed 85% EPE confirmation vs. 42% for PIRADS 3-4 ($P = 0.003$). Posterior/apex tumors exhibited 73% EPE prevalence vs. 22% for anterior lesions ($P < 0.001$). MRI-assessed EPE likelihood correlated with pathologic tumor area ($r = 0.42$, $P < 0.001$). Multivariable analysis confirmed tumor size (OR: 3.2 [1.8-5.7]), PIRADS 5 (OR: 4.1 [2.3-7.4]), and posterior location (OR: 2.9 [1.6-5.3]) as independent EPE predictors. Integrating MRI with clinical variables (PSA, ISUP grade) improved AUC from 0.75 (MRI alone) to 0.84 ($P = 0.02$, DeLong's test). Inter-reader agreement was moderate ($\kappa = 0.65$ [0.58-0.72]).

CONCLUSIONS: mpMRI provides high specificity (89%) and PPV (78%) for EPE prediction, particularly in tumors >20 mm or PIRADS 5. However, moderate sensitivity (62%) and inter-reader variability highlight limitations in detecting microscopic EPE, especially in anterior tumors. Combining MRI with clinical risk models enhances preoperative stratification (AUC 0.84), supporting its integration into surgical planning. Standardized protocols and radiologic training are critical to address diagnostic gaps, with future research needed to validate advanced biomarkers for microscopic EPE detection.

SC366

The impact of PI-QUAL score on diagnostic and economic efficiency of MPMRI for prostate cancer: results from a prospective evaluation of external scans after central review

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BACKGROUND: The accuracy of mpMRI (mpMRI) for prostate cancer (PCa) diagnosis strongly depends upon its quality. The Prostate Imaging Quality (PI-QUAL) score standardizes mpMRI quality assessment, though its clinical and economic impact remains unclear. We evaluated the influence of PI-QUAL on the diagnostic accuracy and cost-efficiency of external mpMRI scans performed at non-academic centers.

METHODS: From November 2023 to April 2025, 249 patients referred for prostate biopsy after external mpMRI were prospectively enrolled. All underwent systematic plus targeted biopsies performed by two experienced urologists. External scans were centrally reviewed by expert uro-radiologists with at least 10 years of experience in prostatic imaging blinded to biopsy results and reassessed per PI-RADS v2.1. Image quality was graded using PI-QUAL v2. Accuracy for clinically significant PCa (csPCa, ISUP ≥ 2) was evaluated using the ROC-derived AUC before and after review, stratified by PI-QUAL (1-2 vs. 3). Health-related costs were estimated using National Health Service reimbursement rates, including mpMRI, biopsy, and one-year active surveillance for ISUP 1.

RESULTS: Median age and PSA were 66 years (IQR 44-74) and 6.6 ng/mL (IQR 4.9-9.9), respectively. Overall, csPCa was detected in 135 (54%) patients. PI-QUAL 3 scans yielded greater diagnostic accuracy (AUC 0.80 vs. 0.67, $P=0.044$). In PI-QUAL 1-2 scans, central review markedly improved csPCa detection (AUC 0.67 vs. 0.80, $P<0.001$), while PI-QUAL 3 accuracy remained unchanged (AUC 0.80 vs. 0.81, $P=0.72$). Low-quality mpMRIs generated more indeterminate PI-RADS 3 (28 vs. 18%, $P=0.04$) findings and ISUP 1 tumors (16 vs. 12%, $P=0.02$) compared to high-quality ones, resulting in 7 additional unnecessary biopsies per 100 patients. The mean diagnostic cost per csPCa detected was €994 for PI-QUAL 1-2 and €751 for PI-QUAL 3, corresponding to a 25% cost reduction associated with PI-QUAL 3 imaging.

CONCLUSIONS: High-quality mpMRI ensures superior accuracy and cost-effectiveness in the diagnostic pathway. Centralized review can improve the interpretation of suboptimal scans but cannot fully compensate for poor-quality imaging. Performing high-quality mpMRI upfront and enforcing PI-QUAL-based quality control may enhance csPCa detection while minimizing unnecessary procedures and avoidable costs.

SC367

Prostate MRI quality strongly influences the diagnostic yield of systematic and targeted biopsies: insights from a prospective study

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BACKGROUND: Multiparametric MRI (mpMRI) is recommended in the diagnostic pathway of prostate cancer (PCa) to guide targeted biopsy (TBx). However, the quality of the scan may influence the relative contribution of systematic biopsy (SBx). The Prostate Imaging Quality (PI-QUAL) score provides an objective measure of mpMRI quality. This study evaluated how PI-QUAL affects the added value of SBx alongside TBx for detecting clinically significant PCa (csPCa, ISUP ≥ 2) and whether this association varies by clinical risk.

METHODS: A total of 249 men referred for prostate biopsy after an external mpMRI were prospectively enrolled between November 2023 and June 2025. All patients underwent SBx plus TBx when indicated according to mpMRI (namely, PI-RADS ≥ 3). External mpMRI scans were centrally reviewed by expert uro-radiologists with more than 10 years of experience in prostate MRI who were blinded to clinical and pathological data. Image quality and lesion grading were reassessed using PI-QUAL v2 and PI-RADS v2.1. Multivariable logistic regression models tested the association between PI-QUAL and csPCa at SBx and TBx adjusting for PI-RADS. Predicted probabilities were used to visualize the relative contribution of each biopsy modality across PI-QUAL categories. Interaction analyses evaluated whether the relative contribution of SBx vs. TBx varied by PI-QUAL.

RESULTS: Median age and PSA were 66 years (IQR: 44-74) and 6.6 ng/mL (IQR: 4.9-9.9), respectively. Overall, csPCa was detected in 135 (54%) patients. Among 227 (91%) men with positive mpMRI (PI-RADS ≥ 3), csPCa was detected at TBx in 45%, 46%, and 58% of PI-QUAL 1, 2, and 3 scans. After adjustment for PI-RADS, higher PI-QUAL values were associated with greater csPCa yield at TBx (OR: 1.3, $P=0.01$). Although no significant interaction between biopsy type and PI-QUAL was found ($P=0.4$), SBx contributed substantially to csPCa detection in lower-quality scans (PI-QUAL 1-2), whereas in high-quality mpMRI (PI-QUAL 3) TBx provided higher diagnostic yield.

CONCLUSIONS: In low-quality scans, SBx may still aid csPCa detection, while high-quality mpMRI optimizes TBx biopsy yield. These findings underscore the value of SBx when scan quality is suboptimal and advocate for standardization of mpMRI acquisition to enhance TBx detection rate.

SC368

Exploring the diagnostic yield of prostate MRI for prostate cancer detection in younger men: implications for mri interpretation across different age thresholds

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BACKGROUND: Magnetic resonance imaging (MRI) is now integral to biopsy decision-making in prostate cancer (PCa). The PROBASE trial showed low MRI positivity and diagnostic yield in 45 year-old men with low prostate-specific antigen (PSA) levels, suggesting age and PSA jointly influence MRI performance. We evaluated how these factors predict MRI positivity and clinically significant PCa (csPCa) in a contemporary cohort.

METHODS: We analyzed 3847 men undergoing pros-

tate MRI (2020-2024), excluding patients with prior positive biopsies and missing PSA and MRI data. MRI positivity was defined at 3 thresholds: PI-RADS ≥ 3 , ≥ 4 , and 5. Logistic regression with restricted cubic splines for age, log (PSA), and their interaction modeled MRI positivity probability. Sensitivity analyses used PSA density (PSAD) instead of PSA. The optimal PSA thresholds for PI-RADS ≥ 3 and ≥ 4 detection were estimated using C-index analyses. Biopsy results were assessed according to age and PI-RADS, with csPCa (ISUP ≥ 2) as endpoint.

RESULTS: A total of 639 men were included. Median age was 64 years, PSA 6.0 ng/mL, and prostate volume 50 cm³. Overall, 62% of MRIs were PI-RADS ≥ 3 . Age and PSA and age and PSAD showed a significant interaction ($P \leq 0.03$). The PSA threshold predicting PI-RADS ≥ 3 rose from 2.8 ng/mL (C-index 0.70) in men < 50 years to 7.1 ng/mL (0.75) in those ≥ 80 years. PI-RADS 3 lesions were most frequent in younger men (36%, 21%, 16%, 20% across age groups < 50 , 51-60, 61-70, > 70 years). Among 254 men with biopsy data, none of the PI-RADS 3 lesions in men < 50 years were csPCa, whereas all PI-RADS 4-5 lesions were positive (100%). In older age groups, csPCa detection within PI-RADS 3 lesions rose progressively from 11% (51-60 years) to 26% (71-80 years), while detection rates for PI-RADS 4-5 lesions increased from 18-50% to 30-89%. All lesions identified in men > 80 years were csPCa.

CONCLUSIONS: MRI positivity and csPCa detection increase with both PSA and age. In younger men, MRI yields higher rates of equivocal findings (PI-RADS 3) with lower csPCa risk. These data support age- and PSA-adjusted MRI indications to optimize diagnostic efficiency and minimize unnecessary imaging in low-risk, younger populations.

SC369

Predictive factors for negative prostate biopsy in PI-RADS 4-5 patients: a multivariate analysis of clinical and imaging-based variables

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BACKGROUND: Multiparametric magnetic resonance imaging (mpMRI) is a key tool in the diagnostic pathway of prostate cancer (PCa). Patients with PI-RADS 4-5 lesions undergo biopsy due to high suspicion of clinically significant PCa (csPCa); however, a substantial proportion still shows a negative result. This study aimed to identify clinical and imaging factors independently predictive of a negative biopsy in this population.

METHODS: Retrospective analysis of a prospectively maintained, single-center cohort of patients with PI-RADS 4-5 lesions who underwent transperineal MRI/ultrasound fusion biopsy (November 2021-March 2026). All procedures included 12-core systematic sampling plus targeted biopsies. Negative biopsy was defined as absence of histologically confirmed adenocarcinoma. Candidate predictors – age, PSA, PSA density (PSAD), digital rectal examination (DRE), prostate volume, prior negative biopsy, lesion location (peripheral vs. transition zone), and transrectal ultrasound (TRUS) findings – were evaluated by univariate and multivariate logistic regression. Discrimination was assessed by the area under the ROC curve (AUC). Three nested models were compared: clinical-radiological, PSAD-based (replacing volume with PSAD), and combined (further incorporating age).

RESULTS: Of 425 patients who underwent transperineal fusion biopsy, 211 with PI-RADS 4-5 lesions were analyzed (PI-RADS 4, N=141; PI-RADS 5, N=70; median age 70 years, IQR 63-76; median PSA 7.5 ng/mL, IQR 5.4-10.1; median prostate volume 46 cc, IQR 35-60; median PSAD 0.16 ng/mL/cc, IQR 0.11-0.24). Biopsy was negative in 81/211 (38.4%); PCa was detected in 130/211 (61.6%), of which 94/130 (72.3%) were csPCa. On multivariate analysis, independent predictors of negative biopsy were: prior negative biopsy (odds ratio – OR 11.9, 95% CI 2.8-50.0; $P < 0.001$), transition-zone location (OR 4.9, 95% CI 2.5-9.9; $P < 0.001$), PSAD < 0.15 ng/mL/cc (OR 4.1, 95% CI 2.0-8.3; $P < 0.001$), and younger age (OR 0.93/year, 95% CI 0.89-0.96; $P < 0.001$). DRE and TRUS did not retain significance after adjustment. AUC was 0.77 (clinical model), 0.80 (PSAD-based), and 0.83 (combined, 95% CI 0.81-0.86).

CONCLUSIONS: More than one third of PI-RADS 4-5 patients had a negative biopsy. Prior negative biopsy, transition-zone location, low PSAD, and younger age were independent predictors of a negative result, while DRE and TRUS added no independent information. A combined model incorporating PSAD and age achieved the best discrimination (AUC 0.83) and may support patient selection and shared decision-making before biopsy. External validation is warranted.

SC370

Prospective multicenter study on the predictive role of node-RADS score in patients with prostate cancer candidates for radical prostatectomy: comparative analysis with validated nomograms and PET CT scan

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BACKGROUND: This is the first prospective study aimed to analyze the predictive value of preoperative Node-RADS determination at imaging for pelvic lymph-node (PLN) involvement in cases of prostate cancer (PCa) considered for radical prostatectomy (RP) with extended lymph-node dissection (ePLND) and compare it with the validated predictive nomograms Briganti 2012, Gandaglia 2017, Briganti 2019 and PSMA-PET/CT total body scan.

METHODS: 267 patients with a histological diagnosis of PCa undergoing RP with an ePLND were prospectively examined. Node-RADS determination of PLNs was centrally performed in all cases using preoperative MRI and compared with the validated nomograms and PSMA-PET/CT. Correspondence in terms of positivity and localization with final pathology were analyzed.

RESULTS: Node-RADS exceeded PSMA-PET/CT in overall accuracy (AUC 0.637 vs. 0.526), while Briganti 2019 nomogram achieved the highest AUC (0.711). Combining Node-RADS and Briganti 2019 improved performance further (AUC 0.719). Node-RADS showed high specificity and NPV, useful to confirm nodal involvement, while Briganti 2019 demonstrated high sensitivity and excellent NPV, useful to exclude nodal disease. PET/CT exhibited limited sensitivity and anatomical correspondence. At multivariate analysis, a

high Node-RADS score (3-5) and pT stage (pT3) were the only variables associated with a higher risk of pN+ (aOR: 12.60, 95%CI 2.99 - 52.96, $P < 0.001$ for Node-RADS 4-5 and aOR 16.98, 95%CI 4.29 - 67.17, $P < 0.001$ for pT3b).

CONCLUSIONS: Node-RADS, especially when combined with Briganti 2019 nomogram, showed promising performance as a structured radiologic tool for preoperative nodal staging in this selected ePLND-eligible cohort.

SC371

Prostate cancer detection in patients with PI-RADS 3 lesions undergoing prostate biopsy in a non-academic center: a retrospective study

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BACKGROUND: Multiparametric magnetic resonance imaging has become a key tool in the diagnostic pathway of prostate cancer. However, the management of Prostate Imaging Reporting and Data System category (PI-RADS) 3 lesions remains controversial, as these findings represent an equivocal risk category with variable cancer detection rates. Since a relevant proportion of detected tumors may be clinically insignificant, concerns remain about overdiagnosis and overtreatment. We therefore evaluated biopsy outcomes in a single-center cohort of patients with PI-RADS 3 lesions, focusing on overall cancer detection, clinically significant prostate cancer detection, histopathological distribution, and the potential role of prostate-specific antigen density in risk stratification.

METHODS: We performed a retrospective single-center analysis of consecutive patients with PI-RADS 3 lesions who underwent prostate biopsy between February 2020 and January 2026 in a non-academic real-world setting. Magnetic resonance imaging examinations performed outside our institution were re-evaluated by an experienced dedicated genitourinary radiologist, and only lesions confirmed as PI-RADS 3 were included in the analysis. Baseline clinical variables included age, serum prostate-specific antigen, prostate volume, prostate-specific antigen density, digital rectal examination findings, family history, and biopsy-related variables. Clinically significant prostate cancer was defined as ISUP Grade Group 2 or higher. Prostate-specific antigen density was explored according to predefined clinically relevant classes.

RESULTS: A total of 99 patients were included. Median (interquartile range) age was 68 years (61-72), median prostate-specific antigen was 6.0 ng/mL (4.7-9.1), median prostate volume was 40 mL (35-60), and median prostate-specific antigen density was 0.14 ng/mL/mL (0.10-0.19). Digital rectal examination was abnormal in 19/99 patients (19%). Overall prostate cancer was detected in 29/99 patients (29%), while clinically significant prostate cancer was found in 7/99 (7.1%). Notably, a relevant proportion of cancers were detected outside the target lesion on systematic sampling. Histology showed benign or non-malignant findings in 70/99 patients (70.7%), Gleason score 6 cancer in 22/99 (22.2%), Gleason score 7 cancer in 5/99 (5.1%), and Gleason score 8-9 cancer in 2/99 (2.0%). When prostate-specific antigen density was stratified into classes, clinically significant prostate cancer was not observed in patients with prostate-specific antigen density below 0.10 ng/mL/mL, whereas it was detected in 3/32

patients (9.4%) with values between 0.10 and 0.14, in 2/20 (10.0%) between 0.15 and 0.19, and in 2/23 (8.7%) at 0.20 ng/mL/mL or higher. Overall cancer detection was 20.8%, 34.4%, 20.0%, and 39.1% across the same prostate-specific antigen density classes, respectively. Importantly, in 6 out of the 29 patients diagnosed with prostate cancer (20.7%), the malignancy was detected exclusively outside the mpMRI-defined PI-RADS 3 target lesion and was identified only through systematic biopsy cores. No csPCa was observed in patients with PSAD < 0.10 ng/mL/mL.

CONCLUSIONS: In this single-center experience, PI-RADS 3 lesions were associated with a relatively low rate of clinically significant prostate cancer, while most biopsy results were either benign or consistent with Gleason score 6 disease. These findings confirm the heterogeneity of this magnetic resonance imaging category and support the need for additional risk-stratification tools to better select candidates for biopsy. In particular, no clinically significant prostate cancer was detected in patients with prostate-specific antigen density below 0.10 ng/mL/mL, suggesting that this parameter may help identify a subgroup at very low risk.

SC372

Comparison of micro-ultrasound and multiparametric magnetic resonance imaging in detecting clinically significant prostate cancer: a single-center experience

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BACKGROUND: Multiparametric magnetic resonance imaging (mpMRI) is the current standard for prostate cancer (PCa) diagnosis but is limited by suboptimal specificity and variability in real-world settings. High-resolution 29-MHz micro-ultrasound (microUS) has emerged as a promising complementary modality. We aimed to compare the diagnostic performance of microUS and mpMRI and to evaluate the added clinical value of integrating microUS into mpMRI-based diagnostic pathways.

METHODS: We retrospectively analyzed 457 patients undergoing prostate biopsy for suspected PCa or active surveillance between May 2023 and November 2025. All patients underwent microUS-guided biopsy using the ExactVu™ system, along with systematic biopsies and mpMRI-targeted biopsies performed when indicated. Clinically significant PCa (csPCa) was defined as ISUP Grade Group ≥ 2 . Diagnostic accuracy metrics, ROC analysis, decision curve analysis (DCA), and multivariable logistic regression were performed.

RESULTS: Overall, csPCa was detected in 44% of patients. mpMRI showed high sensitivity (92%) but low specificity (28%), resulting in lower overall accuracy (57%). In contrast, microUS demonstrated a more balanced diagnostic profile, with sensitivity of 70% and specificity of 66%, achieving higher overall accuracy (68%). Positive and negative predictive values were also more balanced for microUS (63% and 73%) compared with mpMRI (51% and 81%). At biopsy level, microUS-targeted biopsy detected csPCa in 47% of patients, outperforming mpMRI-targeted biopsy (41%) and systematic biopsy (38%). Importantly, reliance on a single modality would have led to missed csPCa cases: microUS alone missed 12% of csPCa in PRIMUS ≥ 3 patients, while

mpMRI-targeted biopsy alone missed 8% of csPCa in PI-RADS ≥ 3 cases. A key finding was the complementary detection pattern: microUS alone correctly identified csPCa in 95 patients where mpMRI was incorrect, compared with 52 patients correctly identified by mpMRI alone. Overall concordance between modalities was only 52%, highlighting substantial diagnostic complementarity. ROC analysis showed comparable discrimination (AUC 0.70 for mpMRI vs. 0.72 for microUS; $P=0.41$). On multivariable analysis, both mpMRI (OR 2.63, $P=0.004$) and microUS (OR 3.45, $P<0.001$) were independent predictors of csPCa. DCA demonstrated that integrated mpMRI-microUS strategies provided the highest net clinical benefit across clinically relevant thresholds, particularly in low-to-intermediate risk ranges.

CONCLUSIONS: MicroUS demonstrated diagnostic performance comparable to mpMRI and provided complementary information when integrated into mpMRI-based diagnostic pathways. These findings support the use of microUS as an adjunct to mpMRI to improve clinical decision-making within the PCa diagnostic workflow.

SC373

Complementary diagnostic value of micro-ultrasound in equivocal prostate MRI: an updated retrospective analysis from a tertiary referral center

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BACKGROUND: Multiparametric Magnetic Resonance Imaging (mpMRI) is the most accurate tool for detecting clinically significant prostate cancer (csPCa). Yet only a minority of patients with PI-RADS 3 lesions harbor csPCa. We evaluated whether high-resolution micro-ultrasound (microUS) improves risk stratification in this equivocal group.

METHODS: We retrospectively reviewed 240 consecutive patients undergoing biopsy for at least one PI-RADS 3 lesion on multiparametric MRI. Patients with any PI-RADS >3 lesion were excluded. All patients underwent pre-biopsy microUS by an operator blinded to MRI, classified using PRI-MUS. Targeted and systematic biopsies were performed in all cases. We calculated sensitivity, specificity, PPV, and NPV for csCaP. Multivariable logistic regression identified predictors of csPCa. Model performance was assessed by AUC.

RESULTS: PCa was detected in 92 patients (38.3%), including 46 (19.2%) with csPCa. MicroUS showed high sensitivity (98%) and NPV (97%) for csCaP; specificity and PPV were 36% and 29%, respectively. csPCa rates increased with PRI-MUS class (21% for PRI-MUS 3, 28% for PRI-MUS 4, 38% for PRI-MUS 5), while no csPCa occurred in microUS-negative men. In microUS-negative patients, most were cancer-free, and detected cancers were ISUP grade group 1. Using microUS to triage biopsy would have preserved csPCa detection while reducing non significant PCa diagnoses by 20.4%. On multivariable analysis, a microUS-identified lesion and PSA density independently predicted csPCa. The model AUC was 0.76 (95% CI 0.70-0.82).

CONCLUSIONS: In this expanded single-center cohort, microUS improved risk stratification for PI-RADS 3 lesions and may reduce overdiagnosis without compromising csPCa

detection. Its high sensitivity and negative predictive value support a selective biopsy strategy in microUS-negative men. Prospective, multicenter validation with standardized microUS protocols and patient-centered outcomes is warranted.

SC374

Can micro ultrasound identify clinically significant prostate cancer in patients with negative MPMRI? A single-center exploratory analysis

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BACKGROUND: Multiparametric MRI (mpMRI) has a high negative predictive value, yet a non-negligible proportion of clinically significant prostate cancers (csPCa) remain undetected. Micro-ultrasound (microUS) may provide additional diagnostic information in this setting.

METHODS: We retrospectively analyzed patients undergoing prostate biopsy with pre-biopsy mpMRI and microUS evaluation (457 patients). Patient with negative/non-significant mpMRI (PI-RADS ≤ 2) and PSA ≥ 3 ng/mL were included. The primary endpoint was overall detection of csPCa. Secondary endpoints included detection of any prostate cancer and the association between microUS positivity and csPCa.

RESULTS: Among 73 patients with negative/non-significant mpMRI, 62 had PSA ≥ 3 ng/mL and were included. MicroUS was positive in 9/62 patients (14.5%). Overall, csPCa was detected in 13/62 patients (21.0%), while any prostate cancer was detected in 26/62 (41.9%). Among microUS-positive patients, 5/9 (55.6%) harbored csPCa at microUS targeted biopsy (8.1% of the cohort), compared with 8/53 (15.1%) among microUS-negative patients (OR 6.7, $P=0.02$). Any PCa was identified at microUS targeted biopsy in 6/9 patients (66.7%). A sensitivity analysis was performed in patients with PSA density ≥ 0.15 ng/mL ($N=14$), showing consistent trends.

CONCLUSIONS: In patients with negative/non-significant mpMRI but persistent clinical suspicion, the risk of csPCa remains non-negligible. MicroUS positivity identifies a subgroup at higher risk and may provide additional value in the diagnostic pathway of mpMRI-negative patients. Larger prospective studies are warranted.

SC375

Tracking the cognitive learning curve in microus imaging: how operators learn to see clinically significant prostate cancer

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BACKGROUND: Micro-ultrasound (microUS, ExactVu™) is a high-resolution, real-time imaging modality for prostate cancer detection, allowing precise cognitive targeting of suspicious lesions. While its diagnostic accuracy is established, the operator learning curve in recognizing clinically significant prostate cancer (csPCa) remains unexplored. We aimed

to evaluate the impact of operator experience on microUS lesion recognition.

METHODS: We retrospectively analyzed consecutive patients who underwent MRI-microUS-guided prostate biopsy between 2019 and 2024, performed by two urologists using the ExactVu™ platform. Procedures were chronologically ordered for each surgeon. The primary endpoint was the impact of experience on cognitive proficiency, defined as successful when at least one microUS-targeted core harbored csPCa (ISUP ≥ 2), and as failed when csPCa was detected only in systematic cores or non-significant targets. Temporal trends in csPCa detection were visualized through a 25-case rolling median curve. Multivariable logistic regression tested the independent effect of operator experience on cognitive proficiency, adjusting for confounding. Statistical significance was set at $P < 0.05$.

RESULTS: A total of 1,167 MRI-microUS-guided biopsies were analyzed (35% Surgeon 1, 65% Surgeon 2). Median age was 66 years (IQR 60-72) and prostate volume 50 mL (IQR 35-67). Six percent had prior prostate surgery, 71% had PIRADS ≥ 4 , and 82% PRIMUS ≥ 4 . Biopsy approach was transrectal in 54%, transperineal in 32%, and mixed in 14%. csPCa was detected in 59% of patients, and cognitive proficiency was achieved in 52%. The 25-case rolling curve showed early variability followed by stabilization without a clear learning curve. In multivariable analysis, operator experience was not independently associated with cognitive proficiency ($P = 0.19$). Higher PIRADS ($P < 0.001$), lower prostate volume ($P = 0.001$), and higher PSA ($P = 0.03$) were significant predictors.

CONCLUSIONS: In this dual-operator experience, microUS-guided biopsy achieved satisfactory csPCa detection rates from the outset, with progressive refinement but no clear learning curve. These results, supported by multivariable analysis, suggest that ExactVu™ interpretation is intuitive and rapidly learnable, with clinical and lesion-related factors remaining the main determinants of detection.

SC376

Combining PSA density and PRI-MUS score improves risk stratification for clinically significant prostate cancer: a single-center analysis

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BACKGROUND: Both PSA density and micro-ultrasound (MicroUS) findings are associated with prostate cancer risk. Their combined value for clinically significant prostate cancer (csPCa) risk stratification remains poorly defined.

METHODS: We retrospectively analyzed 432 patients with complete clinical, biopsy, and microUS data. The highest PRI-MUS score per patient was considered. The primary endpoint was detection of csPCa. Univariable and multivariable logistic regression analyses were performed to assess the association of PSA density and PRI-MUS with csPCa. Discriminative ability was evaluated using ROC analysis. A combined risk stratification model was also developed using PSA density and PRI-MUS categories (low-risk group: PSA density < 0.15 and PRIMUS ≤ 3 ; intermediate-risk group: PSA density ≥ 0.15 or PRIMUS ≥ 4 ; high-risk group PSA density ≥ 0.15 and PRIMUS ≥ 4). Optimal PSA density thresholds were calculated

using ROC curve analysis and the Youden index in the overall population and in the PRI-MUS 3 subgroup.

RESULTS: Overall, 188/432 patients (43.5%) were diagnosed with csPCa. Median PSA density was 0.11 ng/mL² (IQR: 0.08-0.17). MicroUS was negative in 218 patients (50%), PRI-MUS 3 in 104 patients (24%), PRI-MUS 4 in 80 patients (19%) and PRIMUS 5 in 30 patients (7%). PSA density was significantly higher in patients with csPCa than in those without ($P < 0.001$). Using a clinically relevant threshold, PSA density ≥ 0.15 was associated with csPCa (OR 2.59, 95% CI 1.68-4.01, $P < 0.001$). PRI-MUS ≥ 4 was also strongly associated with csPCa (OR 7.19, 95% CI 4.27-12.47, $P < 0.001$). ROC analysis identified an optimal PSA density cut-off of 0.125, with a sensitivity of 53.7% and specificity of 68.0%. At multivariable analysis, both PSA density (OR 21.8, 95% CI 2.68-251.46, $P = 0.008$) and PRI-MUS score (OR 2.35 per point increase, 95% CI 1.83-3.04, $P < 0.001$) remained independent predictors of csPCa, together with age and prostate volume. The combined model showed significantly better discrimination for csPCa than PSA density alone (AUC 0.753 vs. 0.656, $P < 0.001$) and PRI-MUS alone (AUC 0.753 vs. 0.721, $P = 0.005$). When combining PSA density and PRI-MUS into three clinical risk groups, the rate of csPCa was 27.5% in the low-risk group, 52.6% in the intermediate-risk group, and 91.5% in the high-risk group. Among patients with PRI-MUS 3 lesions, PSA density further stratified the risk of csPCa. Using an optimal threshold of 0.115, csPCa rates increased from 34.5% to 54.3% ($P = 0.049$).

CONCLUSIONS: Combining PSA density and PRI-MUS score significantly improves risk stratification for clinically significant prostate cancer compared with either parameter alone. While PSA density alone showed moderate discriminatory ability, its integration with PRI-MUS enhances clinical decision-making, particularly in patients with intermediate-risk (PRI-MUS 3) lesions.

SC377

Validation of the PRI-MUS score for the detection of clinically significant prostate cancer: a single-center analysis

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BACKGROUND: Micro-ultrasound (microUS) has emerged as a novel imaging modality for prostate cancer detection. The PRI-MUS score was developed to standardize lesion assessment, but real-world validation remains limited.

METHODS: We retrospectively analyzed 457 consecutive patients undergoing prostate biopsy with microUS evaluation. The PRI-MUS score was defined as the highest score per patient. The primary endpoint was detection of clinically significant prostate cancer (csPCa). Associations between PRI-MUS score and csPCa were assessed using logistic regression. Discriminative ability was evaluated using ROC analysis.

RESULTS: Overall, 201/457 patients (44.0%) were diagnosed with csPCa. The rate of csPCa increased with higher PRI-MUS score: 42.3% for PRI-MUS 3, 72.1% for PRI-MUS 4, and 90.6% for PRI-MUS 5 ($P < 0.001$). Notably, 63 of 165 patients (27.6%) with negative microUS harbored csPCa at systematic biopsy. Using clinically relevant cut-offs, PRI-MUS ≥ 3 and ≥ 4 were strongly associated with csPCa (OR

4.0 and OR 7.0, respectively; both $P < 0.001$). At multivariable analysis, PRI-MUS remained an independent predictor of csPCa (OR 2.35 per point increase, 95% CI 1.83-3.04, $P < 0.001$), after adjusting for PSA density, age, and prostate volume. The PRI-MUS score showed good discriminative ability for csPCa (AUC 0.71).

CONCLUSIONS: The PRI-MUS score is strongly associated with clinically significant prostate cancer and demonstrates good discriminative performance. Risk of csPCa increases progressively with higher PRI-MUS categories, supporting its use as a reliable tool for risk stratification and biopsy decision-making.

SC378

MUSeg-PSV: a real-time deep-learning segmentation of the prostate gland and seminal vesicles on 29 mhz micro-ultrasound

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BACKGROUND: To develop and evaluate MUSeg-PSV, a real-time deep-learning framework for segmentation of the prostate gland and seminal vesicles on 29-MHz micro-ultrasound (MicroUS), intended to support anatomical orientation during MicroUS-guided prostate biopsy and local staging of prostate cancer.

METHODS: MicroUS data from 14 patients (21 full-length videos; 2,588 annotated frames) were used to train

and test MUSeg-PSV, a lightweight single-stage convolutional model based on YOLOv11s-seg. Two training strategies were compared: a standard configuration with basic augmentations and an augmentation-rich configuration incorporating advanced spatial and photometric transformations. Model performance was assessed on a held-out test set using mean Average Precision (mAP), Dice Similarity Coefficient (DSC), Expected Calibration Error (ECE), and Brier Score. Real-time feasibility was evaluated through inference latency and qualitative assessment of temporal consistency on unseen videos.

RESULTS: The augmentation-rich model outperformed the standard configuration, yielding a 21% relative increase in mAP and a 4.6-fold improvement in seminal-vesicle AP (0.183 $\rightarrow$ 0.842). Prostate DSC increased from 0.675 to 0.770 ($P = 4.4 \times 10^{-5}$), while seminal vesicle DSC remained robust (0.892 vs. 0.876), reflecting a controlled trade-off with substantially improved SV detection (AP: 0.183 $\rightarrow$ 0.842). Calibration improved markedly, with ECE decreasing from 0.558 to 0.156 and Brier Score from 1.000 to 0.196 ($P < 0.01$). Qualitative evaluation confirmed smooth, temporally coherent overlays and consistent delineation of challenging anatomical regions. End-to-end latency (28-35 ms/frame; ~ 35 fps) demonstrated compatibility with real-time clinical deployment.

CONCLUSIONS: MUSeg-PSV enables reliable, real-time multi-class segmentation of high-frequency MicroUS, providing stable delineation of the prostate and seminal vesicles at clinically viable frame rates. These results support the potential of AI-assisted MicroUS to enhance operator orientation during MicroUS-guided prostate biopsy and local staging, and to promote standardized identification of seminal vesicles within prostate cancer diagnostic and staging workflows.

 SMART COMMUNICATION (SC379 - SC390)

Diagnosi, staging, e gestione multidisciplinare del tumore renale

SC379

Exploring the role of carbonic Anhydrase IX as diagnostic target in Von-Hippel Lindau disease: a phase 2 clinical trial (CAT-VHL - PRR-POC-2023-12377493 - cohort A)

SC380

Aggressive pathologic features and recurrence risk in small renal masses up to 2 centimetres

SC381

A step forward in RCC staging: external validation of the EAU-proposed M staging

SC382

Exploring the clinical predictors of worse disease-free survival (DFS) among patients with non-metastatic (M0) resected clear-cell renal cell carcinoma (CCRCC): insights for future clinical trial design

SC383

Radiomics-driven aggressiveness prediction in renal tumors: a step toward tailored surgical planning

SC384

Concordance between multidisciplinary tumor board (MDT), EAU guidelines artificial intelligence (AI) Chatbot, and ChatGPT for patients with renal cancer: a single-centre prospective cohort study

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Comparative evaluation of two large language

models (LLM) in supporting multi-disciplinary team (MDT) assessment of renal cell carcinoma

SC386

Real-time image-guided robot-assisted partial nephrectomy: design, data acquisition workflow and preliminary clinical validation of the bistoury-clinical trial

SC387

Refining risk-stratification in patients with non-metastatic Clear-cell renal cell carcinoma meeting the KEYNOTE-564 criteria using the Leibovich 2003 and UroPredict prognostic models: implications for shared decision-making on adjuvant therapy

SC388

Oncological outcomes in patients eligible for adjuvant immunotherapy after nephrectomy according to pathological upstage

SC389

Comparative prognostic performance of KEYNOTE-564 and AUA risk stratification in non-metastatic clear cell renal cell carcinoma

SC390

Natural history of Von Hippel-Lindau disease receiving local treatment before systemic therapy with HIF-2a inhibitors: updated data reporting system from a large VHL care center

SC379**Exploring the role of carbonic Anhydrase IX as diagnostic target in Von-Hippel Lindau disease: a phase 2 clinical trial (CAT-VHL - PRR-POC-2023-12377493 - cohort A)**

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BACKGROUND: Von Hippel-Lindau (VHL) disease predisposes patients to multifocal and metachronous tumors across multiple organs. Since VHL tumors express Carbonic Anhydrase IX (CAIX), the aim of the study was to evaluate the efficacy of Carbonic Anhydrase IX (CAIX)-PET for the detection of VHL-related clear cell renal cell carcinoma [ccRCC] and other VHL-associated tumors.

METHODS: The study is a phase 2 clinical trial testing the hypothesis that CAIX-PET has diagnostic efficacy in VHL tumors (<https://clinicaltrials.gov/study/NCT07171905>). Adult patients with a pathogenic VHL variant confirmed by genetic testing received a single intravenous injection of [⁸⁹Zr]-Zr-girentuximab (37 MBq±10%) followed by a whole-body PET/CT scan. The primary outcome was the sensitivity of CAIX-PET for VHL ccRCC. The secondary outcome was the sensitivity of CAIX-PET for encephalic or spinal hemangioblastoma [HB] or pancreatic neuroendocrine tumors [pNET]. Sensitivity was computed in a per-lesion analysis. The standard of truth was contrast-enhanced MRI performed within ±60 days of CAIX-PET/CT, or pathology following surgery or follow-up imaging when available.

RESULTS: Ten VHL patients received CAIX-PET without any adverse events. At CAIX-PET it was possible to detect solid and cystic ccRCCs, HBs and pNETs. Overall, 20 ccRCCs were diagnosed at MRI. The median tumor size was 12 mm (interquartile range [IQR] 10-20 mm). The sensitivity of CAIX-PET for ccRCC resulted 90% (95% CI 68 - 99%; N=18/20). The median standardized uptake value was 45 g/mL (IQR 26-80 g/mL). Of note, CAIX-PET revealed 8 renal lesions that were not detected by MRI. When available (N=6), pathology following surgery confirmed the diagnosis for all CAIX-PET positive lesions, including one not detected by MRI.

CONCLUSIONS: CAIX-PET has optimal sensitivity for the detection of ccRCC in the setting of VHL disease, invariably revealed more renal lesions than MRI and detected also HBs and pNETs. Its application deserves special consideration in the very challenging scenario of hereditary renal cancer. Funded by the European Union - Next Generation EU - NRRP M6C2 - Investment 2.1 Enhancement and strengthening of biomedical research in the NHS - PNRR-POC-2023-12377493; cup master C43C24000360007. [89Zr] Zr-girentuximab has been provided by Telix Pharmaceuticals as part of early access program.

SC380**Aggressive pathologic features and recurrence risk in small renal masses up to 2 centimetres**

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BACKGROUND: Small renal masses are increasingly detected due to the widespread use of imaging and are often considered indolent. In this context active surveillance or even watchful waiting are possible options, particularly in patients with significant comorbidities or limited life expectancy. However, a subset may exhibit aggressive pathological features that impact prognosis and warrant reconsideration of clinical management. This study aimed to determine the proportion of high grade or high stage after surgery in the setting of very small renal tumour (defined as ≤2 cm), and to assess their recurrence risk.

METHODS: We retrospectively analysed a cohort of 3902 patients who underwent surgery for renal mass at a tertiary referral centre. Demographic, clinical, and pathological data were collected. We identified those cases with clinical stage cT1a cN0 cM0 and tumour diameter ≤2 cm, on which the primary analyses were based. The primary endpoint was the proportion of high-stage and high-grade tumours ≤2 cm, with recurrence during follow-up as a secondary endpoint.

RESULTS: We identified 1568 patients with cT1a cN0 cM0 disease who underwent surgery, with a median age of 62 years. Most were males (70%), 75% underwent partial nephrectomy, and benign histology was found in 19% of cases. Among those with malignant histology, 32 experienced recurrence. Aggressive features were uncommon yet not absent: 3 (9.4%) patients had high stage disease, 7 (22%) high grade, 8 (25%) necrosis, and 1 (3.1%) sarcomatoid differentiation. Overall, 335 patients (21%) had at least one high-risk feature (high grade, high stage, necrosis, sarcomatoid differentiation, or lymphovascular invasion), among whom 10 experienced recurrence (2.9%), compared with 22 (1.8%) of patients without high-risk features. After a median follow-up of 5 years, the 5-year progression-free and cancer-specific survival rates were 99% and 100%, respectively.

CONCLUSIONS: Although small renal tumours are often considered low risk, a minor yet clinically relevant proportion exhibits aggressive pathological features and recurs after surgery. These findings underscore that tumour size alone does not fully capture the underlying biological heterogeneity of renal masses. Careful postoperative surveillance remains warranted to ensure early detection of recurrence and to refine patient selection for active surveillance or minimally invasive management strategies.

SC381**A step forward in RCC staging: external validation of the EAU-proposed M staging**

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BACKGROUND: Since only minor updates have been introduced in the TNM staging system for Renal Cell Carcinoma (RCC) over the past decade, the EAU guideline panel has recently proposed a revised TNM classification introducing a new M staging subclassification (M0 vs. M1a vs. M1b vs. M1c) to better capture the clinical implications

of different spectrum of metastatic disease. We aimed to externally validate the prognostic performance of this novel M categorization in a cohort of patients treated with either surgery or first line medical therapy.

METHODS: We retrospectively analyzed 3787 patients who were treated with upfront surgery or upfront medical therapy for RCC. According to the recently proposed TNM revision, the M category was refined into four subgroups: M0 (no metastases), M1a (a single lymph node ≥ 2 cm or a single metastasis confined to one organ), M1b (multiple positive lymph nodes or multiple metastases within a single organ), and M1c (contralateral, intraaortocaval, or non-retroperitoneal lymph nodes, or multiple metastases in ≥ 2 organs). Cox regression models were used to evaluate the association of the old and new M classifications with all-cause mortality (ACM). Model discrimination was assessed using Harrell's C-index with corresponding 95% CI, and pairwise comparisons were performed using z-tests for independent C-indices. Time-dependent ROC curves graphically displayed the discriminative ability of the models (old vs. new M-classification).

RESULTS: Of the 3,727 included patients, 575 (15.4%) and 546 (14.6%) had cN1 and cM1 RCC, respectively, according to the old TNM system. Overall, 2842 (76.2%), 515 (13.8%) and 205 (5.5%) of the patients had ccRCC, papillary and chromophobe histology, respectively. Regarding treatment, 3296 patients (88.4%) underwent local treatment only, 164 (4.4%) received systemic therapy alone, 140 (3.8%) underwent metastasis-directed therapy in combination with local or systemic treatment, and 53 (1.4%) received local treatment plus neoadjuvant or adjuvant therapy. According to the new TNM classification system, 365 patients (9.8%) had N1 disease, while 204 (5.5%), 75 (2.0%), and 323 (8.7%) were classified as having M1a, M1b, and M1c disease, respectively. Both the old M and the new M classification were significantly associated with ACM. Notably, the new M system outperformed the old one in predictive accuracy, showing a higher C-index [0.69 (95%CI: 0.67-0.71) vs. 0.66 (95%CI: 0.64-0.67), $P=0.01$] and a higher 36-month time-dependent AUC (0.75 vs. 0.70).

CONCLUSIONS: The refined M classification proposed in the recent TNM revision for RCC demonstrates improved prognostic discrimination compared with the current dichotomous M0/M1 system. Our findings suggest this sub-stratification into three categories (M1a, M1b, M1c) may provide a more accurate tool for risk stratification and clinical decision-making in routine practice (upfront surgery vs. multidisciplinary discussion vs. upfront medical therapy).

SC382

Exploring the clinical predictors of worse disease-free survival (DFS) among patients with non-metastatic (M0) resected clear-cell renal cell carcinoma (ccRCC): insights for future clinical trial design

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BACKGROUND: Neoadjuvant/perioperative immunotherapy is emerging as a promising treatment approach for patients with high-risk resectable RCC, mirroring previous experiences in other tumor types. One key limitation of available neoadju-

vant trials is represented by heterogeneous inclusion criteria; arguably, patients who may benefit the most from neoadjuvant/perioperative treatment are those with poorer prognosis. Aiming to provide insights on future clinical trial design, we sought to evaluate the impact of three prognostic scores (KEYNOTE-564 criteria, Leibovich 2003, and UroPredict) on DFS in patients with resected M0 ccRCC, exploring the clinical predictors of their worst prognostic category.

METHODS: After IRB approval, we queried our prospectively collected institutional RCC database to select patients with resected M0 ccRCC between 01/2017 and 05/2024. DFS was defined as in the KEYNOTE-564 trial and estimated using the Kaplan-Meier method. A Cox proportional hazards regression model was used to calculate HRs with 95% CIs. Multivariable logistic regression analysis evaluated the clinical predictors of the worst prognostic category.

RESULTS: Overall, 518 patients were included (median age 67 y; 70% males; median preoperative eGFR 81 mL/min; median tumour diameter 3.5 cm; partial nephrectomy performed in 74% of patients). 29% of patients met the KEYNOTE-564 criteria, 12% had a Leibovich high-risk, while 13% had a UroPredict high-risk. The median follow-up was 24 months (IQR 9.5-48.5). DFS was significantly lower in patients meeting the KEYNOTE-564 criteria (HR 2.93, 95% CI: 1.79-4.80), in patients with Leibovich high-risk (HR: 4.24, 95% CI: 2.45-7.35), and in patients with UroPredict high-risk (HR: 4.58, 95% CI: 2.74-7.65). At multivariable analysis, cT stage (cT3-4 vs. cT1-2) and increasing anatomic tumour complexity were independent predictors of each score's worst prognostic group.

CONCLUSIONS: In patients with M0 resectable (biopsy-proven) ccRCC, non-organ confined and anatomically complex tumors at preoperative imaging carry a higher risk of the worst pathological prognostic score categories and worse DFS. As such, these patients are theoretically those who may benefit the most from neoadjuvant/perioperative therapy and therefore the ideal candidates for future clinical trials.

SC383

Radiomics-driven aggressiveness prediction in renal tumors: a step toward tailored surgical planning

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BACKGROUND: To develop and clinically validate a radiomics-based artificial intelligence system capable of noninvasively predicting biological aggressiveness of renal tumors, enabling a radiology-based virtual biopsy to support preoperative decision-making.

METHODS: We developed a multimodal radiomics platform based on four-phase contrast-enhanced computed tomography (CT) imaging (unenhanced, corticomedullary, nephrographic, and excretory phases). Training and internal validation were performed on a retrospective dataset of 90 renal tumors. All lesions were manually segmented slice-by-slice by dedicated biomedical engineers to ensure high-quality ground truth annotations, with subsequent quality control review. Quantitative features capturing tumor morphology,

volumetry, internal heterogeneity, and dynamic contrast-enhancement patterns were extracted and integrated into an advanced radiomic profile. A machine learning model was trained to classify lesions into three categories – benign, low aggressiveness risk, and high aggressiveness risk – defined independently of histological subtype and based on ISUP nucleolar grading (benign vs. ISUP 1-2 vs. ISUP ≥ 3). Internal validation was performed using cross-validation strategies. A prospective validation was conducted on 15 consecutive patients undergoing robot-assisted partial nephrectomy.

RESULTS: In the training cohort (N.=90), the model achieved an overall concordance of 88.5%. Fifteen patients underwent surgery. Median age was 65 years (IQR 60-70), with 6/15 females (40%) and right-sided tumors in 9/15 cases (60%). Mean tumor size was 51 mm (SD not available). Median PADUA and RENAL scores were 9 and 8, respectively, confirming intermediate-to-high complexity lesions. Radiomic analysis classified lesions as benign in 3/15 (20%), low aggressiveness risk in 10/15 (66.7%), and high aggressiveness risk in 2/15 (13.3%). Final histopathology showed 4/15 benign lesions (26.7%), including two oncocytomas and two angiomyolipomas; 9/15 low-risk tumors (60%), including two papillary and seven clear-cell carcinomas; and 2/15 high-risk tumors (13.3%), consisting of one clear-cell and one papillary carcinoma with ISUP grade 3. One positive surgical margin was observed (1/15, 6.7%) in a low-risk clear-cell tumor. At cohort level, the model showed close agreement with final pathology, with exact matching for high-risk disease and minor discrepancies in benign and low-risk categories.

CONCLUSIONS: This study demonstrates the feasibility of a radiomics-based virtual biopsy for renal tumors, integrating multiphasic CT data to capture imaging-derived signatures of tumor biology. The integration of radiomic information into preoperative planning may enable tailoring of the intraoperative surgical approach according to the predicted biological aggressiveness of the lesion, potentially optimizing surgical strategy and patient selection.

SC384

Concordance between multidisciplinary tumor board (MDT), EAU guidelines artificial intelligence (AI) Chatbot, and ChatGPT for patients with renal cancer: a single-centre prospective cohort study

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BACKGROUND: Multidisciplinary tumour boards (MDTs) are essential for modern value-based cancer care. Notably, artificial intelligence (AI) is permeating urological practice and may potentially improve MDT workflows and shared decision-making (SDM). The main objective of the study was to evaluate the concordance between the actual MDT recommendations and AI-generated recommendations for patients with non-metastatic (M0) or metastatic (M1) renal cell carcinoma (RCC) managed at a referral Academic Institution, focusing on how SDM changed the MDT recommendation and the reasons underlying potential discordance between MDT and AI-generated recommendations.

METHODS: After IRB approval, data from consecutive patients discussed at our renal cancer MDT between 11/2023 and 02/2026 were prospectively collected. For AI-generated recommendations, patients' medical records were imputed into the official EAU Guidelines AI Chatbot (v.2025 for cohort 1; v. 2026 for cohort 2) as well as ChatGPT (v.GPT-4o for cohort 1; v.GPT-5o for cohort 2) to generate AI-driven recommendations on each clinical case.

RESULTS: Overall, 265 patients were included (cohort 1: N.=177 [67%] managed up to May 2025; cohort 2: N.=88 [33%] between June 2025 and February 2026). Most patients were referred to the MDT by urologists (75% M0; 68% M1). After SDM with the patient, the MDT recommendation changed in 28% of both M0 RCC and M1 RCC patients. In the M0 cohort, the MDT-EAU AI Chatbot concordance was 74% (cohort 1) and 84% (cohort 2); the main factors underlying discordance were a) renal biopsy recommendations (50% in cohort 1; 40% in cohort 2); b) need for further diagnostic tests (23% in cohort 1; 23% in cohort 2); c) management strategy (27% in cohort 1; 37% in cohort 2). In the M1 cohort, the MDT-EAU AI Chatbot concordance was 77% (cohort 1) and 79% (cohort 2); the main factors underlying discordance were a) renal biopsy recommendations (29% in cohort 1; 23% in cohort 2); b) need for further diagnostic tests (19% in cohort 1; 23% in cohort 2); c) management strategy (52% in cohort 1; 54% in cohort 2). In M0 patients, the MDT-ChatGPT discordance was 32% (cohort 1) and 19% (cohort 2); the EAU AI Chatbot – ChatGPT concordance was 28% (cohort 1) and 19% (cohort 2). In M1 patients, the MDT-ChatGPT discordance was 39% (cohort 1) and 25% (cohort 2); the EAU AI Chatbot – ChatGPT concordance was 30% (cohort 1) and 16% (cohort 2).

CONCLUSIONS: SDM with patients changes MDT recommendations in more than one out of four patients. Concordance between actual MDT and EAU Guidelines AI-driven recommendations was robust, supporting a potential role of AI to streamline the MDT workflow and improve guideline adherence in patients with RCC.

SC385

Comparative evaluation of two large language models (LLM) in supporting multi-disciplinary team (MDT) assessment of renal cell carcinoma

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BACKGROUND: To establish the accuracy and completeness of two LLMs in supporting multi-disciplinary decision-making for patients with renal cell carcinoma (RCC).

METHODS: A cross-sectional study was conducted including all RCC patients discussed at our MDT from June 2023 to August 2025. Only patients with complete clinical information and MDT recommendations were included. Clinical data were entered into ChatGPT-5 Thinking and Grok 4 using the standardized prompt: "As a highly specialized expert in urological tumors, please provide high-level diagnostic and treatment recommendations for the following condition." Three senior urological oncologists, blinded to MDT decisions and to each other's assessments, independently rated the LLM-generated outputs on a 4-point Likert scale for accuracy (correctness vs. MDT recommendations) and completeness

(coverage of MDT recommendations). Hallucinations were defined as inaccurate or inconsistent outputs, including misinterpretations of guidelines, incorrect therapeutic suggestions, or staging inconsistencies. Additional variables included age, gender, ECOG, decisional step (diagnostic/re-staging; radical treatment; systemic disease management), and LLM reasoning time. Wilcoxon signed-rank tests compared accuracy and completeness between LLMs. Within-model variability was assessed using Kruskal-Wallis and Holm-corrected pairwise tests. Interrater reliability was evaluated using Kendall's coefficient of concordance.

RESULTS: Seventy-two cases were analyzed. Mean age was 67.6 ± 12.0 years (range 27-87); 75% were male. ECOG was 0 in 83.3%, 1 in 11.1%, 2 in 4.2%, and 3 in 1.4% of cases. Decisional steps included diagnostic/re-staging in 42.3%, radical treatment in 18.3%, and systemic disease management in 39.4%. ChatGPT-5 Thinking achieved higher accuracy (median 11, IQR 10-12) than Grok 4 (median 10, IQR 8-11; $P=0.0012$). Completeness was also superior for ChatGPT-5 Thinking (median 12, IQR 11-12) *versus* Grok 4 (median 11, IQR 10-12; $P<0.001$). Across decisional steps, ChatGPT-5 Thinking outperformed Grok 4 in both accuracy and completeness, with significant differences in diagnostic/re-staging cases ($P<0.01$) and for completeness across all steps ($P<0.02$). Differences in accuracy for radical treatment and systemic disease management were not significant. Hallucination rates did not differ significantly (11.1% *vs.* 4.2%; $P=0.21$ for Grok 4 and ChatGPT-5 Thinking, respectively). Neither Grok 4 nor ChatGPT-5 Thinking showed significant variation in accuracy or completeness across decisional steps (all Kruskal-Wallis $p \geq 0.08$); Interrater reliability was very high in all domains (Kendall's $W > 0.85$). Median reasoning time for Grok 4 was 49s (IQR 25.5-72.3), significantly longer than for ChatGPT-5 Thinking, which required 30s (IQR 23.0-38.3) ($P=0.0002$).

CONCLUSIONS: ChatGPT-5 Thinking consistently outperformed Grok 4 in accuracy and completeness for MDT-level evaluation of RCC cases, despite lower reasoning time.

SC386

Real-time image-guided robot-assisted partial nephrectomy: design, data acquisition workflow and preliminary clinical validation of the bistoury-clinical trial

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BACKGROUND: Artificial intelligence (AI) and computer vision are reshaping robotic surgery by enabling real-time intraoperative guidance, and context-aware assistance. The BISTOURY-CLINICAL trial was conceived as the translational phase of a multi-step research programme focused on AI-driven 3D navigation. We aimed to describe the design, multimodal data acquisition workflow, and preliminary clinical validation of a prospective trial evaluating real-time image-guided robot-assisted partial nephrectomy (RAPN) using the Hugo RAS platform. The study also establishes a standardized methodological framework for multimodal data acquisition, synchronization, and validation, forming the technological basis for future autonomous and adaptive robotic systems.

METHODS: This is a prospective, single-centre, obser-

vational trial enrolling 30 consecutive patients scheduled for RAPN at the Fondazione Policlinico Universitario Campus Bio-Medico (FPUCBM). Eligibility criteria are displayed as follows: patients aged ≥ 18 years with solitary, localized renal masses amenable to partial nephrectomy, adequate renal function ($eGFR > 45$ mL/min/1.73 m²), and no prior ipsilateral surgery. The methodological design consists of four sequential phases: 1) Preoperative phase: acquisition of contrast-enhanced CT scans, automated segmentation and 3D patient-specific model generation. 2) Intraoperative phase: synchronized acquisition of endoscopic video and optical tracking data, enabling dynamic registration and augmented-reality visualization within the surgical field; The intraoperative technological framework integrates intraoperative 3D reconstruction based on monocular videos (BodySLAM), and a deformable registration pipeline (CPD+OpVD) for dynamic alignment between preoperative and intraoperative models. 3) Postoperative phase: anonymised integration of all data streams for quantitative evaluation of spatial alignment accuracy, temporal stability and workflow feasibility, as well as qualitative assessment of surgeon orientation and usability *via* structured questionnaires. 4) Simulation and cross-validation phase: replication of selected procedures in a controlled robotic simulation environment to benchmark system performance and refine algorithmic components. Primary endpoints are system feasibility (no procedural delay > 5 min), registration accuracy (< 5 mm RMS error), and real-time performance stability (≥ 20 fps).

RESULTS: The clinical phase has started, and the first two RAPN procedures have been successfully performed using the Hugo™ RAS platform. In these cases, the CPD+OpVD pipeline achieved an average RMSE reduction of $51.03 \pm 10.78\%$ relative to rigid registration, with a mean computational time of 1.22 ± 1.16 s per endoscopic frame. No interference with the standard surgical workflow was observed during data acquisition. The full study cohort will include 30 preoperative CT scans and 30 synchronized intraoperative videos.

CONCLUSIONS: This study provides an initial clinical validation of a structured multimodal workflow for real-time image-guided robot-assisted partial nephrectomy. Preliminary findings support the technical feasibility of integrating preoperative 3D models, intraoperative video reconstruction and deformable registration into a single surgical guidance framework. Completion of enrolment will allow further assessment of robustness, scalability and clinical usability.

SC387

Refining risk-stratification in patients with non-metastatic clear-cell renal cell carcinoma meeting the KEYNOTE-564 criteria using the Leibovich 2003 and UroPredict prognostic models: implications for shared decision-making on adjuvant therapy

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BACKGROUND: Current Guidelines recommend offering adjuvant pembrolizumab to patients with resected clear cell renal cell carcinoma (ccRCC) meeting the KEYNOTE-564 criteria. The concept of using the Leibovich 2003 score – or

similar scores – for selecting patients for adjuvant pembrolizumab (among patients meeting the KEYNOTE-564 criteria) has been proposed by a multidisciplinary European Delphi study. The aim of the study was to refine risk-stratification in patients meeting the KEYNOTE-564 criteria using the Leibovich 2003 and UroPredict scores.

METHODS: We selected patients who underwent surgery for M0 ccRCC between January 2017 and May 2024 at a referral Academic Centre, who met the KN564 criteria. Prognostic groups were reported as low-, intermediate- and high-risk according to the Leibovich score, while as very-low, low-, medium- and high-risk according to UroPredict (<https://uopredict.sophiagenetics.com/?model=uopredict2>). The primary outcome was disease-free survival (DFS). The performance of the two models was evaluated at a prespecified 36-month DFS horizon. DFS was estimated using the Kaplan-Meier method. We investigated discrimination, calibration, net benefit, and prognostic value of both scores, focusing on the potential clinical implications of using them at specific cut-offs to guide patient selection for adjuvant therapy.

RESULTS: Overall, 151/518 (29%) ccRCC patients met the KEYNOTE-564 criteria. When stratified by the Leibovich and UroPredict scores, these patients fell into heterogeneous prognostic groups. The median follow-up was 24 months (IQR 9.5-48.5). The best cut-off of the Leibovich score identifying patients meeting the KEYNOTE-564 criteria with worse 36-mo DFS was 4, while 0.20 for the UroPredict score. Kaplan-Meier curves for disease-free survival (DFS) stratified by Leibovich score (risk groups: 0-4 vs. ≥ 5), showing an HR of 3.35 (95% CI 1.2-9.5); $P=0.025$. DFS probabilities (95% CI) for the 0-4 and ≥ 5 groups were, respectively: 97% (92-100%) vs. 85% (78-93%) at 12 months; 90% (79-100%) vs. 68% (58-80%) at 36 months; and 85% (72-100%) vs. 61% (49-77%) at 60 months. Kaplan-Meier curves for disease-free survival (DFS) stratified by UroPredict score (risk groups: 0.00-0.19 vs. ≥ 0.20). DFS probabilities (95% CI) for the 0.00-0.20 and ≥ 0.20 groups were, respectively: 100% vs. 87% (80-93%) at 12 months; 100% vs. 71% (63-82%) at 36 months; and 100% vs. 65% (55-78%) at 60 months. The P value ($P=0.095$) was calculated using the log-rank test. Applying the Leibovich score (4 vs. ≥ 5) would spare adjuvant therapy in 36 (24%) patients, 32 (89%) of whom would avoid unnecessary treatment, whereas using the UroPredict (0.0-0.19 vs. >0.20) would spare adjuvant therapy in 12 (8%) patients, all of whom would avoid unnecessary treatment.

CONCLUSIONS: The Leibovich 2003 and UroPredict scores identify a subset of patients at worse prognosis among those meeting the KN564 criteria, supporting individualized shared decision-making on adjuvant pembrolizumab.

SC388

Oncological outcomes in patients eligible for adjuvant immunotherapy after nephrectomy according to pathological upstage

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BACKGROUND: The indications for adjuvant immunotherapy (pembrolizumab) for renal cancer with high risk of recurrence are based on pathological stage and nuclear grade. We investigated whether clinical to pathological upstage, due to microscopic local invasion, is associated with more favorable oncological outcomes.

METHODS: From our Institutional database, we selected surgically-treated clear cell RCC from 2006 to 2026 and identified patients eligible for adjuvant immunotherapy according to KEYNOTE-564 study criteria. These patients were stratified according to pathological upstaging. Clinical stage was based on chest and abdominal contrast-enhanced CT scan. Kaplan-Meier curves and Cox regression models assessed disease-free survival DFS, defined as local recurrence or progression or death for any cause, whichever occurred first.

RESULTS: Of 1086 patients underwent surgery for RCC at our Institution, 88 (8.0%) met the inclusion criteria of the KEYNOTE-564 trial. Of these, 2 where M1NED and 1 was pT2N0G4, and were excluded from the analyses. Of the remaining 85 patients, 52 (61%) exhibited pathological upstage. The more frequent reason for upstage was sinus fat invasion (26 patients), followed by perinephric fat invasion (23 patients) and presence of tumor thrombus (14 patients). Notably, one patient presented with pT4 stage (liver invasion) and 3 patients were upstaged for lymph nodes invasion. No differences in baseline characteristics distinguished patients with and without pathological upstage, except for a lower rate of patients with venous thrombus (32% vs. 55%, $P=0.045$). Median follow-up was 42 months (IQR 18-75). Overall, 28 events occurred, which were specifically 24 distant progressions and 4 deaths. At 36 months, DFS was 62% (95%CI 48-80%) vs. 72% (95%CI 56-91%) in patients with vs. without pathological upstage ($P=0.3$). After multivariable adjustment, pathological upstage was not an independent predictor of DFS (HR 1.85, 95%CI 0.76-4.50, $P=0.2$). Only tumor size (HR 1.17, 95%CI 1.02-1.35, $P=0.03$) and high nuclear grade (HR 2.95, 95%CI 1.14-7.66, $P=0.03$) were independent predictors of DFS.

CONCLUSIONS: Pathological upstage is frequent among patients eligible for adjuvant immunotherapy and is mostly due to the inaccuracy of the current axial imaging modalities to identify microscopic tumoral fat invasion. However, patients with clinically localized RCC and pathological upstage showed DFS rates similar to those with clinically locally advanced RCC. Therefore, in patients with tumor upstaging on the surgical specimen, pathological stage remains the main determinant to select patients for adjuvant immunotherapy.

SC389

Comparative prognostic performance of KEYNOTE-564 and AUA risk stratification in non-metastatic clear cell renal cell carcinoma

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BACKGROUND: To compare KEYNOTE-564 and American Urological Association (AUA) risk classifications in clear cell Renal Cell Carcinoma (ccRCC), as recurrence after treatment for localized RCC remains a significant clinical challenge, and no consensus exists on how to define high-risk disease.

METHODS: We conducted a retrospective multicenter study of surgically treated patients with non-metastatic

ccRCC. Patients were stratified by AUA and KEYNOTE-564 criteria, and overall survival (OS), cancer specific survival (CSS) and recurrence free survival (RFS) were assessed using Kaplan-Meier and Cox regression analyses. Concordance index (C-index) was used to assess discrimination, and Net Reclassification Improvement (NRI) to evaluate reclassification; both were estimated with 1000 bootstrap replications.

RESULTS: Among 5711 patients included, the AUA model showed superior discrimination for RFS compared to KEYNOTE-564 (C-index 0.71 vs. 0.68; $P=0.03$), with higher recurrence risk in intermediate- (HR 2.38), high- (HR 2.92), and very high-risk groups (HR 3.68) vs. low-risk (all $P<0.001$). For OS, both models showed identical discrimination (C-index 0.73; $P=0.67$). For CSS, discrimination was similar (AUA 0.79 vs. KEYNOTE-564 0.78; $P=0.65$). NRI analysis showed that the KEYNOTE model was disadvantaged for RFS (-1.71%; $P=0.04$), while differences in OS (-0.68%; $P=0.19$) and CSS (-1.20%; $P=0.19$) were not statistically significant.

CONCLUSIONS: The AUA classification showed better discrimination for RFS, and improved reclassification compared to KEYNOTE-564, likely due to inclusion of adverse features such as sarcomatoid/rhabdoid differentiation and positive surgical margins. These findings suggest that broader inclusion criteria may improve risk stratification and should be prospectively validated in future adjuvant trials.

SC390

Natural history of Von Hippel-Lindau disease receiving local treatment before systemic therapy with HIF-2a inhibitors: updated data reporting system from a large VHL care center

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BACKGROUND: Patients diagnosed Von Hippel-Lindau disease [VHL] develop multiple clear cell renal cell carcinoma [ccRCC] at multiple timepoints. The application of standard reporting system for sporadic cancer is not applicable to patients with hereditary cancer. The aim of the study is to develop a novel data reporting system specifically tailored to capture the complexity of patients with hereditary cancer.

METHODS: Within a prospectively maintained program devoted to the surveillance of VHL patients, we enrolled patients with VHL and ccRCC. The proposed methodology consists of: 1) reporting baseline patient characteristics by defining each patient of the study population as a case and reporting time-dependent oncologic outcomes (e.g. mortality) starting from birth; 2) reporting perioperative outcomes (e.g. complications of surgery and ablation) by defining each procedure as a case; 3) reporting pathology by defining each lesion as a case.

RESULTS: Overall, we have prospectively evaluated 30 patients, 68 procedures, and 136 ccRCC. For a 50-years old VHL patient, the expected number of local treatments is 3, the expected number of lesions already treated is 5, the risk of first radical nephrectomy is 27%, the risk of subsequent nephrectomy with renal failure and need for replacement therapy is 18% and the risk of mortality is 17%. Moreover, the rate of complex local treatments based on combination of multiple surgeries or ablation was 28% ($N=19$). The overall and major (Clavien-Dindo ≥ 3) complications rate per each surgical procedure were 29% and 17%, respectively. Among the 136 treated lesions, the pathologic stage was pT1, pT2 and pT3 in 75%, 17%, and 5.6% of cases, respectively. Among lesions with clinical size larger than 30 mm, the rate of aggressive disease (pT3 or G3-G4) was 16%, compared to 5% in lesions smaller than 3 cm ($P=0.20$).

CONCLUSIONS: This novel reporting system provides a standardized framework for evaluating lifetime management of renal cancer in VHL disease and can be applicable in the broader setting of hereditary cancer. Repeated nephron-sparing treatments are feasible but associated with significant morbidity. Tumour size might be informative relative to disease aggressiveness. These figures might inform future research assessing systemic therapy with HIF-2a inhibitors.

NMIBC BCG-resistant e tumore uroteliale dell'alta via

SC391

Real-world outcomes of bladder-sparing strategies for BCG-unresponsive non-muscle-invasive bladder cancer: a multicenter study

SC392

Impact of BCG failure pattern on oncologic outcomes of intravesical gemcitabine and docetaxel in high-risk NMIBC: a multicenter european study

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Does maintenance matter? Sequential BCG-MMC EMDA in BCG-failure NMIBC: a single-center study

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Bladder-sparing treatment with gemcitabine-docetaxel for BCG-unresponsive NMIBC: results from a tertiary referral center

SC395

Survival outcomes of BCG only, BCG plus EMDA-MMC or upfront radical cystectomy in high-risk non-muscle invasive bladder cancers (NMIBCS): a multicentre, international, collaborative study from tertiary referral institutions

SC396

Germline dna repair gene (GDRG) variants in BCG un-responsive patients: a potential genetic implication for risk stratification and target therapy

SC397

Sequential gemcitabine and docetaxel for BCG-

failure non-muscle invasive bladder cancer: early institutional experience

SC398

Ureteral-tumor biopsy does not predict bladder recurrence of urinary tract urothelial carcinoma after radical nephroureterectomy: a single center experience

SC399

Recurrence patterns after radical nephroureterectomy for upper tract urothelial carcinoma: a single-center experience

SC400

Kidney-sparing surgery for upper tract urothelial carcinoma: oncological outcomes and risk of delayed surgical escalation from a large single-center series

SC401

Standardized assessment of complications in conservatively managed UTUC: insights from a high-volume tertiary center

SC402

Pulsed thulium:YAG laser for kidney-sparing en bloc resection of low-grade UTUC: a single centre experience

SC403

Impact of digital and laser technology on organ preservation in the treatment of upper urinary tract tumors (UTUC): generational comparative analysis

SC391**Real-world outcomes of bladder-sparing strategies for BCG-unresponsive non-muscle-invasive bladder cancer: a multicenter study**

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BACKGROUND: Patients with BCG-unresponsive non-muscle-invasive bladder cancer (NMIBC) face a high risk of progression. Although radical cystectomy (RC) remains the standard of care, many patients are unfit or decline surgery, prompting increasing use of bladder-sparing approaches. This study evaluated oncological outcomes of BCG-unresponsive NMIBC treated with intravesical gemcitabine/docetaxel (Gem/Doce), electromotive mitomycin C (EMDA-MMC), additional BCG, or upfront RC.

METHODS: We retrospectively included patients with BCG-unresponsive NMIBC treated at 21 European centers (2009-2024) with Gem/Doce, EMDA-MMC, further BCG, or upfront RC. Cumulative incidence functions estimated recurrence, high-grade recurrence, progression, cancer-specific mortality (CSM), and overall mortality (OM). Multivariable Cox models assessed the association between treatment type and recurrence, progression, and OM, adjusting for clinical covariates.

RESULTS: Among 361 patients, 104 (28%) received Gem/Doce, 58 (16%) EMDA-MMC, 150 (42%) additional BCG, and 49 (14%) RC. Median follow-up was 73 months. The proportion of T1 high-grade disease was 32%, 52%, 29%, and 61%, respectively. All EMDA-MMC cases were papillary, while CIS-only disease comprised 33%, 21%, and 18% of the additional BCG, Gem/Doce, and RC groups. Recurrence and high-grade recurrence rates were similar between Gem/Doce and EMDA-MMC (adjusted HRs 1.30 and 0.40; both $P>0.5$). The 2-year cumulative progression risk was 15% for Gem/Doce, 20% for EMDA-MMC, and 30% for further BCG ($P<0.001$). On multivariable analysis, Gem/Doce was associated with a significantly lower progression risk *versus* further BCG (adjusted HR 0.19, 95% CI 0.09-0.43, $P<0.001$). No significant differences in cancer-specific survival were observed across treatments.

CONCLUSIONS: In this large multicenter series, Gem/Doce and EMDA-MMC demonstrated comparable efficacy and represent feasible bladder-sparing options for BCG-unresponsive NMIBC. For fit and consenting patients, RC remains the guideline-endorsed standard. Prospective studies are needed to refine selection criteria and optimize treatment sequencing in this challenging population.

SC392**Impact of BCG failure pattern on oncologic outcomes of intravesical gemcitabine and docetaxel in high-risk NMIBC: a multicenter european study**

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S.F. Shariat, F. Montorsi, A. Briganti, P. Gontero, E. Xylinas, M. Moschini (Milan)

BACKGROUND: Intravesical gemcitabine/docetaxel (Gem/Doce) has emerged as a bladder-sparing option for patients with high-risk non-muscle-invasive bladder cancer (HR-NMIBC) after Bacillus Calmette-Guérin (BCG) failure. Whether different BCG failure types affect Gem/Doce outcomes remains unclear.

METHODS: We retrospectively analyzed 186 patients with HR-NMIBC treated with Gem/Doce after prior BCG across 14 European centers (2021-2025). Eligible patients completed ≥ 5 induction instillations and had at least one follow-up cystoscopy; BCG-intolerant cases were excluded. BCG failure was classified per FDA/IBC definitions as unresponsive, refractory, or relapsing. Outcomes included recurrence-free survival (RFS), high-grade RFS (HG-RFS), progression-free survival (PFS), and radical cystectomy-free survival. Cumulative incidence functions estimated event risks. Multivariable Cox models, adjusted for histology, multifocality, and tumor size, evaluated associations between BCG failure type and outcomes.

RESULTS: Among 143 eligible patients, 72 were BCG-unresponsive, 36 refractory, and 35 relapsing. Median age was 82 years (IQR 74-89). Relapsing patients had lower comorbidity and smaller tumors than refractory cases. At 12 months, cumulative recurrence risk was 28% for unresponsive, 34% for refractory, and 18% for relapsing disease; HG-recurrence risks were 25%, 31%, and 15%, respectively (all $P<0.05$). Progression risk remained $<10\%$ across groups. On multivariable analysis, relapsing disease was associated with lower recurrence risk *versus* unresponsive disease (HR 0.40, 95% CI 0.16-0.97; $P=0.042$), but not with HG-recurrence (HR 0.48, 95% CI 0.18-1.27; $P=0.14$).

CONCLUSIONS: Gem/Doce is effective and well tolerated across BCG failure types. Relapsing patients experienced more favorable outcomes, whereas refractory disease showed higher recurrence risk. These findings support Gem/Doce as a viable bladder-sparing option but highlight the need for careful selection and counseling, particularly in refractory cases.

SC393**Does maintenance matter? Sequential BCG-MMC EMDA in BCG-failure NMIBC: a single-center study**

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BACKGROUND: Management of non-muscle-invasive bladder cancer (NMIBC) after BCG failure remains challenging, particularly in patients unfit for or unwilling to undergo radical cystectomy. In this setting, data on the oncological efficacy of sequential intravesical therapy with BCG plus mitomycin C (MMC) delivered by electromotive drug administration (EMDA) and the role of maintenance therapy are limited. This study aimed to describe the outcomes of sequential BCG -MMC EMDA after BCG failure, focusing on the role of maintenance therapy.

METHODS: Consecutive patients treated with sequential BCG plus EMDA - MMC for NMIBC after BCG failure at a single institution from January 2020 to December 2025 were reviewed. Baseline clinical, demographic, and pathological

characteristics were collected. Treatment variables included type of BCG failure and treatment schedule (induction or induction plus maintenance). The primary endpoint was HG recurrence. Time-to-event analyses were performed from the start of EMDA treatment. Descriptive statistics tested the differences between the population groups (recurrence vs. no recurrence). Categorical variables were compared using Fisher's Exact Test, while continuous variables were analyzed using the Wilcoxon rank-sum test. HG recurrence-free survival (HG-RFS) was estimated using Kaplan-Meier analysis and compared across treatment groups using the log rank test.

RESULTS: Twenty-two patients, of which 15 (68.2%) males were included. Median age and CCI were 80 (75 - 86) and 5 (5-6), respectively. Median follow-up was 36 months (IQR: 16-51), with 5 (22.7%) patients developing high grade recurrence during the study period. Four (18.1%) patients did not undergo maintenance, of which two (9.1%) due to intolerance (LUTS and fever in one case, urge incontinence in the other). High grade recurrence was not associated with baseline demographics, tumour characteristics and type of BCG failure (all $P>0.05$). Kaplan-Meier analysis showed a HG-RFS of 84.8% at 12 months and 73.4% at 36 months. HG recurrence rates did not differ between BCG-unresponsive patients and those with other BCG failure categories (9.1% vs. 27.3%, $P=0.29$), nor according to the presence of CIS at inclusion (15.4% vs. 22.2%, $P=0.72$). One patient experienced HG recurrence at 4 months: for comparative analyses, this case was excluded due to its influence on survival estimates. Among the others, patients receiving maintenance therapy showed a lower HG recurrence rate (11.8% vs. 50.0 %, log-rank $P<0.001$). During follow-up, 4 patients (all disease-free) died from causes unrelated to bladder cancer. High grade recurrences were treated by radical cystectomy in all cases, with one patient developing subsequent metastatic progression.

CONCLUSIONS: In our cohort, sequential BCG plus MMC EMDA represents a feasible treatment option in selected NMIBC patients with BCG failure disease. Maintenance therapy was associated with improved HG recurrence-free survival, suggesting a benefit beyond induction alone. These findings support the use of maintenance schedules in this setting, although larger studies are needed to confirm these results.

SC394

Bladder-sparing treatment with gemcitabine-docetaxel for BCG-unresponsive NMIBC: results from a tertiary referral center

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BACKGROUND: The aim of the present study is to evaluate the oncological outcomes in terms of recurrence and progression rates of patients undergoing intravesical therapy with Gem/Doce at a single tertiary referral Center.

METHODS: A monocentric prospective study was conducted between December 21, 2023, and April 14, 2026, enrolling 26 patients with NMIBC BCG-unresponsive who either refused radical cystectomy or were unfit for it. With prior authorization for off-label use, patients were treated with a sequential protocol of gemcitabine (1 g) and docetaxel (37.5 mg), both drugs having an intravesical retention time of approximately 90 minutes. The therapeutic regimen included

an induction phase consisting of six weekly instillations, followed by a maintenance phase with single monthly administrations for a maximum of 24 months.

RESULTS: 26 patients treated with Gem/Doce for BCG-unresponsive disease were enrolled. The majority were male (84.6%) and of Caucasian ethnicity (96.2%). Median age was 77 years (range: 58-91 years). At the time of induction with Gem/Doce, clinical stratification based on previous response to BCG showed the following distribution: BCG-refractory disease in 40% of cases, BCG-relapsing in 32%, BCG-intolerant in 16%, and BCG-unresponsive in 12%. Regarding therapeutic compliance, the majority of the cases (69.23%, $N=18$) successfully completed the entire induction cycle. Early treatment interruptions occurred in the remaining 8 patients: 4 of these (15.38%) stopped at the fifth instillation due to the appearance of haematuria ($N=2$) or dysuria ($N=1$), classified as Grade 2 adverse events according to the CTCAE v5.0 criteria, or for unknown reasons ($N=1$); the remaining 4 patients (15.38%) discontinued after the second instillation due to the onset of Grade 2 stranguria/dysuria ($N=2$) or the development of bilateral acute pyelonephritis ($N=2$), the latter classified as a severe adverse event (SAE) of Grade 3. Disease recurrence was observed in 15.4% of the cohort ($N=4$), predominantly of low grade (75%). Median time to recurrence was 5.7 months. 4 patients (15.4%) exhibited disease progression to muscle-invasive disease (MIBC), necessitating radical cystectomy; median time to progression was 5.4 months.

CONCLUSIONS: Sequential intravesical therapy with Gem/Doce has proven to be a valid bladder-sparing therapeutic option, demonstrating a favorable safety profile both in terms of oncological control and clinical tolerability. Although clinical evidence is currently limited, recent literature supports the use of this regimen, highlighting its economic sustainability, low toxicity, and encouraging clinical response rates. However, further large-scale prospective studies are still necessary to define the long-term efficacy and the definitive role of sequential treatment in the therapeutic paradigm of non-muscle-invasive bladder cancer.

SC395

Survival outcomes of BCG only, BCG plus EMDA-MMC or upfront radical cystectomy in high-risk non-muscle invasive bladder cancers (NMIBCS): a multicentre, international, collaborative study from tertiary referral institutions

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BACKGROUND: High-risk categories of Non-Muscle Invasive Bladder Cancer (NMIBC) remain a therapeutic challenge due to the substantial risk of recurrence and progression despite guideline-based intravesical therapy. The choice between conservative bladder preservation and early radical surgery is still debated, especially in those with adverse pathological features. This study compared survival outcomes among alternative treatment strategies within this high-risk setting.

METHODS: High- or Very High-risk NMIBCs treated at two tertiary referral centers between 2009 and 2024 were reviewed. All patients underwent TURBT followed by one of three treatment approaches: Bacillus Calmette-Guérin (BCG) alone (I), sequential BCG plus electromotive administration of mitomycin C (EMDA-MMC) (II), or upfront radical cystectomy (RC) (III). Demographic, clinical, and pathological data were assessed. Recurrence-free survival (RFS), Progression-free Survival (PFS), and Overall Survival (OS) were estimated using Kaplan-Meier methods. Multivariable Cox regression modeling was applied to identify predictors independently associated with survival imbalances.

RESULTS: A total of N.=1178 patients were included: N.=852 BCG only, N.=249 BCG/EMDA-MMC, and N.=77 underwent upfront RC. Kaplan-Meier analysis revealed no significant differences in RFS or PFS between the BCG and BCG/EMDA-MMC groups, nor in OS among the three treatment strategies. On multivariable analysis, both recurrence and disease were not influenced by the type on intravesical treatment (HR: 0.95, 95%CI 0.732-1.238, P=0.71 for RFS and HR: 0.80, 95%CI 0.557-1.155, P=0.24 for PFS, respectively for BCG/EMDA-MMC vs. BCG only). Similarly, none of the evaluated therapeutic approaches (BCG/EMDA-MMC vs. BCG only vs. upfront RC) was independently impacting OS (HR: 1.00, 95%CI 0.701-1.424, P=1.00 for BCG/EMDA-MMC vs. BCG only; HR: 1.13, 95%CI 0.591-2.143, P=0.72 for upfront RC vs. BCG only; HR: 0.89, 95%CI 0.47-1.7, P=0.73 for BCG/EMDA-MMC vs. upfront RC).

CONCLUSIONS: As expected, survival outcomes were primarily influenced by age, tumor stage, presence of concomitant CIS, and re-TURBT. Of note, type of treatment modality (*i.e.*, BCG only, sequential BCG/EMDA-MMC, or upfront RC) did not significantly affect RFS, PFS, or OS. These findings suggest that patient and tumor characteristics, rather than treatment modality, may preferably guide individualized management decisions in high-risk NMIBCs.

SC396

Germline dna repair gene (GDRG) variants in BCG un-responsive patients: a potential genetic implication for risk stratification and target therapy

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BACKGROUND: The introduction of the “BCG-unresponsive” definition by the U.S. Food and Drug Administration (FDA) has provided a structured framework for classifying patients unlikely to benefit from BCG therapy, accelerating the approval of novel therapeutic agents. There is an urgent need to improve tools predicting BCG failure. To address this unmet need, we investigated the predictive role of gDRG pathogenic variants (PVs), likely pathogenic variants (LPVs) and variants of unknown significance (VUS) in patients who received BCG.

METHODS: This is a nested case-control study, within an ongoing prospective single center trial, which includes patients with NMIBC who have received BCG and developed a recurrence. The study was founded by AIRC - Fondazione AIRC per la Ricerca sul Cancro, supported by the Italian Ministry

of University and Research (MUR) under the National Recovery and Resilience Plan (PNRR), and registered in Italy (amendment number: ID-IG-25027-V1.3). This study was Naïve patient who received BCG treatment for HG-NMIBC from June 2023 to March 2025 underwent whole-exome sequencing. They were investigated for PVs, LPVs and VUS (including TM, ATR, MRE11A, BAP1, BARD1, BRCA1, NBN, BRCA2, PALB2, BRIP1, CHEK2, RAD51C, FAM175A, RAD51D, GEN1, XRCC1, and the mismatch repair genes MLH1, PMS2, MSH2, and MSH6). The primary endpoint was to describe the prevalence of PVs, LPVs and VUS in BCG un-responsive and responsive patients.

RESULTS: From January to June 2024 to August, a total of 18 naïve patients were enrolled. Seven patients (mean age 57.5 yrs - range 38-74) showed a recurrence during the follow-up and were defined “BCG un-responsive”. The median follow-up at the time of testing was 14 months. All patients had a history of high-grade bladder cancer and received intravesical BCG adjuvant treatment according to the SWOG protocol. None of the responders harbored PVs-LPVs, while two (18.1%) had VUS. In un-responsive group 2 over 7 (71.4%) presented at least a PV, and 5 a VUS; one of this was reclassified as LPVs by literature. The main variants were: ATM, BRCA2, MSH6, ATR, BARD1 and PALP2. The two BCG-unresponsive patients with more than one variant had a significant lower age at the diagnosis: 38 and 52 yrs old, and presented carcinoma in situ at recurrence.

CONCLUSIONS: These very preliminary findings seem suggesting that gDRG variants could matter in patients who failed BCG course and underscore the need for further investigation into the utility of germline genetic risk stratification as crucial role in refining patient selection for BCG and new target therapies.

SC397

Sequential gemcitabine and docetaxel for BCG-failure non-muscle invasive bladder cancer: early institutional experience

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BACKGROUND: Sequential gemcitabine and docetaxel were initially implemented as alternatives to bacillus Calmette-Guérin (BCG) during BCG shortage for non-muscle invasive bladder cancer (NMIBC). Subsequently, their use has been evaluated as rescue treatment following BCG failure or intolerance. We report our preliminary institutional experience, evaluating early outcomes stratified by European Association of Urology (EAU) NMIBC risk classification.

METHODS: We prospectively collected data on 40 consecutive patients with BCG-failure NMIBC treated with sequential intravesical gemcitabine/docetaxel starting from April 2024 at our institution. Patients received 6 weekly induction sequential instillations (1 gram gemcitabine followed by 37.5 milligrams docetaxel) with monthly maintenance for up to 1 year. Baseline characteristics, treatment completion, and recurrence-free survival were analyzed. Patients were stratified by EAU risk group (high-risk *versus* very-high-risk). Recurrence-free survival, calculated from first instillation, was analyzed using Kaplan-Meier curves and log-rank test.

RESULTS: Median age was 76 years (interquartile range

69-82), 75% were male, median Charlson Comorbidity Index was 3. Carcinoma in situ was present in 58% of patients. The majority (92%) were BCG-unresponsive, with a median of 2 prior recurrences. Twenty-four patients (60%) were classified as high-risk and 16 (40%) as very-high-risk. Patients received median 6 induction instillations, with median 3 maintenance instillations (range 0-12). Treatment-related symptoms occurred in 10 patients (25%), mainly low-grade lower urinary tract symptoms (dysuria, bladder spasms) and urinary tract infections (N=3, 7.5%). Two patients (5%) discontinued induction therapy due to persistent urinary symptoms. No high-grade toxicities were observed. At median follow-up of 9.7 months for high-risk and 5.7 months for very-high-risk patients, 6-month recurrence-free survival was 92% in high-risk *versus* 79% in very-high-risk patients (log-rank $P=0.06$).

CONCLUSIONS: Our findings are preliminary and concern a selected pretreated population with unfavorable disease characteristics and significant comorbidities. High-risk patients demonstrated encouraging outcomes (92% recurrence-free survival at 6 months), while very-high-risk patients showed inferior results (79%), though this difference did not reach statistical significance ($P=0.06$). Treatment was generally well tolerated with predominantly low-grade urinary symptoms and a low discontinuation rate (5%). While longer follow-up is needed for mature data, sequential gemcitabine and docetaxel may address an important unmet need for bladder-sparing strategies in patients marginally fit for or unwilling to undergo radical cystectomy.

SC398

Ureteral-tumor biopsy does not predict bladder recurrence of urinary tract urothelial carcinoma after radical nephroureterectomy: a single center experience

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BACKGROUND: The EAU 2025 guidelines for upper urinary tract urothelial carcinoma (UTUC) emphasize the role of endoscopic biopsy in UTUC with radiological high-risk features for treatment decision-making. Nevertheless, it remains unclear whether ureteral-tumor biopsy increases the risk of bladder recurrence (BR) after radical nephroureterectomy (RNU). The aim of this study was to identify predictors of BR after RNU.

METHODS: We retrospectively reviewed the series of patients treated with RNU for UTUC at our Institution from 2001 to 2025 with at least 3 months of follow-up. Patients who underwent a previous radical cystectomy were excluded. All patients without previous history of bladder cancer (BCa) received a postoperative intravesical instillation of mytomicin C within 5 days of RNU after a negative cystography. Descriptive statistics assessed differences between patients with and without BR. Kaplan-Meier curve depicted BR-free survival. Univariable and stepwise-multivariable Cox-regressions models tested for predictors of BR among age, sex, Charlson Comorbidity Index (CCI), preoperative CDK, smoking history, previous BCa history, preoperative ureteroscopy (URS), ureteral biopsy, stage and grade at pathology, adjuvant chemotherapy after RNU. Only variables with $P<0.1$ at univariable models were retained for multivariable Cox-regression models.

RESULTS: Of the 134 patients included in the analysis, 40 (29.8%) vs. 94 (71.2%) patients developed BR after a median follow-up of 29.5 (IQR 8.0-56.5) months. BR-free survival at 12, 24, 36, 48, and 60-months was 83.5%, 68.2%, 62.2%, 58.9%, and 58.9%, respectively. Patients with BR were more frequently male (33 – 82.5% vs. 58 – 61.7%, $P=0.02$) and more frequently harbored $pT\leq 1$ UTUC (29 – 72.5% vs. 38 – 40.4%, $P=0.004$) than patients without BR. No differences in ureteral-tumor biopsy rate were identified between patients with and without BR (14 – 35.0% vs. 29 – 30.9%, respectively, $P=0.8$). At multivariable Cox-regression model, male gender was the only independent predictor of BR (OR 5.2, 95%CI 1.5-17.4, $P=0.008$). Ureteral-tumor biopsy (OR 1.9, 95%CI 0.8-4.5, $P=0.1$), previous BCa history (OR 1.5, 95%CI 0.7-3.3, $P=0.3$) and $pT\geq 2$ stage (OR 0.5, 95%CI 0.2-1.2, $P=0.1$) were not shown to be independent predictors of BR.

CONCLUSIONS: Preoperative endoscopic ureteral biopsy is not associated with an increased risk of BR after RNU for UTUC. Consequently, it can be safely considered for better risk stratification and treatment selection in UTUC patients with radiological high-risk features who may be eligible for kidney-sparing treatment. Male patients are at higher risk of BR after RNU and should undergo a more stringent follow-up.

SC399

Recurrence patterns after radical nephroureterectomy for upper tract urothelial carcinoma: a single-center experience

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BACKGROUND: Radical nephroureterectomy (RNU) is the gold standard treatment for upper tract urothelial carcinoma (UTUC), yet post-RNU recurrence patterns are heterogeneous – ranging from early intravesical recurrence (IVR) to less frequent but lethal extra-bladder events. A granular, time-resolved description of post-RNU trajectories can benchmark care and support risk-adapted surveillance. We assessed site-specific, time-dependent risks after RNU and explored clinicopathologic and perioperative correlates.

METHODS: We retrospectively analyzed consecutive UTUC patients who underwent RNU with bladder cuff (2010-2025). Endpoints were: any recurrence (IVR or extra-vesical/metastatic), IVR (bladder only), and metastasis (locoregional or distant). Any recurrence-free survival (RFS), IVR-free survival (IVRFS), metastasis-free survival (MFS) were estimated by Kaplan-Meier analysis. Patient trajectories were visualized with a Sankey plot. We then estimated the multi-state occupation probabilities for four states using the Aalen-Johansen methodology (post-RNU, IVR, extra-vesical/metastatic, death) at 3, 6, 12, 24, and 60 months.

RESULTS: Among 226 patients, median age was 72 years (IQR 63-77) and 35% had prior bladder cancer. A bladder cuff was performed in 80% (transvesical 49%); 58% underwent open and 42% robot-assisted RNU. Over a median follow-up of 26 months (IQR 7-67), 91 patients (40%) experienced ≥ 1 recurrence. RFS at 1 and 2 years was 79% and 69%, respectively. IVR occurred in 22% and was Ta/Tis in 80%, T1 in 16%, and T2 in 4%; IVR-FS at 3, 12, and 24 months was 98%, 83%, and 72%. MFS at 1 and 2 years was 86% and 80%. State-occupation probabilities showed that by 12 months 61.6%

of patients remained in the same post surgery status with no transition, while 12.6% were in IVR, 6.4% in extra-vesical/metastatic disease, and 19.4% had died; by 24 months IVR (18.3%) exceeded extra-vesical/metastatic disease (7.7%) and approached death (26.8%); by 60 months IVR and death dominated state occupancy at 18.1% and 39.6%, respectively (extra-vesical/metastatic 5.7%).

CONCLUSIONS: After RNU for UTUC, IVR is common and often non-muscle-invasive (Ta/Tis), while early extra-vesical/metastatic events are less frequent but accumulate over time. By 2 years, the probability of being in the IVR state (21%) exceeds that of extra-vesical/metastatic disease (9%) or death (14%); by 5 years, the probabilities of IVR (23%) and death (22%) are comparable, with extra-vesical/metastatic disease at ~8%. These time-resolved benchmarks can inform counseling and surveillance intensity.

SC400

Kidney-sparing surgery for upper tract urothelial carcinoma: oncological outcomes and risk of delayed surgical escalation from a large single-center series

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BACKGROUND: Kidney-sparing surgery (KSS) is the standard treatment for low-risk upper tract urothelial carcinoma (UTUC), but its role beyond this setting remains controversial. We aimed to evaluate oncological outcomes after KSS in a real-world setting and to quantify the risk of subsequent surgical escalation.

METHODS: We conducted a retrospective analysis of consecutive UTUC patients who underwent KSS with curative intent between 2018 and 2025 at a single tertiary referral center. Both low-risk and high-risk disease were included. Descriptive analyses of clinical, pathological, and treatment-related variables were performed. We assessed the cumulative incidence of subsequent surgical escalation to radical surgery (either nephroureterectomy (RNU) or distal ureterectomy (DU)). Oncological outcomes included recurrence-free survival (RFS), progression-free survival (PFS), bladder recurrence-free survival (BRFS), cancer-specific mortality (CSM), and other-cause mortality (OCM).

RESULTS: A total of 41 patients were included (44% low-risk and 56% high-risk disease according to guideline-based risk stratification), with a median follow-up of 45 months (IQR 18-65). High-grade histology at diagnostic ureteroscopy was observed in 17%, while tumor size ≥ 2 cm and multifocality were present in 19.5% and 12% of patients, respectively. RFS rate was 44% and PFS rate 75.6%, while BRFS rate was 31.7%. CSM and OCM were both 17%. Despite initial conservative management, 24.4% of patients required subsequent surgical escalation, including RNU (14.6%) and DU (9.8%), whereas 75.6% remained free from radical surgery. The need for surgical escalation was higher in high-risk disease, although a substantial proportion still avoided upfront radical treatment.

CONCLUSIONS: KSS should be considered a stepwise management strategy rather than definitive treatment in UTUC. While it enables a substantial proportion of patients to defer or avoid radical surgery, the risk of subsequent surgical escalation remains clinically relevant, particularly in high-risk disease. Notably, over 75% of patients avoided radical surgery

at mid-term follow-up. These findings support a risk-adapted approach, balancing renal preservation against the likelihood of subsequent radical intervention, and underscore the need for stringent surveillance.

SC401

Standardized assessment of complications in conservatively managed UTUC: insights from a high-volume tertiary center

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BACKGROUND: Conservative endoscopic management of upper tract urothelial carcinoma (UTUC) represents a kidney-sparing alternative to radical nephroureterectomy (RNU) in selected patients. However, repeated ureteroscopies (URS) may lead to cumulative morbidity. We aimed at evaluating the safety profile and identify predictors of complications in patients undergoing conservative UTUC management at a high-volume tertiary center.

METHODS: We retrospectively reviewed 67 patients treated conservatively for UTUC between 2015 and 2025, undergoing a total of 263 URS procedures at a tertiary referral center. Complications were collected retrospectively *via* chart review and patient interviews, from the first URS to last follow-up visit. Complications were graded according to the Clavien-Dindo classification. Univariable logistic regression (ULR) assessed predictors of any complication and ureteral stenosis (US). Cumulative incidence plots were used to visualize time-to-complication events.

RESULTS: The median number of URS per patient was 3 (IQR 2-5), with a median interval of 5 months. Twelve (18%) patients underwent more than six URS. Over a median follow-up of 46 months (IQR 19-65), the 5-year cumulative incidence of any complication was 62% (95% CI: 43-75). At least one complication occurred in 32 patients (47%), with 61 total events recorded. Per-patient, the most common complications were fever (18%), any stenosis (18%), hematuria/anemia (12%), and flank pain (9%). Most events were minor (Clavien-Dindo I-II); however, twelve patients (18%) developed endoscopic evidence of US and two patients (3%) required RNU. On univariable analysis, the number of URS was the only variable significantly associated with both any complication (OR: 1.41 per URS, $P=0.012$) and US (OR: 1.20 per URS, $P=0.042$). The ULR model showed that the higher the number of URS, the higher the risk of developing US, with 22.7% risk of US after six URS.

CONCLUSIONS: Conservative UTUC management carries a substantial cumulative risk of complications. In this context, a prolonged endoscopic follow-up was associated with an increased risk of developing US. These findings provide contemporary benchmarks for counseling and surveillance planning in patients managed conservatively.

SC402

Pulsed thulium:YAG laser for kidney-sparing en bloc resection of low-grade UTUC: a single centre experience

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BACKGROUND: According to the EAU Guidelines, kidney-sparing endoscopic management should be considered in patients with low-risk upper tract urothelial carcinoma (UTUC). However, the risk of understaging and disease progression remains a concern due to the inherent limitations of endoscopic biopsy and cross-sectional imaging. This study aims to evaluate the feasibility, safety, and short-term oncological outcomes of en bloc endoscopic laser resection using the pulsed thulium:YAG (p-Tm:YAG) laser for low-grade ureteral tumors.

METHODS: This is a retrospective, single-center study conducted at Clinica Mediterranea, Naples, Italy. Between January 2024 and December 2025, ten consecutive patients with a unifocal, papillary, low-grade ureteral tumor measuring <1.5 cm underwent flexible ureteroscopy (fURS). The Revolix Hybrid p-Tm:YAG laser (LISA Laser Products, Germany) was used with a 272- μ m fiber at low-power settings (10-15 W; pulse energy, 0.4-0.6 J) to minimize collateral thermal injury, consistent with ESUT/TRUST expert recommendations. The technique involved en bloc laser resection with circumferential incision and subepithelial dissection, followed by intact specimen retrieval. A 6-Fr ureteral stent was placed postoperatively in all cases and removed at 8 weeks during the scheduled second-look ureteroscopy, which was performed to assess completeness of resection. Subsequent surveillance included ureteroscopy and urinary cytology at 3, 6, and 12 months.

RESULTS: All procedures were completed successfully without intraoperative complications. Mean operative time was 38 ± 12 minutes. Postoperative complications were limited to Clavien-Dindo grade I events (self-limiting hematuria in 2/10 patients, 20%). Mean specimen size was 14 ± 5 mm, and all specimens were adequate for histopathological evaluation. Concordance between preoperative biopsy grade and final pathology was 90% (9/10). One patient (10%) was upgraded to high-grade disease and underwent radical nephroureterectomy. At second-look ureteroscopy, no residual disease was identified in 8/10 patients (80%). At a mean follow-up of 14 months (range, 3-24), local recurrence occurred in 2/10 patients (20%), both successfully treated with repeat endoscopic resection. No disease progression or conversion to nephroureterectomy occurred among the nine confirmed low-grade cases. Renal function remained stable throughout follow-up.

CONCLUSIONS: En bloc endoscopic laser resection using the p-Tm:YAG laser, performed at low-power settings and followed by systematic second-look ureteroscopy, appears to be feasible and safe in this preliminary series. Complete resection was achieved in 80% of cases, and the recurrence rate (20% at 14 months) is consistent with published data. By enabling intact specimen retrieval, this technique may

improve histopathological accuracy and reduce understaging compared with standard laser ablation. Larger, multicenter studies with longer follow-up are warranted to confirm these findings and assess long-term oncological outcomes.

SC403

Impact of digital and laser technology on organ preservation in the treatment of upper urinary tract tumors (UTUC): generational comparative analysis

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BACKGROUND: Evaluate the effectiveness of cancer control and organ salvage rate in patients with upper urinary tract neoplasm (UTUC) treated with digital ureterorenoscopy and laser technology (current generation), comparing results with patients treated with fiber optic ureteroscopy and monopolar electrode (old generation).

METHODS: In the last 5 years, 73 patients have been treated with digital/laser endoscopic conservative treatment for upper-ectopic neoplasia. Of these, a total of 64 (divided into: Pelvic neoplasms N. 29; proximal ether N. 17; uretere lombare N. 13; uretere terminale N. 5; the neoplasms had a diameter varying between 0.5-2 cm) reached a minimum follow-up of 3 years and are the subject of the study. Of these 64 patients, N. 20 patients had high-grade (HG) neoplasm and N. 44 low-grade (LG). The results were compared with a uniform historical series for location, extent and degree of malignancy treated in pre-digital and laser era (fiber optic ureteroscopy and single-pole electrode).

RESULTS: In the digital and laser treatment group, radical nephroureterectomy was necessary in N. 18 of 64 cases (24.6%). By contrast, in the historical pre-digital and pre laser group, at the same number of patients, nephroureterectomies performed were 43 (about 60%). Partial data from our study show how the use of digital HD vision has allowed a more precise diagnosis and follow-up, demonstrating how the use of laser ensures more accurate remediation of injuries, contributing to a reduction of relapses which usually lead to radical surgery (nephroureterectomy) in this category of patients.

CONCLUSIONS: The advent of digital ureterorenoscopes coupled with laser precision has revolutionized the management of upper urinary tract tumors. The shift from a predominantly disruptive (pre-digital nephroureterectomy) approach to a conservative one has allowed the rate of renal preservation to nearly treble, ensuring effective disease control and significant reduction of surgical morbidity for the patient.

SMART COMMUNICATION (SC404 - SC408)

Chirurgia della IPB ed infezioni delle vie urinarie

SC404

Uroprime: development of a European multicenter nomogram for predicting perioperative infectious risk in urological prosthetic surgery

SC405

The increasing weight of urological infections in international congresses (2020-2025): quantitative trend analysis and paradigm shift towards “microbiota stewardship”

SC406

Managing the unstandardized emergency: a five-

year analysis of clinical and economic burden in Fournier’s gangrene

SC407

Does sepsis risk rise in warm weather? Seasonal variation in infectious complications of obstructive uropathy due to ureteral stones

SC408

Fluoroquinolones, older adults, and gram-negative resistance: national warning signals for uro-infectious stewardship in Italy

SC404**Uroprime: development of a European multi-center nomogram for predicting perioperative infectious risk in urological prosthetic surgery**

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BACKGROUND: Develop and validate a predictive nomogram for infection risk and to evaluate how various intraoperative antibiotic strategies interact with individual risk profiles to facilitate personalized surgical prophylaxis.

METHODS: A multicenter retrospective cohort of 1,078 patients undergoing prosthetic surgery (Penile Prosthesis or Artificial Urinary Sphincter) was analyzed. The dataset was partitioned into development and validation cohorts using a split-sample approach. Two predictive models were constructed: a clinical a priori model and an automated stepwise model. Internal validation was performed using bootstrapping (1,000 repetitions) to estimate optimism and calculate corrected C-indices and calibration slopes. External performance was assessed in the independent split-sample cohort. Finally, a multivariate interaction analysis was conducted to examine the efficacy of different antibiotic classes (Aminoglycosides, Beta-lactams, and Glycopeptides) across the predicted risk spectrum, adjusting for concomitant administrations.

RESULTS: The overall infection rate was 5.5%. The final Clinical Model included: Age, Diabetes Mellitus, Antibiotic Coating, Recent MDR GU infections, and Operative time. In external validation, the Clinical Model demonstrated superior discriminative ability (C-index 0.821) and excellent calibration (slope 1.049; $P=0.909$). DCA confirmed the clinical superiority of the Clinical Model, providing the highest Net Benefit between the 5% and 11% risk thresholds. Interaction analysis revealed that prophylaxis efficacy is highly risk dependent. Aminoglycosides functioned as a robust "risk-shield" significantly neutralizing infection probability as baseline risk increased (interaction coefficient -10.75, $P=0.003$). In contrast, Beta-lactams failed to show a significant interaction with risk ($P=0.626$), while Glycopeptides exhibited a paradoxical positive interaction (coefficient +16.28, $P=0.043$), suggesting inadequate coverage for high-risk patients.

CONCLUSIONS: We developed and validated a robust tool to personalize infection prophylaxis in prosthetic urology. Our findings suggest that "one-size-fits-all" prophylaxis is suboptimal. While standard coverage is sufficient for low-risk individuals, the synergistic addition of Aminoglycosides to Beta-lactams is essential to protect high-risk patients. Conversely, isolated Glycopeptide coverage appears insufficient in managing the complex risk profiles identified by this nomogram.

SC405**The increasing weight of urological infections in international congresses (2020-2025): quantitative trend analysis and paradigm shift towards "microbiota stewardship"**

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BACKGROUND: Urinary Tract Infections (UTIs) represent a constantly growing clinical challenge, exacerbated by the alarming rise in antimicrobial resistance (AMR). This clinical interest is evidenced by the fact that the EAU guidelines on urological infections are currently the second most downloaded overall (after prostate cancer). The primary aim of this study is to quantify whether and how much this growing interest has translated into a proportional increase in the space reserved for the topic "urological infections" in major international congresses over the last five years (2020-2025) compared to the total scientific program. As a secondary objective, the study aims to analyze the qualitative evolution of diagnostic and therapeutic strategies, highlighting the transition from empirical antibiotic use to precision microbiome modulation.

METHODS: A review of scientific programs, abstracts, and session titles from leading urological associations from 2020 to 2025 was conducted. The dataset included contributions from the AUA, EAU, SIU (Società Italiana di Urologia), SIU (Société Internationale d'Urologie), AURO, AEU, and SWISS Association of Urology. Data were categorized by year and dominant keywords (e.g., "COVID-19," "Microbiome/NGS," "Phage Therapy," "Vaccines," "Sepsis Biomarkers").

RESULTS: The quantitative analysis confirmed a progressively and distinctly growing trend in the percentage of space reserved for urological infections in congress programs from 2020 to 2025, directly reflecting the growing clinical concern regarding AMR. Qualitatively, the analysis of over 200 key contributions within these spaces revealed distinct evolutionary phases. The Pandemic Adaptation (2020-2021) with an initial focus on managing urosepsis and stone protocols during the COVID-19 era, with a surge in studies on the impact of surgical delays and antibiotic prophylaxis in limited-resource settings. Between 2021 and 2023 we observed a rapid transition occurred from standard urine culture to Next-Generation Sequencing (NGS) and the study of the "Urobiome"; multiple studies highlighted that the urinary tract is not sterile, identifying dysbiosis, rather than single-pathogen presence, as the true driver of recurrent UTIs. Finally in the period from 2023 to 2025 congresses demonstrate a drastic increase in non-antibiotic therapeutics. Key trends included mucosal vaccines (e.g., MV140), engineered bacteriophage therapy for catheter-associated infections (CAUTI), and intravesical instillations. Furthermore, new biomarkers like Monocyte Distribution Width (MDW) have emerged as reliable predictors for early post-operative sepsis in endourology.

CONCLUSIONS: The 2020-2025 bibliometric analysis confirms that urological congresses are faithfully reflecting the urgency of daily clinical practice: infections occupy an ever-increasing scientific space, parallel to the success of the related guidelines. At the same time, a clear paradigm shift is shown: the focus has moved from simple bacterial eradication to immunomodulation and ecological restoration of the urobiome. For the urologist of 2026, proficiency in molecular diagnostics and non-antibiotic prevention strategies (vaccines, phages) is becoming as essential as surgical skill.

SC406**Managing the unstandardized emergency: a five-year analysis of clinical and economic burden in Fournier's gangrene**

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BACKGROUND: Fournier's gangrene (FG) is a surgical emergency marked by infection-driven necrosis of male genital tissues. It remains a life-threatening condition requiring surgery and intensive care. The absence of standardized management and limited disease awareness contribute to persistently high mortality. This study aims to characterize patients with FG, identify key management flaws, and suggest areas for improvement.

METHODS: This retrospective study included patients treated for FG at our center between January 2020 and June 2025. Diagnosis was based on clinical and histopathological findings. Demographics, age, and comorbidities (Charlson Comorbidity Index, CCI) were recorded. Disease severity was assessed using Simplified Fournier Gangrene Severity Index (SFGSI: hematocrit, serum potassium, creatinine). Treatment data included antibiotic regimen (ABT) and duration, surgical procedures, wound care, urinary or fecal diversion, and length of hospital stay (LHS). Costs were analyzed according to Italian National Health System standards. FG-specific mortality (FGM) rates were assessed, and logistic regression tested for FGM predictors.

RESULTS: 26 male patients met the diagnostic criteria for FG. Most were overweight or obese (65%) and had significant comorbidities (CCI ≥ 3 in 80.8%). Median (IQR) age was 61 (57-74) yrs. At admission, median SFGSI was 2 (IQR 0-3), C-reactive protein 265 mg/L, WBC $14.8 \times 10^9/L$, and lactate 1.53 mmol/L. All underwent surgical debridement (median 2, range 1-14). Vacuum-assisted skin closure was used in 16 (61.5%) cases. Urinary diversion was needed in 17 patients (65.4%) and fecal diversion in 4 (15.4%); 4 retained urinary diversion at 1 year. One patient (3.8%) had temporary perineal urethrostomy with later urethroplasty, and another (3.8%) underwent scrotal reconstruction with a split-thickness thigh graft. Median hospital stay was 21 days (12-41); 2 patients (7.7%) required ICU care. First-line antibiotics were piperacillin-tazobactam in 11 (42.3%) and meropenem in 9 (34.6%); 16 (61.5%) required antibiotic change or escalation due to poor response. Median ABT duration was 21 days (11.5-37.5). At discharge, 17 (65.4%) were off ABT; 9 continued oral therapy. Orchiectomy was performed in 8 (30.8%). Median hospitalization cost was €24,334 (12,079-42,197), increasing with disease severity. In-hospital mortality rate was 7.7%. Median FGM predicted probabilities was 16.7%, increasing with higher SFGSI score and age (range from 3% to 53%).

CONCLUSIONS: FG demands intensive, resource-heavy management, with outcomes driven by comorbidities and disease severity. The high need for multiple debridement, prolonged antibiotic therapy, and diversion procedures underscores the absence of a standardized treatment pathway. Implementing structured, multidisciplinary protocols with early risk stratification may improve survival and optimize resource use.

gnani, F. Longo, E. De Lorenzis, G. Albo, E. Montanari, L. Boreri (Milan)

BACKGROUND: Epidemiological studies have shown a seasonal variation in the frequency of acute stone presentations, likely related to dehydration and increased levels of vitamin D and calciuria during warmer periods. However, the relationship between seasonal variation and infectious complications in obstructive uropathy has not been investigated. This study aimed to investigate seasonal variation in infectious complications in patients with obstructive uropathy caused by ureteral stones.

METHODS: We collected clinical, laboratory and radiological data from 303 consecutive patients presenting to the emergency department (ED) for obstructive uropathy due to ureteral stones. All patients who underwent urinary decompression with a ureteral stent or percutaneous nephrostomy between January 2016 and September 2025 were included. Comorbidities were scored with the Charlson Comorbidity Index (CCI). Each patient underwent a CT before surgery. Clinical and stone characteristics were collected in each case. Seasons were categorized as: warm weather (WW, spring-summer) and cold weather (CW, autumn-winter). Sepsis was defined as an acute increase in ≥ 2 SOFA points and positive blood or urine cultures. Descriptive statistics and logistic regression models were used to identify factors associated with infectious complications.

RESULTS: In the whole cohort, median (IQR) age and stone diameter were 60 (47-74) years, and 6.7 (4.9-9.1) mm, respectively. Female patients were 153 (50.5%) and a retrograde ureteral stent was placed in 269 (90%) cases. A grade III-IV hydronephrosis was found in 112 (38.5%) patients and sepsis occurred in 82 (27.1%) cases. ED access occurred during WW and CW in 163 (53.8%) and 140 (46.2%) cases, respectively. Patients treated for obstructive uropathy during WW time were older (62 vs. 59 years, $P=0.02$), had higher baseline serum creatinine (1.6 vs. 1.1 mg/dL, $P=0.01$) and higher rates of preoperative hypotension (54.3% vs. 26.2%, $P=0.01$) compared to those in CW. Sepsis and ICU admission were significantly more frequent during WW compared with CW (64.6% vs. 20.7%, $P<0.001$; 17.8% vs. 9.3%, $P=0.02$, respectively). Hospitalization time was longer during WW (7 vs. 5 days, $P=0.03$). Multivariable logistic regression analysis confirmed that WW (OR 2.2, $P=0.01$) was an independent predictor for sepsis, even after accounting for age, stone volume, c-reactive protein and max body temperature.

CONCLUSIONS: WW seasons are associated with a significantly higher risk of sepsis and more severe clinical presentations in patients undergoing urinary decompression for obstructive ureteral stones. Seasonal factors, potentially related to dehydration, metabolic changes, and increased bacterial proliferation, may play a key role in the pathophysiology of infection in this setting, highlighting the need for increased clinical vigilance during warmer months.

SC407

Does sepsis risk rise in warm weather? Seasonal variation in infectious complications of obstructive uropathy due to ureteral stones

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SC408

Fluoroquinolones, older adults, and gram-negative resistance: national warning signals for uro-infectious stewardship in Italy

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BACKGROUND: To assess outpatient fluoroquinolone use in population groups with high uro-infectious relevance and to contextualise these prescribing patterns against resistance signals in major Gram-negative uropathogens in Italy.

METHODS: We performed a secondary analysis of the 2024 AIFA National Report on antibiotic use in Italy. We extracted data on fluoroquinolone prescribing in women aged 20-59 years and adults aged ≥ 75 years, including prevalence of use, consumption expressed as DDD/1000 inhabitants/day, temporal variation *versus* 2023, and geographic variability. We also reviewed the ecological correlations reported between antibiotic consumption and resistance in *Escherichia coli* and *Klebsiella pneumoniae*.

RESULTS: In 2024, among women aged 20-59 years, fluoroquinolone use prevalence was 4.9% and consumption was 1.0 DDD/1000 inhabitants/day. Compared with 2023, prevalence was stable, whereas consumption decreased by 7.8%. Marked regional heterogeneity emerged, with approximately

two-fold higher exposure in Southern *versus* Northern Italy (6.4% vs. 3.5%; 1.3 vs. 0.7 DDD/1000 inhabitants/day). In adults aged ≥ 75 years, prevalence declined from 13.4% in 2021 to 12.8% in 2024, while consumption decreased from 3.7 to 3.3 DDD/1000 inhabitants/day; however, this subgroup remained the most exposed, especially in Southern Italy (19.5%; 5.2 DDD/1000 inhabitants/day). At the ecological level, 2024 national data showed strong positive correlations between antibiotic consumption and resistance for *E. coli*/fluoroquinolones (Pearson's $R=0.881$; $P<0.001$) and *K. pneumoniae*/fluoroquinolones ($R=0.793$; $P<0.001$).

CONCLUSIONS: Despite a recent reduction in consumption, fluoroquinolone exposure remains substantial in patient groups frequently intersecting urological care, particularly older adults, and parallels resistance signals in major uropathogens. These findings support targeted antimicrobial stewardship strategies in uro-infectious pathways, especially in elderly patients and high-use geographic areas.

SMART COMMUNICATION (SC409 - SC416)

Identità di genere

SC409

International Delphi consensus on feminizing genital surgery in assigned male at birth individuals

SC410

International Delphi consensus on masculinizing genital surgery for assigned-female-at-birth individuals

Sc411

A long learning curve demonstrates the complexity of gender-affirming inflatable penile prosthesis insertion

SC412

Surgical experience, device brand, and the number of cylinders affect infection rates after gender-affirming penile prosthesis insertion

SC413

Early outcomes of zephyr penile prosthesis implantation after musculocutaneous latissimus dorsi phalloplasty in transgender men

SC414

Urethral complications after musculocutaneous latissimus dorsi phalloplasty in transmen

SC415

Musculocutaneous latissimus dorsi free flap for gender affirming phalloplasty: ten year surgical experience and outcomes

SC416

Surgical outcomes of genital reconstructive surgery using the anterolateral thigh (ALT) flap: results from our center

SC409**International Delphi consensus on feminizing genital surgery in assigned male at birth individuals**

M. Pezzoli, M. Lo Re, E. Fuligni, V. Pizziconi, M. Falcone, M. Preto, M. Capece, M. Rizzo, G. Mantica, F. Chierigo, P. Vicini, F. Vedovo, M. Vetterlein, F. Xavier Madec, P. Neuville, W.G. Lee, S. Morgenstern, M. Waterloos, M. Djordjevic, W. Verla, L. Bialek, J.D. Tinajero, J. Scherñuk, T. Ludwig, S. Riechardt, L. Szyper, M. Wenk, J. Heß, J. Bohr, A. Minervini, A. Cocci (Florence)

BACKGROUND: Feminizing genital surgery represents a key component of gender-affirming care for individuals assigned male at birth. Although existing guidelines, including the Standards of Care version 8 from the World Professional Association for Transgender Health, outline general eligibility criteria, they provide limited practical recommendations regarding specific procedures such as vaginoplasty and vulvoplasty without vaginal depth. The aim of this study was to establish an international consensus among surgeons on indications, contraindications, and perioperative management of feminizing genital surgery using a Delphi methodology.

METHODS: A two-round online Delphi survey conducted between May and July 2025 was followed by a final consensus meeting in September 2025. A total of twenty-seven urologic surgeons with expertise in gender-affirming genital surgery participated. The survey investigated patient selection criteria, risk factors, hormone therapy management, counseling, and perioperative care. Consensus was predefined as at least 75% agreement or disagreement. Results were summarized using descriptive statistics.

RESULTS: Twenty-six experts (96%) completed the first round, and twenty-four (89%) completed the second. Agreement was reached on sixty-three out of sixty-eight statements. Advanced age alone was not considered a contraindication, but should be assessed in the context of associated comorbidities. Body mass index above 24.9 kg/m², diabetes, smoking, and cardiovascular disease were identified as relevant risk factors for postoperative complications. Psychiatric disorders and spinal cord injury were regarded as relative contraindications for both vaginoplasty and vulvoplasty. Previous pelvic surgery or radiotherapy, as well as a Charlson Comorbidity Index of three or greater, were considered relative contraindications for vaginoplasty but not for vulvoplasty. No consensus was reached on the need to discontinue hormone therapy prior to surgery, nor on the optimal timing for its interruption and resumption. Preoperative counseling was deemed essential to ensure adherence to wound care and dilation protocols, as well as to inform patients about potential complications such as infection, thromboembolism, bleeding, and bowel injury. Recommended perioperative measures included genital hair removal, prophylaxis with low molecular weight heparin, postoperative dressings, and urinary catheterization for three to five days after surgery. Pelvic rehabilitation before and after surgery was also advised. A dilation regimen consisting of three daily sessions of approximately thirty minutes each was recommended. Overall, surgery was associated with improved quality of life, including in older or comorbid individuals, although functional outcomes and healing may be less optimal in this population.

CONCLUSIONS: This study provides the first international Delphi consensus among surgeons on the indications and perioperative management of feminizing genital surgery

in individuals assigned male at birth. The findings highlight the importance of individualized assessment based on comorbidities rather than age alone, as well as structured counseling and multidisciplinary care. Areas of uncertainty, particularly regarding hormone therapy management, require further investigation. These results may support the development of standardized, evidence-based clinical pathways.

SC410**International Delphi consensus on masculinizing genital surgery for assigned-female-at-birth individuals**

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BACKGROUND: Genital gender-affirming surgery is a fundamental component of psycho-physical well-being for individuals assigned female at birth. The two most common masculinizing genital surgery procedures are metoidioplasty and phalloplasty, which may be performed using different types of flaps. Current guidelines, including the Standards of Care version 8 from the World Professional Association for Transgender Health, provide only general recommendations based on persistent gender incongruence, informed consent capacity, and prior hormonal therapy. However, there is a lack of standardized evidence-based criteria regarding indications, contraindications, and risk thresholds. As a result, patient selection and surgical planning remain largely dependent on individual surgical expertise. This Delphi consensus study aimed to establish expert agreement on indications, contraindications, and management of complications in masculinizing genital surgery.

METHODS: Two rounds of web-based Delphi questionnaires were conducted between May and July 2025, focusing on eligibility criteria, surgical risk factors, and complication management in individuals assigned female at birth. Consensus was defined as at least seventy-five percent agreement or disagreement. Results were analyzed using descriptive statistics. A final online meeting was held to present aggregated results, discuss unresolved statements, and finalize consensus decisions.

RESULTS: Twenty-seven international experts participated, with response rates of 96% and 89% in the first and second rounds, respectively. Consensus was achieved on seventy-five of eighty-three statements. Participants agreed that no absolute upper age limit should be applied; however, comorbidities, particularly in older patients, require careful evaluation. A body mass index above 24.9 kg/m² was identified as a relevant risk factor, while diabetes, smoking, and cardiovascular disease were also associated with increased postoperative complications. Severe psychiatric disorders that are not adequately controlled, as well as spinal cord injury, were considered relative contraindications. The panel agreed that masculinizing genital surgery significantly improves perceived quality of life, although functional and aesthetic outcomes are highly dependent on tissue quality and postoperative healing. No consensus was reached regarding the optimal timing for interruption or resumption of hormone

therapy. Secondary surgical procedures remain indicated in cases of neophallus necrosis or complications related to penile prostheses, even in older or comorbid patients, although risks of infection and erosion are increased. A staged reconstructive approach was recommended for complications involving urethral reconstruction.

CONCLUSIONS: This Delphi consensus provides the first structured, expert-derived framework to guide patient selection and complication management in masculinizing genital surgery. The findings emphasize the importance of an individualized, multidisciplinary approach, particularly in older patients and those with comorbidities, including preoperative evaluation by psychiatry and endocrinology specialists.

SC411

A long learning curve demonstrates the complexity of gender-affirming inflatable penile prosthesis insertion

A. Gobbo, A.N. Christopher, D.J. Ralph, W.G. Lee (London)

BACKGROUND: Inflatable penile prosthesis (IPP) insertion in transgender and gender diverse (TGD) individuals is challenging even for high-volume implanters. Rates of infection, mechanical failure and revision are significantly higher than in cisgender men due to the lack of corpora cavernosa and other anatomical landmarks. The learning curve (LC) for this procedure has never been described. The aim was to construct outcome-based LCs for primary gender-affirming IPP insertion.

METHODS: 694 patients underwent gender-affirming IPP insertion at a single tertiary centre between 2001 and 2024. The case number was used as a proxy for surgical experience. LCs were developed for pre-specified outcomes in which surgical experience was identified as a determining factor. These included: revision surgery for any cause (overall survival from surgery), revision for dissatisfaction with the device, and explant for infection. The resulting database included 473 patients with a minimum 5-year follow-up (FU). Multivariable logistic regression models were fitted, including surgical experience, IPP model, number of cylinders, and primary surgeon. Adjusted predicted probabilities of each event were derived to illustrate risk trends across the learning process. Cluster-robust standard errors were applied. Subsequently, a risk-adjusted cumulative sum (RA-CUSUM) analysis was performed for each outcome to visually represent the learning trajectory and to identify the peak proficiency point (PPP- defined as the case number by which procedural competence was achieved).

RESULTS: Surgical experience was an independent predictor for revision surgery and revision for dissatisfaction (OR=0.99, $P<0.001$; OR=0.99, $P<0.001$, respectively). Adjusted probabilities for both outcomes showed a consistent downward trend with increasing case number, indicating progressive risk reduction as experience improved. The adjusted probability for revision surgery decreased from 65% to 33%. Similarly, revision for dissatisfaction decreased from 32% to 15%. RA-CUSUM analysis identified the PPP at case 311 for revision surgery and 261 for revision due to dissatisfaction. The curves show a steep increase up to approximately case 80, followed by a slight decrease, then a slow but progressive increase up to the PPP, and finally a progressive decrease towards the baseline risk.

CONCLUSIONS: This is the first study to define and describe outcome-based LCs for IPP insertion in TGD individuals. Outcomes depend on surgeon experience, with a high case number required to reach the PPP. These findings will inform the benchmark for centres initiating gender-affirming surgical programmes and for ongoing quality assessment and improvement.

SC412

Surgical experience, device brand, and the number of cylinders affect infection rates after gender-affirming penile prosthesis insertion

A. Gobbo, N.A. Christopher, D.J. Ralph, W.G. Lee (London)

BACKGROUND: Penile prosthesis insertion as part of masculinising gender-affirming surgery carries a substantially higher risk of infection than in cisgender patients. This study reports outcomes from the largest cohort published to date.

METHODS: Patients were identified from a prospective database established in 2001. Complications, including infection, erosion, and other causes of revision, were recorded. Device infection risk was assessed using multivariable Cox regression with surgeon-clustered standard errors. Adjusted predicted probabilities of infection were then plotted as survival functions.

RESULTS: A total of 694 patients were included, with a median follow-up of 4.67 years. Boston Scientific devices were placed in 304 patients (298 CX and 6 CXR, 43.8%), while Coloplast devices (all Titan Zero Degree) were placed in 390 patients (56.2%). Most patients received a single-cylinder implant (523, 75.3%) and underwent a radial forearm free-flap phalloplasty (506, 72.9%). Overall, 69 devices (9.8%) required explantation because of infection. Infection occurred in 8.8% of Boston Scientific devices and 10.7% of Coloplast devices ($P=0.410$). After adjustment for covariates, surgical experience, device brand, and number of cylinders implanted were independent predictors of infection (HR 0.997, $P=0.001$; HR 2.12, $P=0.005$; and HR 1.70, $P=0.018$, respectively). Greater surgical experience and implantation of a single cylinder were associated with a lower probability of infection for both brands, while Boston Scientific devices showed an overall lower risk.

CONCLUSIONS: In the largest series reported to date, the cumulative probability of infection after gender-affirming penile prosthesis insertion is significantly associated with device brand, surgical experience, and number of cylinders implanted.

SC413

Early outcomes of zephyr penile prosthesis implantation after musculocutaneous latissimus dorsi phalloplasty in transgender men

B. Stojavonic, B. Bucca, M. Bencic, S. Pusica, M. Bizic, M. Djordjevic (Belgrade)

BACKGROUND: A major goal of neophalloplasty is to enable penetrative sexual intercourse through implantation of either malleable or inflatable penile prostheses. However,

the absence of corpora cavernosa and tunica albuginea in the neophallus makes prosthetic implantation particularly challenging, with increased risks of malposition, protrusion, and device failure. Recently developed penile prostheses specifically designed for transgender men, incorporating a fixation plate to improve anchorage, may offer a promising solution. We evaluated the early surgical and functional outcomes of malleable ZSI 100 FTM and inflatable ZSI 475 penile prostheses after musculocutaneous latissimus dorsi free flap phalloplasty in transgender men.

METHODS: Between January 2024 and June 2025, 13 transgender men aged 20 to 44 years (mean age 29 years) underwent implantation of a Zephyr penile prosthesis following musculocutaneous latissimus dorsi free flap phalloplasty. A dorsal approach was used in all cases. The pubic periosteum was exposed by sharp and blunt dissection, and a space for the prosthesis was created within the neophallus posterior to the muscle component of the flap. After device sizing, the fixation plate was anchored to the pubic bone using four 0 Prolene sutures. The cylinder was then inserted and secured within the neophallus. In patients receiving an inflatable device, the pump was placed in the left hemiscrotum and the reservoir in the left inguinal canal. Postoperative complications were assessed descriptively. Functional outcomes and patient reported sexual performance were evaluated using the International Index of Erectile Function 5 questionnaire.

RESULTS: Follow-up ranged from 3 to 17 months, with a mean duration of 9 months. Malleable ZSI 100 FTM and inflatable ZSI 475 prostheses were implanted in 8 patients (61.5%) and 5 patients (38.5%), respectively. No intraoperative complications were recorded. No major postoperative complications, including infection, extrusion, or device loss, were observed during follow-up. One patient reported temporary difficulty with pump manipulation, which did not require surgical revision. Nine patients reported engaging in penetrative sexual intercourse, all with satisfactory penetration. Among these sexually active patients, the mean IIEF 5 score was 21.1, consistent with a high level of functional satisfaction.

CONCLUSIONS: Zephyr penile prostheses specifically designed for transgender men appear to represent a promising option for prosthetic implantation after musculocutaneous latissimus dorsi phalloplasty. In this preliminary series, implantation was feasible and was associated with encouraging early surgical and functional outcomes. Larger multicenter series and longer follow-up are needed to better define device durability, complication profile, and reproducibility across different phalloplasty techniques.

SC414

Urethral complications after musculocutaneous latissimus dorsi phalloplasty in transmen

M. Bucca, B. Stojanovic, M. Bencic, S. Pusica, M. Bizic, M. Djordjevic (Belgrade)

BACKGROUND: An ideal solution for phalloplasty in transmen still does not exist, and urethroplasty results in high rate of complications. We have evaluated outcomes of staged urethral reconstruction in musculocutaneous latissimus dorsi (MLD) free flap phalloplasty.

METHODS: Between January 2013 and January 2025, 147 transgender men, aged 18-53 years (mean 27 years) underwent total MLD phalloplasty. In 111 patients phalloplasty

was performed as a primary procedure, while in 36 patients it was done after previously performed metoidioplasty. Urethral reconstruction was performed as a staged procedure. In the first stage, simultaneously with total phalloplasty, urethra was lengthened to the maximum extent using all available vascularized hairless tissue (vaginal flap, labia minora flaps and clitoral skin flap) and incorporated into the neophallus. Additional urethral lengthening was achieved in the following stages using buccal mucosa grafts.

RESULTS: Follow-up period in our series ranged from 18 to 175 months (mean 96 months). Total length of the neourethra reconstructed during the first stage was measured during the surgery, and ranged from 11.1 to 20.7 cm (mean 14.8 cm). Neophallic urethral lengthening by either one or two-stage buccal mucosa graft tubularization was performed in 92 patients (62.6%). Satisfactory voiding in standing position was achieved in totally 95 patients (64.6%). Urethral fistula occurred in 28 patients (19%) and healed spontaneously in 8 patients, while the remaining patients required revision surgery. Urethral stricture developed in 33 patients (22.4%), and there were 13 strictures in the neophallic segment and 20 cases of bulbar strictures. All strictures required surgical repair, in 22 patients urethroplasty with buccal mucosa graft was performed. Fistula between remnant vaginal cavity and neourethral lumen was noted in 21 patients (14.3%). Vaginal remnant was excised through perineal approach and urethral opening was closed and covered with local vascularized tissue to prevent fistula formation.

CONCLUSIONS: The musculocutaneous latissimus dorsi (MLD) phalloplasty combined with urethral lengthening can provide satisfactory esthetic and functional outcomes. Although urethral complication rate is still high, use of vascularized flaps for neourethra has satisfactory outcomes.

SC415

Musculocutaneous latissimus dorsi free flap for gender affirming phalloplasty: ten year surgical experience and outcomes

M. Bizic, B. Bucca, B. Stojanovic, S. Pusica, J. Ducic, M. Bencic, M. Djordjevic (Belgrade)

BACKGROUND: Among the various free flaps described for neophallus construction in gender affirmation surgery, none has emerged as an ideal reconstructive solution. The musculocutaneous latissimus dorsi free flap offers several potential advantages, including reliable vascularity, adequate tissue bulk, and the possibility of staged urethral and prosthetic reconstruction. We report our experience and surgical outcomes in patients undergoing phalloplasty with a musculocutaneous latissimus dorsi free flap in female to male gender affirmation surgery.

METHODS: Between January 2015 and May 2025, 129 transgender men aged 20 to 53 years (mean age 24 years) underwent total phalloplasty using a musculocutaneous latissimus dorsi free flap. Urethral lengthening during the first stage was performed using a combination of vaginal flap, labia minora flaps, and clitoral skin flap. Testicular implants of appropriate size were inserted into the neoscrotum. Penile prosthesis implantation, additional urethral lengthening, and glans reshaping were carried out in subsequent stages according to individual reconstructive planning and postoperative evolution.

RESULTS: Mean follow-up was 43 months, ranging from 13 to 137 months. Flap related complications included one partial flap necrosis and two total flap necroses. Mean neophallus dimensions were 14.6 cm in length and 12.4 cm in girth. The total length of the reconstructed urethra achieved during the first stage ranged from 13.4 to 21.7 cm, with a mean length of 15.8 cm, reaching the proximal third or mid shaft of the neophallus in 91% of cases. Satisfactory voiding in the standing position was achieved in all patients. Urethral complications included six fistulas and two strictures, all successfully managed with minor revision procedures. Penile prostheses were subsequently implanted in 61 patients, including 39 malleable and 22 inflatable devices.

CONCLUSIONS: The musculocutaneous latissimus dorsi free flap represents a valuable option for phalloplasty in female to male gender affirmation surgery. It provides a reliable and well vascularized tissue substrate, allows satisfactory urethral reconstruction, and offers adequate support for later penile prosthesis implantation. Its versatility and safety profile make it a robust reconstructive option in appropriately selected patients.

SC416

Surgical outcomes of genital reconstructive surgery using the anterolateral thigh (ALT) flap: results from our center

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BACKGROUND: Phalloplasty represents a complex procedure within the field of genital reconstructive and gender-affirming surgery in AFAB (assigned female at birth) patients. The anterolateral thigh (ALT) flap has been proposed as an alternative to the radial forearm flap (RFF), in order to reduce

donor-site visibility. The aim of this study is to analyze our center's experience with ALT flap phalloplasty, evaluating patient characteristics, etiology, and surgical outcomes.

METHODS: We retrospectively evaluated data from patients who underwent ALT flap phalloplasty between January 2020 and May 2025. Clinical data were collected from patients' medical records. Surgical outcomes evaluated included operative time, length of hospital stay, neophallus length, and postoperative complications classified according to the Clavien-Dindo system.

RESULTS: A total of 16 patients were included. 2 (10%) patients were smokers, 4 (25%) had arterial hypertension, and none had diabetes or chronic renal insufficiency. The primary indication was gender genital affirming surgery in AFAB patients (12, 75%), followed by genital reconstruction after penectomy due to malignancy or trauma (3, 18%) and congenital micropenis (1/16, 7%). In 3 cases (18%), surgery was performed as salvage phalloplasty after previous failed procedures. In all patients, the ALT flap was based on a single vascular pedicle, corresponding to the descending branch of the lateral circumflex femoral artery. The median neophallus length was 13 cm (IQR 12-14). Median operative time was 288.5 minutes (IQR 260-310), while the mean length of hospital stay was 9.7 days (IQR 8-12). No intraoperative complications occurred. Early postoperative complications were observed in 6 patients (37%), mostly classified as Clavien-Dindo grade I (5/6). Only one major complication (grade IIIb) was recorded, requiring surgical revision with neophallus amputation. In one case (1/16, 7%), complete phallic reconstruction with simultaneous urethral creation using the "tube-in-tube" technique was performed.

CONCLUSIONS: ALT flap phalloplasty represents a valid alternative to RFF phalloplasty across different etiologies, including salvage cases. As a pedicled rather than free flap, it does not require microvascular anastomosis. The outcomes observed at our center are consistent with those reported in the literature, with acceptable operative times, relatively short hospital stay, and a low rate of major complications.

Malattia di La Peyronie ed andrologia chirurgica ed infertilità

SC417

Intralesional platelet-rich plasma for chronic Peyronie's disease: a single-center retrospective cohort study

SC418

Intraplaque injections of perovial for the treatment of chronic phase of Peyronie's disease: a retrospective single-center experience

SC419

Mini-invasive surgical treatment for Peyronie's disease with mechanically processed lipoaspirates as regenerative therapy

SC420

Penile girth reconstruction with autologous dermal graft: balancing aesthetics, safety, and reproducibility

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Congenital penile curvature is associated with larger penile dimensions: a matched case-control study

SC422

Missed karyotype abnormalities and Y-chromo-

some microdeletions in male infertility: trial simulation challenges current european association of urology guidelines genetic testing thresholds

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Second semen analysis after first assessment: challenging the current American Urological Association Guidelines using a trial emulation design study

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Phenotyping testicular reserve: what real-life data reveal

SC425

Sperm retrieval outcomes in men with y chromosome AZFC microdeletion undergoing testicular sperm extraction: real-world data from a large multicenter cohort

SC426

Robot-assisted vasovasostomy for vasectomy reversal: updated functional and fertility outcomes from a tertiary referral robotic centre

SC417**Intralesional platelet-rich plasma for chronic Peyronie's disease: a single-center retrospective cohort study**

C. Manfredi, S. Tammaro, A. Rubinacci, L. Spirito, L. Romano, C. Quattrone, F. Bottone, M. Stizzo, M. Terribile, P. Coppola, D. Arcaniolo, M. De Sio (Naples)

BACKGROUND: Peyronie's disease (PD) is a chronic fibrotic disorder of the tunica albuginea causing penile deformity and sexual dysfunction. Platelet-rich plasma (PRP) has been proposed as a regenerative therapy with potential disease-modifying properties, but evidence in chronic PD is scarce. This study evaluated the efficacy and safety of intralesional PRP injections in men with stable PD.

METHODS: A single-center retrospective cohort study was conducted including men with chronic PD treated with three weekly intralesional PRP injections (April 2022-April 2025). Inclusion required curvature stability for ≥ 6 months and absence of prior PD therapy. The primary outcome was change in penile curvature at 4 weeks post-treatment. Secondary outcomes included plaque thickness (ultrasound), erectile function (IIEF-5), and safety (Clavien-Dindo grading).

RESULTS: Thirty-six men (mean age 61.2 ± 10.4 years) completed treatment. Mean penile curvature decreased from $30.5 \pm 7.3^\circ$ to $24.2 \pm 8.3^\circ$ ($\Delta = -6.3^\circ$, 95% CI -7.7 to -5.3 ; $P < 0.001$); 25% achieved a $\geq 10^\circ$ reduction. Mean plaque thickness declined from 3.25 ± 0.69 mm to 2.91 ± 0.76 mm ($\Delta = -0.34$ mm; $P < 0.001$). IIEF-5 increased modestly ($+1.1$; $P = 0.142$). Only mild, transient adverse events occurred (pain 5.6%, hematoma 2.8%).

CONCLUSIONS: Intralesional PRP was safe and yielded statistically significant but modest reductions in penile curvature and plaque thickness in chronic PD. Clinically meaningful improvement occurred in a minority of patients. These findings support keeping PRP investigational pending well-designed randomized controlled trials with standardized protocols and longer follow-up.

SC418**Intraplaque injections of perovial for the treatment of chronic phase of Peyronie's disease: a retrospective single-center experience**

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BACKGROUND: Hyaluronic acid (HA) is highly concentrated in the tunica albuginea. Current literature supports the efficacy of intraplaque injections of HA. To our knowledge Perovial (IBSA Italia, Institut Biochimique SA, Lodi, Italy) is the first HA approved for the acute phase Peyronie's disease (PD). The aim of this study is to evaluate the efficacy and safety of Perovial not only in the acute phase of PD, but also in patients affected by the chronic phase. Additionally, the study compares results between the two groups.

METHODS: We retrospectively collected data from June 2025 to April 2026. Patients were stratified by PD phase (group 1: acute; group 2: chronic). Penile curvature (after intracavernosal prostaglandin E1), International Index of Erectile Function (IIEF), and PD Questionnaire (PDQ, Symptom Bother domain) were assessed at baseline, week 8, and week 20. Validated Italian versions were used. Patients with ventral curvature or fully calcified plaques were excluded.

All patients were scheduled for eight intralesional HA injections every two weeks with ring block anesthesia. In group 2, treatment was discontinued at week 8 if no improvement was observed; responders and all group 1 patients completed treatment. Vacuum therapy and penile stretching were recommended between injections.

RESULTS: 62 patients were included: 18 in group 1 (mean age of 57 years, a mean baseline penile curvature of 57.7° , and a mean disease duration of 4 months) and 44 patients in group 2 (mean age of 57 years, a mean baseline penile curvature of 53° , and a mean disease duration of 20 months). At study end, 15 patients (83%) in group 1 and 36 patients (81%) in group 2 reported a significant improvement in penile curvature [mean curvature 44° in group 1 and 46° in group 2 ($P < 0.01$)]. Significant improvements were also observed in all domains of the International Index of Erectile Function (IIEF) and in the Symptom Bother domain of the PDQ questionnaire. No statistically significant differences were observed between the two groups regarding penile curvature improvement and IIEF scores. However, a statistically significant difference was observed in the Symptom Bother domain, with better outcomes in the group 2 ($P < 0.01$). One patient experienced penile hematoma, resolved spontaneously, and fifteen patients reported ecchymosis likely due to the local anesthesia.

CONCLUSIONS: This study has several limitations, including the relatively small sample size and its retrospective design. However, preliminary data suggest that treatment with Perovial not only shows good efficacy and safety in the acute phase of PD, but also shows promising results in the chronic phase of the disease. These findings should be considered preliminary and further studies with larger sample sizes and prospective designs are required to confirm these results.

SC419**Mini-invasive surgical treatment for Peyronie's disease with mechanically processed lipoaspirates as regenerative therapy**

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BACKGROUND: Peyronie's disease (PD) is an acquired disorder of the penile tunica albuginea characterized by fibrous and calcified lesions. Mechanically processed lipoaspirates (MPLs), such as microfat (MF) and nanofat (NF), concentrate adipose-derived stem cells, known for their anti-inflammatory, anti-fibrotic, and regenerative properties. MPLs have shown promise in treating scars and atrophic conditions and may address chronic lesions in the tunica albuginea during PD's chronic phase. This study evaluates the safety and efficacy of MPLs in PD treatment.

METHODS: A pivotal prospective study (2018-2024) on consecutive PD patients treated with NF (NF group, NF-G) or MF (MF group, MF-G) was conducted. Eligible pts were men aged 18-80 with disease duration ≥ 6 months, penile deformity, palpable plaques, and recent sexual activity. Exclusion criteria included severe drug-resistant erectile dysfunction, low BMI, prior surgery, or inability to follow-up. Preoperative assessment included history, exam, ultrasound, erection photographs, and IIEF-5 questionnaire. Plaque volume and curvature were measured using imaging and intraoperative goniometry. Procedures were performed under spinal anesthesia with fat harvested from a donor area. MPLs were prepared by mechanical processing of adipose tissue using syringe systems and

filters and was injected into plaques and tunica albuginea with remodeling massage. Postoperative care included massage, vacuum device use, and delayed resumption of sexual activity. Outcomes at 3 months included curvature, symptoms, complications, and patient satisfaction. Follow-up included curvature evaluation, IIEF-5 scoring, and patient-reported outcomes.

RESULTS: A total of 59 patients were enrolled: NF-G = 26, MF-G = 33. In both groups penile curvature and erectile function significantly improved. MF-G presented a more reduction in curvature degree (-15° vs. -10° ; $P=0.04$) and higher satisfaction scores (median 7 vs. 4; $P<0.001$) compared to NF-G. IIEF-5 scores increased by 3 points (MF-G) and 2 points (NF-G), with no significant difference. No significant peri- and post-operative complications were observed.

CONCLUSIONS: MPLs, particularly MF, represent a safe, minimally invasive option for PD treatment, providing outcomes comparable to collagenase with no complications than surgery. Future studies should refine MPL protocols, personalize therapies, and assess long-term benefits.

SC420

Penile girth reconstruction with autologous dermal graft: balancing aesthetics, safety, and reproducibility

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BACKGROUND: Penile girth enhancement remains one of the most debated areas in aesthetic and reconstructive andrology, with numerous techniques lacking long-term data and standardization. We report outcomes of a reproducible autologous dermal graft technique aimed at achieving stable girth augmentation with minimal morbidity.

METHODS: From January 2014 to May 2019, 34 men (mean age 29, range 22-39) with penile dysmorphism underwent girth enhancement using autologous dermal grafts harvested from the gluteal fold. After harvesting, the dermal graft was defatted, contoured, and symmetrically wrapped around the penile shaft beneath the dartos fascia, anchored to Buck's fascia close to the urethral plane to ensure uniform expansion. Penile circumference was measured in the flaccid state preoperatively and 6 months postoperatively.

RESULTS: Mean follow-up was 32 months (range 6-70). Mean increase in penile girth was 1.02 ± 0.26 cm (range 0.6-2.5 cm). Postoperative complications included donor-site hematoma ($N=3$) and partial penile skin necrosis ($N=2$), all resolved conservatively. Patient satisfaction was 94% (32/34); two patients underwent additional enlargement for subjective undercorrection.

CONCLUSIONS: Penile girth enhancement using autologous dermal grafts is a safe, effective, and reproducible procedure offering stable circumferential gain and excellent cosmetic outcomes. When performed in selected patients, this technique provides durable results with high satisfaction and low complication rates.

SC421

Congenital penile curvature is associated with larger penile dimensions: a matched case-control study

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BACKGROUND: Clinical observation has long suggested that men with congenital penile curvature (CPC) may present with larger penile dimensions compared with the general population. However, this presumed association has never been objectively evaluated. Clarifying whether CPC is linked to increased penile size may contribute to a more accurate morphometric characterization of this condition, improve preoperative counselling, and refine reference standards for normative penile measurements.

METHODS: This single-center, retrospective, matched case-control study was performed at a tertiary referral andrology center. Consecutive men diagnosed with lifelong penile curvature $\geq 30^\circ$, in the absence of plaques, fibrosis, or history of penile trauma, were included. Diagnosis and curvature assessment were performed using standardized methods, either through pharmacologically induced erection or validated self-photography according to the Kelami method. Stretched penile length (SPL) was measured dorsally from the pubo-penile junction to the tip of the glans under mild traction. Mid-shaft penile circumference was measured in the flaccid state. The primary outcome was SPL, while mid-shaft penile circumference was considered a secondary outcome.

RESULTS: A total of 50 men with CPC and 100 matched controls were included in the analysis. Men with CPC exhibited significantly greater SPL compared with controls, with a mean within-set difference of 1.82 cm (95% CI: 1.48-2.16; $P<0.001$). Mid-shaft penile circumference was also significantly larger in the CPC group, with a mean difference of 0.72 cm (95% CI: 0.48-0.96; $P<0.001$). Furthermore, SPL differences increased with curvature severity, ranging from 1.65 cm in men with curvature $<45^\circ$ to 1.96 cm in those with curvature $\geq 45^\circ$, suggesting a positive association between penile size and curvature magnitude.

CONCLUSIONS: This study provides the first objective evidence that congenital penile curvature is associated with greater penile dimensions, defining CPC as a distinct morphometric phenotype. Awareness of this association may enhance surgical counselling, and normative references.

SC422

Missed karyotype abnormalities and Y-chromosome microdeletions in male infertility: trial simulation challenges current european association of urology guidelines genetic testing thresholds

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BACKGROUND: Current EAU guidelines recommend karyotyping for infertile men with sperm concentrations <5 million/mL and Y-chromosome microdeletion testing for ≤ 1 million/mL, with consideration for testing between 1-5 million/mL. The proportion of genetic diagnoses missed under guideline-adherent *versus* universal screening remains unknown. We used synthpop-based trial simulation to quantify diagnostic yield loss, providing robust estimates with confidence intervals unattainable from observational data alone.

METHODS: We analyzed 641 consecutive white-Europe-

an infertile men who all underwent comprehensive genetic screening (karyotype and Y-microdeletion testing). We employed trial simulation across 1000 iterations to model three scenarios: 1) testing all; 2) inclusive guideline adherence (Y-microdeletions for <5 million/mL); and, 3) strict guideline adherence (Y-microdeletions only for ≤ 1 million/mL, karyotype for <5 million/mL). This statistical approach was used to estimate the diagnostic yield under each scenario with quantified uncertainty through confidence intervals.

RESULTS: Median (IQR) age was 36 years (33-40) and sperm concentration 1.8 mln/mL (0.3-6.7). Overall, 53 men (8.3%) had genetic abnormalities: 22 (3.4%) Y-microdeletions and 35 (5.5%) karyotype defects. Detection varied by sperm concentration: 12.6% (NOA), 8.9% (≤ 1 mln/mL), 10.4% (1-5 mln/mL), and 3.7% (≥ 5 mln/mL). Men with abnormalities had lower sperm concentration (1.0 vs. 1.8 mln/mL, $P=0.012$) and smaller testicular volume (12 vs. 12 mL, $P=0.003$). Trial simulation (1000 iterations) estimated strict guidelines would miss 20.6% of cases (95% CI 7.5-35.8%), while inclusive guidelines reduced missed diagnoses to 7.2% (95% CI 3.8-18.8%).

CONCLUSIONS: Strict application of current guidelines (Y-microdeletions only for ≤ 1 million/mL, karyotype for <5 million/mL) would miss one in five genetic diagnoses. Expanding testing to <5 million/mL reduces this to one in fourteen. The current trial simulation methodology provides more robust estimates of missed diagnoses with quantified uncertainty. These findings challenge current threshold-based screening recommendations and suggest that revised cutoffs may be reconsidered.

SC423

Second semen analysis after first assessment: challenging the current American Urological Association Guidelines using a trial emulation design study

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BACKGROUND: The question of whether a single semen analysis suffices when initial parameters meet or exceed WHO reference thresholds remains contentious in the evaluation of male infertility. Current recommendations from AUA do not advise routine repetition of semen analysis when the first assessment demonstrates normozoospermia according to WHO criteria. We aimed to assess whether infertile men whose initial semen parameters meet or exceed the WHO reference thresholds should undergo a second semen analysis.

METHODS: Data from 2070 infertile men were analyzed. All patients underwent at least one semen analysis, evaluated according to WHO 2021 criteria. Two groups were defined: i) normal, when all parameters meet or exceed reference thresholds; and, ii) abnormal, when at least one parameter was below reference limits. We implemented a Synthpop-based trial simulation comprising 1000 iterations to evaluate two distinct scenarios: (i) universal testing of both groups, and (ii) adherence to current guidelines. This statistical analysis was used to estimate the diagnostic yield under both scenarios.

RESULTS: Median (IQR) age was 37 (34-41) yrs and total motile sperm count (TMSC) 12 (1.5-46.9) mln. Men with

abnormal semen analysis were older than those with normal semen analysis (37 [34-41] vs. 36 [32-40] yrs, $P=0.034$), had higher BMI (25.2 [23.4-27.4] vs. 24.7 [22.8-26.6], $P=0.030$), and higher rate of hypertension (9.2% vs. 0.8%, $P=0.003$). Men with abnormal semen analysis also showed higher prevalence of chromosomal abnormalities (2% vs. 0.8%, $P=0.004$), history of cryptorchidism (14.5% vs. 1.7%, $P<0.001$) and reduced testicular volume (15 [12-20] vs. 20 [15-25] Prader, $P<0.001$). To quantify the proportion of missed diagnoses, trial simulations estimated that adherence to guidelines recommendations would fail to identify 16.4% of semen abnormalities upon repeat analysis (95% CI 15.5-17.3%). Conversely, repeating the test when the initial semen analysis was altered resulted in a normal semen analysis in 2.5% (1.7-2.9%) of group 1 and 2.4% (1.8-3%) of group 2.

CONCLUSIONS: Re-testing only in case of abnormal semen analyses would result in missing approximately one in six cases of semen parameter deterioration on repeat analysis. These findings challenge existing recommendations and underscore the need to consider revised criteria for selected subgroups of infertile men.

SC424

Phenotyping testicular reserve: what real-life data reveal

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BACKGROUND: We hypothesized that an integrated model combining anti-Müllerian hormone (AMH) measurement with testicular parameters could enable effective risk stratification of spermatogenic reserve, independent of traditional hormonal assessments.

METHODS: We analysed cross-sectional data from 1,085 white-European, non-Finnish men classified as fertile ($N=116$), primary male factor infertility ($N=791$), or non-obstructive azoospermia ($N=178$). Serum tT, AMH, testicular volume (TV; Prader's orchidometer) and age were considered primary predictors of spermatogenic reserve. Comorbidity burden was assessed via Charlson Comorbidity Index ($CCI \geq 1$ vs. 0). Endocrine markers including FSH were excluded. Total motile sperm count (TMSC) was categorized as severe ($\leq 1 \times 10^6$), intermediate ($1-20 \times 10^6$), or preserved ($\geq 20 \times 10^6$). Logistic regression identified independent predictors of compromised reserve (TMSC $< 20 \times 10^6$). Model was validated via AUC calculation of receiver operating characteristic curve.

RESULTS: Median age was 37 (IQR 32-42) yrs, TV 16 (14-20) mL, AMH 6.15 (3.85-10.92) ng/mL and TMSC 14.20 (1.00-92.70) $\times 10^6$. Multivariate analysis identified TV as the dominant predictor, with each 1-mL increase in TV reducing odds of TMSC $< 20 \times 10^6$ by 17.5% (OR 0.83; 95% CI 0.80-0.85; $P<0.001$). AMH was independently associated with TMSC reduction (OR 0.82; 95% CI 0.68-0.99; $P=0.041$). Neither tT ($P=0.914$), age ($P=0.159$), nor $CCI \geq 1$ ($P=0.228$) independently predicted TMSC. Excluding FSH did not impair discrimination (AUC 0.79; 95% CI 0.76-0.82). Risk stratification defined three phenotypes: low-risk ($N=146$; 13.5%) with TV (25.40 mL), AMH (8.97 ng/mL), and 34.9% TMSC < 20 prevalence; intermediate-risk ($N=322$; 29.7%) with TV (20.40 mL), AMH (7.07 ng/mL) and 50.9% TMSC < 20 ; high-risk men ($N=617$; 56.8%) with TV (11.90 mL),

AMH (5.97 ng/mL) and 83.3% TMSC <20. TV and AMH differed significantly between fertility groups ($P<0.001$), even after adjusting for age and comorbidity.

CONCLUSIONS: AMH is an independent, underutilized biomarker of testicular spermatogenic reserve. An AMH-based model excluding FSH distinguished three risk phenotypes of impaired spermatogenesis. These results highlight AMH's role in male reproductive assessment and support prospective studies to define its clinical utility in managing men with impaired spermatogenesis.

SC425

Sperm retrieval outcomes in men with y chromosome AZFC microdeletion undergoing testicular sperm extraction: real-world data from a large multicenter cohort

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BACKGROUND: Y chromosome microdeletions (Ychm) represent a well-established genetic cause of severe oligozoospermia and non-obstructive azoospermia (NOA). Among these, AZFc deletions are the most prevalent. However, the rate of positive sperm retrieval (SR) in NOA men with AZFc deletions remains poorly characterized in the literature, with reported success rates ranging widely between 50% and 75%. We aimed to evaluate real-world SR rates and potential predictors of successful SR in men with NOA and AZFc YChm seeking fertility treatment.

METHODS: Data from 126 men with NOA and AZFc YChm who underwent SR procedures in 13 centers between January 2019 and September 2025 were analyzed. All men underwent a comprehensive diagnostic work-up including medical history, physical examination, testicular ultrasound, hormonal and genetic blood testing. Semen analysis was performed in accordance with the 2021 WHO reference criteria. Testicular histology was documented. Either conventional testicular sperm extraction (cTESE) or microsurgical TESE (mTESE) were performed, based on the surgeon's preference. Descriptive statistics and logistic regression analyses were conducted to identify predictors of positive sperm retrieval (+SR).

RESULTS: Of 126 men, median (IQR) age at surgery and testicular volume (TV) were 35 (31-40) years and 8.2 (6.4-12.0) mL, respectively. Median baseline serum FSH and total testosterone (tT) were 16.6 (9.2-23.8) mUI/mL and 4.20 (3.21-5.60) ng/mL, respectively. cTESE was performed in 39 (31.0%) cases and a bilateral procedure was carried out in 98 (77.8%) men. Histological analysis showed Sertoli cell-only syndrome (SCOS) in 61%, maturation arrest (MA) in 24.4%, and hypospermatogenesis (HS) in 14.6% of cases, with a median Johnsen score of 4 (3-8). +SR and sperm freezing was successful in 30 (23.8%) patients. Median FSH was significantly lower in men with +SR (11.3 vs. 21.2 mUI/mL, $P=0.026$), while Johnsen score was significantly higher (7 vs. 3, $P<0.001$). +SR was inversely associated with severity of testicular histology (58.3% for HS, 15.0% for MA and 14.0% for SCOS, respectively; $P<0.001$). +SR rates did not differ according to age, TV, tT and surgical approach.

Multivariate logistic regression analysis showed that SCOS (0.15, $P=0.009$) and MA (0.11, $P=0.010$) histologies were associated with lower likelihood of +SR, after accounting for FSH values.

CONCLUSIONS: In this multicenter real-world cohort, +SR in men with NOA and AZFc YChm was 23.8%, markedly lower than success rates previously reported. Lower FSH levels and higher Johnsen scores emerged to be associated with +SR, while testicular histology was the strongest independent predictor. In particular, SCOS and MA were significantly associated with the lowest likelihood of +SR as compared with hypospermatogenesis.

SC426

Robot-assisted vasovasostomy for vasectomy reversal: updated functional and fertility outcomes from a tertiary referral robotic centre

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BACKGROUND: Vasovasostomy remains a challenging microsurgical procedure where precision determines functional success. We present one of the largest single-centre experiences of robot-assisted vasovasostomy (RAVV), assessing functional and fertility outcomes.

METHODS: We retrospectively reviewed 60 consecutive men who underwent RAVV for vasectomy reversal between January 2008 and September 2025 at a tertiary robotic referral centre. All procedures were performed by two experienced robotic surgeons, each with a lifetime experience exceeding 500 robotic cases. The robotic setting included two microforceps and a 0° camera, with trocars positioned approximately 40 cm from the surgical field. Demographic, perioperative, and functional data were prospectively collected. Patency – defined as sperm concentration ≥ 1 million/mL at three months – and spontaneous pregnancy within 12 months were the primary endpoints; secondary outcomes included semen parameters and patient-reported quality of life assessed three months post-operatively using the QoL-Short Form (SF) questionnaire.

RESULTS: A total of 60 patients underwent RAVV, and all had prior children. Median (IQR) age at surgery and interval from vasectomy were 42 (38 - 47) years and 6 (4 - 9) years, respectively. Median operative and console times were 120 (100 -145) and 85 (70-110) minutes. No intra-operative complications occurred, and two (3.3%) minor postoperative events (Clavien-Dindo I) were recorded. Median length of hospital stay was 1 day (0-1). Median sperm concentration and motility at three months were 25 (12-45) million/mL and 42 (26-56) %, yielding a patency rate of 93.3%. Forty-four (73.3%) patients attempted conception, of whom 36 (81.8%) achieved natural pregnancy during follow-up. Median post-operative follow-up was 48 (18-78) months, and median QoL - SF was 46 (44-48).

CONCLUSIONS: In men desiring a vasectomy reversal, RAVV is a safe, feasible, and effective procedure achieving excellent patency and fertility outcomes. The robotic platform ensures stable magnification and precise suture placement, supporting its role as a reproducible alternative to conventional microsurgery in specialised centres.

SMART COMMUNICATION (SC427 - SC437)

Urologia funzionale I

SC427

De novo lower urinary tract symptoms after robot assisted radical prostatectomy: evaluation of incidence and risk factors

SC428

A prospective longitudinal study of urinary metabolites among women with and without overactive bladder

SC429

Accuracy, readability, and understandability of EAU guidelines bot for female LUTS

SC430

Iperattività detrusoriale e voiding disfunction maschile: predittori urodinamici di ostruzione cervico-uretrale vs. ipocontrattilità detrusoriale

SC431

Use of additional therapy after minimally invasive therapies among females with overactive bladder

SC432

Long-term efficacy of sacral neuromodulation in patients with overactive bladder: a single center 15-year experience

SC433

De novo lower urinary tract symptoms after robot assisted radical prostatectomy: evaluation of incidence and risk factors

SC434

Impact of a ChatGPT-based educational program on knowledge acquisition and clinical confidence in functional urology: a prospective study in urology residents

SC435

Learning curve of robotic sacrocolpopexy: a single-center experience

SC436

Robot-assisted sacrocolpopexy for multicompartamental pelvic organ prolapse: a multidisciplinary experience

SC437

Trifecta outcomes after robotic sacrocolpopexy with single mesh in single-center cohort

SC427**De novo lower urinary tract symptoms after robot assisted radical prostatectomy: evaluation of incidence and risk factors**

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BACKGROUND: Prostate cancer (PCa) can often be detected in patients with a history of LUTS related to Benign Prostatic Enlargement (BPE). A significant number of patients undergoing RARP develop de novo LUTS postoperatively, further affecting their QOL. The mechanisms and predictors of de novo LUTS remain poorly understood. This study aims to evaluate the incidence, risk factors, and urodynamics characteristics of de novo LUTS following RARP to better understand the pathophysiology and to guide its clinical management.

METHODS: This prospective study enrolled patients from January 2021 to December 2024. Inclusion criteria included clinically localized PCa patients undergoing RARP with IPSS ≤ 7 . Exclusion criteria were preoperative LUTS, prostatic surgery, and neurogenic bladder. De novo LUTS were assessed using IPSS and urodynamics (UDS) at 1, 6, and 12 months postoperatively. UDS parameters included bladder compliance, detrusor overactivity (DO), maximum cystometric capacity, and post-void residual (PVR). Data on demographics, prostate volume, nerve-sparing (NS), lymph node dissection, estimated blood loss (EBL), smoking habit (SH), BMI, metabolic syndrome (MS), diabetes (DM), and surgical parameters were collected and analyzed. Multivariable logistic regression was investigated to identify predictors of de novo LUTS.

RESULTS: Among the 118 patients who developed de novo LUTS, UDS revealed DO in 62.04%, reduced bladder compliance in 44.9%, and significant PVR in 10.2%. Storage symptoms were predominant, with urgency and urge incontinence observed in 37.24%, mixed incontinence in 15.3%, and stress incontinence in 10.2%. Voiding symptoms, including hesitancy and weak stream, were most associated with urethral strictures (4.08%). At 12 months postoperatively, 20.41% reported persistent LUTS (IPSS >15). MS was present in 28.57%, DM in 21.43%, SH in 28.57%, and obesity (BMI >30 kg/m²) in 26.53%. Multivariable logistic regression identified significant predictors of de novo LUTS, including age ≥ 69 (P=0.03), prostate volume ≥ 60 mL (P=0.02), absence of NS (P=0.01), lymph node dissection (P=0.02), EBL >400 mL (P=0.03), MS (P=0.04), DM (P=0.03), elevated BMI (P=0.01), and SH (P=0.04).

CONCLUSIONS: De novo LUTS are a common complication following RARP, predominantly presenting as storage symptoms such as urgency and urge incontinence, with urodynamic findings of detrusor overactivity and reduced bladder compliance. Voiding symptoms were linked to cases of urethral strictures. Significant predictors include advanced age, larger prostate volume, lack of NS, lymph node dissection, MS, diabetes, SH, and elevated BMI. De novo LUTS significantly impact postoperative QOL after RARP. Key predictors such as age, prostate volume, NS, and metabolic factors highlight the need for tailored surgical and postoperative management to mitigate symptoms and improve outcomes.

SC428**A prospective longitudinal study of urinary metabolites among women with and without overactive bladder**

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BACKGROUND: There has been little research evaluating the urinary metabolome and its relationship to overactive bladder (OAB). We aim to bridge this gap by evaluating the urinary metabolome in postmenopausal women with and without OAB.

METHODS: This is a prospective observational study of postmenopausal women with clinical OAB, defined by LURN Symptom Index-10 responses, who were not managed with medications or recent procedures, and controls. LURN Symptom Index-29 (LURN-SI-29) and catheterized urine specimens were collected at baseline and 5-weeks. Untargeted metabolomics using reverse phase negative ionization (RP-neg) and ion pairing negative ionization (IP-neg) assays were performed at the University of Michigan Metabolomics Core. Peak intensity of metabolites was compared between groups and over time.

RESULTS: Urine at baseline and 5 weeks was available for all cases (N.=25) and controls (N.=11). The mean age was similar between the OAB and control groups (65 vs. 61 years, respectively). LURN-SI-29 scores discriminated between cases ($\bar{x}$ = 25.7, IQR 21-31) vs. controls ($\bar{x}$ = 7.6, IQR 3.8). RP-neg assays found that 19 metabolites, primarily bile acids, had statistically significant higher peak intensity among cases vs. controls. Examples include Taurohyocholic acid (P<0.001) and Tauroursodeoxycholic acid and Taurohyodeoxycholic acid (P=0.003). The excitatory neurotransmitter Glutamic acid was also higher in urine of cases (P=0.003). IP-neg found that 11 metabolites showed statistically significantly higher peak intensity among cases vs. controls, several of these were amino acid or caffeine metabolites. Examples included Alanine (P=0.003), 1,7-Dimethyluric acid (P=0.005), and 1,3,7-Trimethyluric acid (P=0.010).

CONCLUSIONS: Post-menopausal women with OAB have distinct urine metabolites compared to controls. Specifically, we found higher peak intensity among urine bile acid levels, including primary, secondary and conjugated bile acids. These represent multiple steps in bile acid metabolism, suggesting these pathways as potential therapeutic targets.

SC429**Accuracy, readability, and understandability of EAU guidelines bot for female LUTS**

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BACKGROUND: Recently the EAU guidelines presented the eau guidelines bot to assist urologists in the reading of the guidelines however up to date no external validation is available. Aim of our study is to assess accuracy, completeness, and clarity of the guidelines bot for female LUTS.

METHODS: A total of 204 questions based on the EAU female LUTS guidelines recommendations were developed. Each question was inputted to the EAU guidelines bot and the

response was assessed by two expert urologist to assess the accuracy, completeness, and clarity. A 5-point Likert scale was used as a score and in case of discrepancies a third urology was queried. Accuracy, completeness and clarity was assessed per chapter and per grade of recommendation. All questions and answers were recorded in an excel file.

RESULTS: Overall 204 questions were developed. In terms of accuracy 180/204 (89%) were defined as accurate (score -4-5), 17/204 (8%) presented a fair accuracy (score 3) while 7/204 were deemed not accurate. In terms of completeness, 192/204 (93%) were defined as complete (score -4-5), 11/204 (5%) presented a fair completeness (score 3) while 1/204 (1%) were deemed not complete. Finally in terms of clarity, 193/204 (94%) were defined as clear (score -4-5), 10/204 (5%) presented a fair clarity (score 3) while 1/204 (1%) were deemed not clear. When comparing strong and weak recommendations no differences were recorded.

CONCLUSIONS: EAU guidelines bot represents an accurate tool for female LUTS. Some fine tuning is needed to improve readability and clarity.

SC430

Iperattività detrusoriale e voiding dysfunction maschile: predittori urodinamici di ostruzione cervico-uretrale vs. ipocontrattilità detrusoriale

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INTRODUZIONE: L'iperattività detrusoriale (DO) nei pazienti di sesso maschile con sintomi delle basse vie urinarie (LUTS) è frequentemente considerata espressione indiretta di ostruzione cervico-uretrale (BOO). Tuttavia, il rapporto tra alterazioni della fase di riempimento e la funzione della fase minzionale non è univoco. Obiettivo dello studio è valutare l'eterogeneità dei fenotipi della fase di svuotamento nei pazienti con DO ed identificare i parametri urodinamici in grado di discriminare tra BOO ed ipocontrattilità detrusoriale (DU).

METODI: È stata condotta un'analisi retrospettiva monocentrica su pazienti maschi sottoposti a studio urodinamico invasivo per LUTS. Sono stati inclusi i soggetti con evidenza di DO alla cistometria di riempimento. In base ai criteri della International Continence Society, i pazienti sono stati classificati come BOO o DU utilizzando rispettivamente il bladder outlet obstruction index (BOOI) e il bladder contractility index (BCI). Sono state raccolte variabili cliniche, anatomiche e urodinamiche. Le differenze tra gruppi sono state analizzate con test statistici appropriati e un modello di regressione logistica multivariata è stato impiegato per identificare i predittori indipendenti di BOO.

RISULTATI: Sono stati inclusi 66 pazienti: 35 (53,0%) DO+BOO e 31 (47,0%) DO+DU. Età e BMI erano sovrapponibili tra i gruppi. Il volume prostatico risultava significativamente maggiore nei pazienti DO+BOO ($80,2 \pm 41,7$ vs. $50,5 \pm 28,1$ mL; $P=0,002$), così come la pressione detrusoriale al flusso massimo (PdetQmax: $99,1 \pm 28,8$ vs. $28,1 \pm 18,7$ cmH₂O; $P<0,001$). La pressione detrusoriale all'insorgenza della DO era solo modestamente più elevata ($63,7 \pm 35,4$ vs. $56,9 \pm 44,4$ cmH₂O; $P=0,018$) e non si confermava come predittore indipendente. Capacità cistometrica, compliance vescicale, Qmax, Qmedio e residuo post-minzionale non differivano significativamente tra i gruppi. All'analisi multivariata, solo il volume prostatico e la PdetQmax risultavano predittori indipendenti di ostruzione cervico-uretrale.

CONCLUSIONI: Nei pazienti con DO esiste un'eterogeneità della fase minzionale, con una quota rilevante di soggetti affetti da DU piuttosto che da ostruzione. I parametri urodinamici della cistomanometria non consentono di predire in modo sicuro il quadro sottostante. Al contrario, il volume prostatico e la pressione detrusoriale durante lo studio pressione-flusso rappresentano i principali elementi discriminanti. Questi risultati evidenziano i limiti delle valutazioni non invasive e supportano il ruolo dell'urodinamica invasiva nella corretta definizione diagnostica e nella scelta terapeutica dei pazienti che presentano sintomi di iperattività detrusoriale associata e difficoltà di svuotamento vescicale.

SC431

Use of additional therapy after minimally invasive therapies among females with overactive bladder

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BACKGROUND: To evaluate the rate, timing, and predictors of additional therapy among patients with idiopathic overactive bladder (OAB) following initial minimally invasive treatments (MIT).

METHODS: We conducted a retrospective single center cohort study of females with idiopathic OAB treated between 2012 and 2021. Using ICD and procedural codes, we identified patients who underwent posterior tibial nerve stimulation (PTNS), sacral neuromodulation (SNM), or intradetrusor onabotulinumtoxinA (BoNT-A) as their first MIT. The primary outcome was receipt of additional OAB treatment – defined as OAB medication initiation or a different MIT. Kaplan-Meier analysis estimated time to additional therapy; Cox proportional hazards and random survival forest models identified predictors.

RESULTS: 1,007 patients were included (PTNS: 459; SNM: 192; BoNT-A: 356). At three years, 75% of PTNS patients, 58% of BoNT-A patients, and 40% of SNM patients required additional therapy. Median time to additional treatment was 10 months (PTNS), 19 months (BoNT-A), and 53 months (SNM). Higher BMI was associated with increased risk of further treatment after SNM (HR 2.1, 95% CI: 1.1-4.2), while recurrent urinary tract infections were associated with needing additional therapy in the BoNT-A cohort (HR 1.8, 95% CI: 1.1-3.2).

CONCLUSIONS: Despite initial MIT, many OAB patients require additional treatment within three years. A substantial number of OAB patients opt for pharmacotherapy as an additional treatment after failing initial MIT. Only a small subset of patients choose to transition to another MIT. Patient characteristics, particularly BMI and recurrent UTIs, may predict additional therapy after PTNS, BoNT-A or SNM.

SC432

Long-term efficacy of sacral neuromodulation in patients with overactive bladder: a single center 15-year experience

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BACKGROUND: To evaluate long-term efficacy and quality of life in patients treated with sacral neuromodulation for overactive bladder resistant to prior treatments. Secondary aim: to determine incidence and characteristics of perioperative and long-term complications.

METHODS: This was a retrospective analysis on 90 patients with OAB who underwent SNM over a 15-year period. Data on diagnosis, prior treatments, surgical stages, outcomes and complications were collected from outpatient visits, medical records and follow-up visits (1, 3, 6, 12 months postoperatively, then annually). First stage success was defined as $\geq 50\%$ improvement of urinary parameters from baseline. Daily voids and nocturia were obtained from voiding diaries and 24h pad test results were also considered. Quality of life was assessed using ICIQ-OABqol, ICIQ-MLUTS and ICIQ-FLUTS questionnaires, administered by a single operator preoperatively and, only for patients with SNM still in place, through telephone interviews in August 2025. Statistical analyses were performed with SPSS 26.0 using paired *t*-test and McNemar's test ($P < 0.05$).

RESULTS: Mean age at the time of the procedure was 60 years (range 25-81); mean symptom duration 91 months (range 12-480). OAB was idiopathic in 26 patients, neurologic in 34, and post-pelvic surgery in 30. All the patients had undergone at least one prior treatment, including pelvic floor physiotherapy (10), different antimuscarinics (54), mirabegron (16) and intradetrusorial injection of botulinum toxin (10). 8 patients (9%) did not proceed to the second stage, and 10 (12%) required explantation after second stage, mainly due to loss of efficacy or minor complications. Data refer to the remaining 80% with active SNM, with mean follow-up of 62 months (range 3-168). Compared to baseline, reductions $\geq 50\%$ were still present in daily voids (14%), nocturia (61%), and pad test results (92.3%). A statistically significant ($P < 0.001$) reduction was observed in daily number of voids, nocturia and pad test results, as well as in the questionnaires' scores, both globally and divided into the different subscales. More specifically, there was an average reduction of 5 daily voids, 1.6 nocturnal voids and 301 g of urine loss on the pad test. The mean reduction in the LUTS questionnaires' scores was 7.7 points, with minimal variation between the two sexes, while the OABqol score mean reduction was of 21.7 points. Among those who kept the SNM, complications occurred in 8.3%, all classified as Clavien-Dindo grade I (mild-moderate pain in different areas or abnormal sensations at implant site).

CONCLUSIONS: Results support long-term reliability and safety of sacral neuromodulation in overactive bladder refractory to prior treatments, demonstrating sustained efficacy and patient satisfaction.

Assisted Radical Prostatectomy (RARP) develop de novo LUTS postoperatively, further affecting their Quality of Life (QoL). The mechanisms and predictors of de novo LUTS remain poorly understood. This study aims to evaluate the incidence, risk factors, and urodynamics characteristics of de novo LUTS following RARP to better understand the pathophysiology and to guide its clinical management.

METHODS: This prospective study enrolled patients from January 2021 to December 2023. Inclusion criteria included clinically localized PCa patients undergoing RARP with IPSS ≤ 7 . Exclusion criteria were preoperative LUTS, prostatic surgery, and neurogenic bladder. De novo LUTS were assessed using IPSS and urodynamics (UDS) at 1, 6, and 12 months postoperatively. UDS parameters included bladder compliance, detrusor overactivity (DO), maximum cystometric capacity, and post-void residual (PVR). Data on demographics, prostate volume, nerve-sparing (NS), lymph node dissection, estimated blood loss (EBL), smoking habit (SH), BMI, metabolic syndrome (MS), diabetes (DM), and surgical parameters were collected and analyzed. Multivariable logistic regression was investigated to identify predictors of de novo LUTS.

RESULTS: Among the 98 patients who developed de novo LUTS, UDS revealed DO in 62.04%, reduced bladder compliance in 44.9%, and significant PVR in 10.2%. Storage symptoms were predominant, with urgency and urge incontinence observed in 37.24%, mixed incontinence in 15.3%, and stress incontinence in 10.2%. Voiding symptoms, including hesitancy and weak stream, were most associated with urethral strictures (4.08%). At 12 months postoperatively, 20.41% reported persistent LUTS (IPSS > 15). MS was present in 28.57%, DM in 21.43%, SH in 28.57%, and obesity (BMI > 30 kg/m²) in 26.53%. Multivariable logistic regression identified significant predictors of de novo LUTS, including age ≥ 69 ($P = 0.03$), prostate volume ≥ 60 mL ($P = 0.02$), absence of NS ($P = 0.01$), lymph node dissection ($P = 0.02$), EBL > 400 mL ($P = 0.03$), MS ($P = 0.04$), DM ($P = 0.03$), elevated BMI ($P = 0.01$), and SH ($P = 0.04$).

CONCLUSIONS: De novo LUTS are a common complication following RARP, predominantly presenting as storage symptoms such as urgency and urge incontinence, with urodynamic findings of detrusor overactivity and reduced bladder compliance. Voiding symptoms were linked to cases of urethral strictures. Significant predictors include advanced age, larger prostate volume, lack of NS, lymph node dissection, MS, diabetes, SH, and elevated BMI. De novo LUTS significantly impact postoperative QOL after RARP. Key predictors such as age, prostate volume, NS, and metabolic factors highlight the need for tailored surgical and postoperative management to mitigate symptoms and improve outcomes.

SC433

De novo lower urinary tract symptoms after robot assisted radical prostatectomy: evaluation of incidence and risk factors

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BACKGROUND: Prostate cancer (PCa) can often be detected in patients with a history of Lower Urinary Tract Symptoms (LUTS) related to Benign Prostatic Enlargement (BPE). A significant number of patients undergoing Robot-

SC434

Impact of a ChatGPT-based educational program on knowledge acquisition and clinical confidence in functional urology: a prospective study in urology residents

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BACKGROUND: Training in functional urology faces challenges from complex symptoms, diverse diagnostics, and limited teaching time. Residents must master pathophysiology, management guidelines, and patient-centered care for conditions like LUTS, incontinence, overactive bladder, and

neuro-urological disorders. ChatGPT, could be an educational tool to enhance clinical reasoning and knowledge. This study assessed the effect of a ChatGPT-based program on urology residents' knowledge and confidence.

METHODS: A prospective educational study was conducted involving urology residents enrolled in an academic training program. Over a 4-week period, participants interacted with a customized ChatGPT assistant specifically designed for functional urology. Training modules addressed male and female LUTS, urinary incontinence, overactive bladder, acute and chronic urinary retention, catheter management, and basic neuro-urology. Each module followed a standardized framework including symptom analysis, differential diagnosis, guideline-based diagnostic work-up, stepwise management strategies, and patient counselling. Knowledge was assessed using pre- and post-intervention multiple-choice questionnaires, confidence was evaluated using a 5-point Likert scale. A post-intervention survey assessed perceived utility, limitations, and willingness to integrate the tool into training.

RESULTS: A total of 24 residents participated in the study. Mean knowledge assessment scores improved from 64.3% pre-intervention to 82.7% post-intervention ($P<0.01$). Self-reported confidence in managing functional urology scenarios increased from a baseline mean of 2.9 to 4.1 ($P<0.01$). Overall, 79.2% of participants rated the tool as "useful" or "very useful," and 87.5% reported they would incorporate it into their independent study routine. The most valued features included structured clinical reasoning, clear management algorithms, and adaptability across different levels of training. Reported limitations included absence of visual aids (66.7%) and reduced applicability to complex or atypical cases (29.2%).

CONCLUSIONS: Improved knowledge scores and confidence suggest that a structured ChatGPT-based assistant can effectively reinforce clinical reasoning in functional urology. Score gains indicate better factual knowledge and understanding of diagnostic and therapeutic pathways. Increased confidence reflects familiarity with guidelines and improved decision-making. The tool's usefulness and residents' willingness to use it indicate acceptance and a role in complementing traditional teaching during time-limited training. Limitations, such as a lack of visual aids and reduced applicability to complex cases, mean these tools serve as cognitive supports, not replacements for hands-on experience or supervision. A dedicated ChatGPT-based assistant improves urology training by enhancing resident knowledge and confidence. In a supervised setting, it boosts standardization, accessibility, and efficiency. Although it can't replace clinical experience or mentorship, it offers a valuable educational supplement for urology residency programs.

SC435

Learning curve of robotic sacrocolpopexy: a single-center experience

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BACKGROUND: Robotic sacrocolpopexy (RSC) is increasingly adopted for the treatment of apical pelvic organ prolapse (POP), offering improved ergonomics, three-dimensional visualization, and enhanced dexterity compared with conventional laparoscopy. However, the number of procedures required to achieve surgical proficiency remains unclear. This study aimed to evaluate the learning curve of RSC by analyzing

operative performance and perioperative outcomes in a single-center experience.

METHODS: A retrospective analysis was performed on 52 consecutive patients who underwent RSC for symptomatic apical POP between 2024 and 2026 at a tertiary referral center. All procedures were performed by a surgeon experienced in pelvic reconstructive surgery but at the beginning of robotic practice. Patients were divided according to surgical sequence into an early phase (cases 1-26) and a late phase (cases 27-52). Operative time, estimated blood loss, intraoperative complications, and postoperative outcomes were assessed. Continuous variables were expressed as medians and compared using the Mann-Whitney U Test; categorical variables were analyzed using the Chi-square or Fisher's Exact Test. A P value <0.05 was considered statistically significant. Trends in operative time across consecutive cases were evaluated to assess the learning curve.

RESULTS: A total of 52 patients underwent RSC. A significant reduction in operative time was observed between phases, decreasing from a median of 198 minutes in the early phase to 142 minutes in the late phase (-56 minutes; -28% ; $P<0.01$). Estimated blood loss decreased from 110 mL to 70 mL (-41% , $P=0.03$). Intraoperative complications were rare (1/26, 3.8% in the early phase vs. 0/26 in the late phase), with no conversions to open surgery. Postoperative outcomes remained stable, with a median hospital stay of 2 days in both groups. At short-term follow-up, anatomical success was achieved in 94% of patients, with no early mesh exposure, infection, or reoperation. A plateau in operative time was observed after approximately 25-30 cases, suggesting attainment of surgical proficiency within this range.

CONCLUSIONS: Robotic sacrocolpopexy demonstrates a relatively short learning curve in surgeons experienced in pelvic reconstructive surgery. Proficiency appears to be achieved after approximately 25-30 procedures, with significant improvements in operative time and no compromise in perioperative outcomes. These findings support the safe and efficient implementation of RSC in specialized pelvic floor centers.

SC436

Robot-assisted sacrocolpopexy for multicompartmental pelvic organ prolapse: a multidisciplinary experience

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BACKGROUND: Multicompartmental pelvic organ prolapse (POP) requires an integrated multidisciplinary approach. Robotic-assisted sacrocolpopexy (RASC) represents the gold standard minimally invasive technique for anterior and multicompartmental POP repair. At our institution, RASC is performed by a combined team of urologist, gynaecologist, and colorectal surgeon. Preoperative workup includes a joint first visit with all three specialists and a dedicated radiologist; instrumental assessment comprises cystodefocography and urodynamic study.

METHODS: Between January 2024 and June 2025, 21 patients underwent RASC with the da Vinci Xi system. All postmenopausal women with an intact uterus underwent concurrent subtotal (supracervical) hysterectomy prior to mesh placement, consistent with evidence of significantly

lower mesh erosion risk compared to total hysterectomy. Key technical tips included: 1) subtotal hysterectomy as the first surgical step; 2) exposure of the sacral promontory with identification of the presacral space; 3) opening of the posterior peritoneum; 4) development of the vesicovaginal and rectovaginal spaces to prepare anterior and posterior vaginal walls; 5) fixation of a titanized Y-shaped mesh to vaginal walls with interrupted absorbable sutures (Vicryl 2-0); 6) non-absorbable suture between uterine stump and mesh to prevent cranial migration; 7) sacral promontory fixation with two non-absorbable sutures (Mersilene + Prolene). In 4 cases (19%), concomitant ventral rectopexy was added for rectal prolapse; one patient (4.8%) underwent simultaneous STARR (Stapled Transanal Rectal Resection) for internal rectal mucosal prolapse with obstructed defecation syndrome.

RESULTS: Mean patient age was 59.7±8.2 years; all patients presented with POP-Q stage III-IV. At 18-months follow-up, anatomical success (POP-Q ≤stage I) was achieved in 20/21 patients (95.2%). Urinary continence improved in 18/21 (85.7%), assessed by PFDI-20 urinary distress subscale. Defecatory function improved in 17/21 (81%), evaluated by PFDI-20 colorectal-anal subscale and Wexner score. Mean operative time was 167±22 minutes. No major intraoperative complications, mesh erosions, or conversions occurred. Two minor complications (port-site seroma, urinary tract infection) were managed conservatively.

CONCLUSIONS: A multidisciplinary robotic approach is safe, feasible, and effective for multicompartamental POP at 18-months follow-up. Concurrent subtotal hysterectomy minimizes mesh erosion risk in postmenopausal women. Concomitant rectopexy or STARR can be safely integrated in a single session. Preoperative multidisciplinary assessment with cystodefecography and urodynamic study is essential for patient selection. Prospective studies with longer follow-up are warranted.

SC437

Trifecta outcomes after robotic sacrocolpopexy with single mesh in single-center cohort

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BACKGROUND: To evaluate anatomical, functional, and safety outcomes of robotic-assisted sacrocolpopexy (RASC)

with single anterior mesh using a standardized trifecta endpoint.

METHODS: We conducted a single-center cohort study including consecutive patients undergoing RASC with single mesh for pelvic organ prolapse (POP), all with a minimum follow-up of 12 mo. Exclusion criteria were follow-up <12 mo, lack of objective postoperative evaluation, and preoperative or occult stress urinary incontinence (SUI) on urodynamics. A single 15 × 2.5 cm titanized polypropylene mesh was anchored to the sacral promontory and fixed along the anterior vaginal wall in women with anterior and/or apical pelvic organ prolapse without significant posterior compartment involvement. The trifecta outcome was defined as the simultaneous presence of: a) absence of significant POP recurrence, defined as halfway system (HWS) >I or POP-Q stage >I at follow-up; b) absence of surgery-requiring de novo SUI; and c) absence of postoperative major complications, defined as Clavien-Dindo ≥II. Subjective outcomes were assessed using the Pelvic Floor Impact Questionnaire (PFIQ-7), with a predefined threshold of <33 indicating low symptom burden. Continuous variables are reported as median (interquartile range [IQR]) and categorical variables as N. (%). Proportions are presented with exact 95% confidence intervals (CI).

RESULTS: A total of 73 patients met the inclusion criteria. Median age was 64 yr (IQR 58-69) and median body mass index (BMI) was 26 kg/m² (IQR 24-28). Previous POP surgery was reported in 18% of patients. Median operative time was 105 min (IQR 85-120), hemoglobin drop 1.0 g/dL, and hospital stay 2 d (IQR 2-3). Median follow-up was 16 mo (IQR 12-22). Previous pelvic organ prolapse surgery was reported in 18% of patients. Prior hysterectomy had been performed in 14% of the cohort. Significant POP recurrence occurred in 2 patients (2.7%; 95% CI 0.3-9.3%). Surgery-requiring de novo SUI was observed in 2 patients (2.7%; 95% CI 0.3-9.3%). Postoperative major complications (Clavien-Dindo ≥II) occurred in 3 patients (4.1%; 95% CI 0.8-11.5%). Overall, 69 patients (94.5%; 95% CI 86.6-98.5%) achieved the trifecta outcome. PFIQ-7 assessment demonstrated a low postoperative symptom burden, with the majority of patients achieving scores <33.

CONCLUSIONS: Robotic-assisted sacrocolpopexy with single mesh achieved high trifecta rates, with low incidence of clinically relevant recurrence, surgery-requiring de novo SUI, and major complications at mid-term follow-up. Patient-reported outcomes further support a favorable functional profile. The trifecta framework provides a clinically meaningful benchmark integrating anatomical, functional, and safety outcomes.

Urologia pediatrica

Neurogenic bladder

A single-center experience in long-term outcomes of bladder augmentation in pediatric population

Cakut

Microvascular ultrasound accurately identifies clinically significant split renal function impairment in patients with unilateral urinary tract dilation

Transitional care

“Ready, steady, go” questionnaire: are the pediatric urologists actually ready for transitional care?

Neurogenic bladder

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Transitional care

Testicular microlithiasis in transition age: a five-year single centre follow-up experience

Posterior urethral valves

Diagnosis of fetal megacystis: where do we stand? Single center study of 40 consecutive cases

Neurogenic bladder

A single-center experience in long-term outcomes of bladder augmentation in pediatric population

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BACKGROUND: Augmentation cystoplasty (AC) is a major surgical procedure indicated in children for the management of severe bladder dysfunction with low capacity and low compliance when conservative treatments failed, with the aim to increase bladder capacity and compliance, preserving continence, and protecting the upper urinary tract. The aim of our study is to evaluate our experience, assessing short- and long-term outcomes and potential risk factors in children.

METHODS: A retrospective study was conducted at our centre in patients who performed AC from January 2010 to December 2025. Patients over the age of 18 were excluded. The patient data set including demographic characteristics, etiology, associated vesicoureteral reflux (VUR), comorbidities, previous surgery, pre- and postoperative urodynamic studies, intraoperative complications, surgical procedures associated to AC (anti-reflux surgery, bladder neck procedures, derivation, Mitrofanoff/ Monti) were analysed. Postoperative data included analysis of symptoms, any reoperations, long-term outcomes, and postoperative complications.

RESULTS: A total of 43 patients underwent AC, six of whom were excluded due to adult age, and one due to bladder substitution. Of the 36 patients included (15 males and 21 females), the median age at the time of surgery was 11 years (5-18). The primary diagnoses were 30 neurologic bladder (secondary to myelomeningocele, neuroblastoma sequelae, or caudal regression syndrome), as well as 6 cases of bladder exstrophy sequelae. In all cases, ileal AC was performed; this was combined with a Mitrofanoff/Monti procedure in 23 cases, with ureteral reimplantation in 10 cases, with bladder neck reconstruction in 6 cases, and with bladder neck closure in only one case. The median preoperative bladder capacity was 100 mL (30-400), increasing to 307 mL (90-500) after surgery. No intraoperative complications occurred, but four patients required surgery for early postoperative complications (three Clavien-Dindo IIIb, one grade IV). Long-term complications included Mitrofanoff/Monti stenosis (N.=6), persistent incontinence (N.=2), bladder stones (N.=2), and fistula (N.=1). The median follow-up was 6.5 years (1-14).

CONCLUSIONS: AC is a complex procedure that effectively improves continence and bladder capacity in pediatric patients with NB, requiring long-term follow-up. An increased risk of long-term complications was observed in females, patients without previous epicystostomy button and in bladder exstrophy. In consideration of the potential complications, meticulous patient selection, proactive postoperative management with close follow-up and care during the transition to adulthood, and the utilization of standardized surgical techniques are essential.

Cakut

Microvascular ultrasound accurately identifies clinically significant split renal function impairment in patients with unilateral urinary tract dilation

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BACKGROUND: Dynamic renal scan (DRS) is the reference standard for evaluating urinary tract obstruction (UTO) and split renal function (SRF) in patients with urinary tract dilation (UTD), but it involves ionizing radiation. This study aims to evaluate the diagnostic performance of microvascular ultrasound (MVUS) for detecting clinically significant SRF reduction in children with unilateral UTD, using DRS as the reference standard.

METHODS: In this prospective cross-sectional diagnostic study, pediatric and adult patients with unilateral UTD evaluated in our tertiary center between February 2024 and November 2025 were enrolled. Kidney perfusion was quantified using a perfusion index, and MVUS-derived SRF (MVUS-SRF) was calculated. The inter-kidney difference (Δ -MVUS-SRF) was compared with that obtained from DRS (Δ -DRS-SRF). A Δ -DRS-SRF $\geq 20\%$ was predefined as clinically significant. Agreement with the reference standard was assessed using correlation and Bland-Altman analysis. Diagnostic performance was evaluated with receiver operating characteristic (ROC) analysis.

RESULTS: One hundred patients (median age 14 months, IQR 4-53; 63 male) underwent 114 paired MVUS-DRS examinations. Clinically significant SRF reduction at DRS was present in 40/114 examinations (35%). Δ -MVUS-SRF correlated with Δ -DRS-SRF (Pearson's $r = 0.67$; 95% CI 0.56, 0.76; $P < .001$). ROC analysis showed an area under the curve (AUC) of 0.91 (95% CI 0.84, 0.98; $P < .001$). Using a Δ -MVUS-SRF threshold of 20%, sensitivity was 94% (95% CI 79.77, 99.26), specificity was 89% (95% CI 79.95, 94.79), positive predictive value 77% (95% CI 64.90, 86.52), and negative predictive value was 97% (95% CI 90.36, 99.28), with positive likelihood ratio of 8.45 (95% CI 4.54-15.75) and a negative likelihood ratio of 0.07 (95% CI 0.02, 0.26).

CONCLUSIONS: MVUS demonstrated high diagnostic performance for detecting clinically significant SRF reduction and may serve as a radiation-free tool to exclude functional impairment.

Transitional care

"Ready, steady, go" questionnaire: are the pediatric urologists actually ready for transitional care?

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BACKGROUND: The transition from pediatric to adult healthcare represents a critical milestone for individuals with spina bifida. Ensuring transition readiness is vital to prevent care fragmentation and foster adult self-management. In Italy, there are only a few centers with joint clinics involving both a pediatric urologist and an adult urologist to manage the transition of these patients. The use of validated questionnaires

remains a poorly known practice. The aim of our study was to administer the Ready, Steady, Go questionnaire to patients with spina bifida attending two third-level referral centers.

METHODS: A cross-sectional study was conducted on a cohort of patients affected by spina bifida without mental impairment (aged 14-26 years). The "Ready, Steady, Go" questionnaire which is structured into 8 macro-areas: awareness, autonomy, health and lifestyle, daily life, education and future, leisure, emotional management, and transition to adult care; and was administered through in-person sessions. Responses were categorized into three operational classes: "Yes" (autonomous/ aware), "No" (lack of autonomy), and "H" (requiring parental or medical assistance).

RESULTS: We included 57 patients (29 females, and 28 males) with an average age of 16.6 years. Positive responses dominated the overall questionnaire, with an average "Yes" rate exceeding 70%. Gender-specific analysis showed slightly higher overall autonomy in females compared to males (71.4% vs. 67.7% "Yes"). Readiness was strongly age-dependent: "Yes" responses increased progressively from 50.7% at age 15 to 81.0% at age 19, demonstrating a gradual decline in parental reliance. Thematic block analysis revealed high baseline clinical awareness (Block 2: 87.5% "Yes") but exposed significant vulnerabilities in lifestyle independence (Block 5: 34.3% "No") and advanced clinical navigation (Block 8: only 20.9% "Yes", with "H" rising to 42.6%). The findings indicate that transition readiness is a progressive, age-dependent evolutionary process rather than a static chronological event. While basic medical knowledge matures naturally during late adolescence, complex care coordination, lifestyle choices, and active engagement with adult health systems remain heavily dependent on parental scaffolding. The sharp decline in autonomy observed in specific technical blocks highlights critical structural and psychological barriers that patients face when exiting structured pediatric models.

CONCLUSIONS: Adolescents with spina bifida exhibit strong foundational awareness but lack advanced self-advocacy and independent healthcare navigation skills. This appears to be the consequence of a transition process that is not yet formalized, characterized by a lack of structured programs and adequate educational and training planning.

Neurogenic bladder

Catheter choice and urinary tract infections in children with neurogenic bladder: a clinical evaluation

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BACKGROUND: Intermittent catheterization represents the gold standard for the management of neurogenic bladder. Nevertheless, recurrent urinary tract infections (UTIs) and procedure-related discomfort remain frequent complications and may negatively affect treatment adherence. In our tertiary-level paediatric urology department, catheters with Micro-Hole Zone Technology (MHZT) were introduced with the aim of improving bladder emptying and reducing mucosal trauma. This study aims to evaluate the impact of MHZT catheters on symptomatic UTIs, patient comfort, and bladder management.

METHODS: Patients followed by the Urology Department of Meyer Children's Hospital performing intermittent cath-

eterization as their primary method of bladder emptying and experiencing recurrent UTIs were included. From 2024 onwards, patients were switched to MHZT catheters. Clinical follow-up was performed at regular intervals. A telephone survey was conducted to assess comfort during catheterization, perception of bladder emptying efficacy, and changes in the frequency of symptomatic UTIs.

RESULTS: Sixteen patients were included (9 females, 7 males), with a median age of 17.4 years. Patients performed a mean of five catheterizations per day; five had a previous history of vesicoureteral reflux. Following the introduction of MHZT catheters, 87% of patients reported a reduction in symptomatic UTIs. Among patients able to provide direct feedback, 90% reported reduced discomfort during catheterization and 82% reported an overall improvement in bladder emptying management. Standard catheters may be associated with incomplete bladder emptying, need for repositioning, and mucosal trauma, all recognized risk factors for recurrent UTIs. MHZT catheters feature an extended drainage zone with multiple micro-holes, allowing more uniform urine flow, complete voiding without repositioning, and reduced mucosal trauma. These characteristics may contribute to the observed reduction in symptomatic UTIs and improvement in patient comfort. The main limitations of this study include the small sample size and short follow-up period; therefore, results should be considered preliminary. Further follow-up is ongoing.

CONCLUSIONS: While intermittent catheterization remains the standard of care for children with neurogenic bladder, careful catheter selection tailored to patient needs may improve treatment adherence and reduce catheter-related symptomatic UTIs.

Hypospadia and DSD

The hypospadia: in delayed ejaculation or absent ejaculation my experience

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BACKGROUND: Hypospadias is caused by abnormal penile development, resulting in the urethral meatus being located proximal to its normal glandular position, anywhere on the shaft of the penis, scrotum, or perineum. A number of abnormalities, including ventral curvature of the penis (penile chordae), an incomplete foreskin, and an abortive corpus spongiosum, are commonly associated with hypospadias. Certain types of surgical correction are possible, aimed at reconstructing the urethral canal, but these may cause consequences in the physiological synchrony of insertion, orgasm, and ejaculation. This can lead to emotional frustration in individuals during their sexuality. The goal is to provide greater awareness in addressing the critical aspects and physiological process of orgasm and to experience sexual intercourse with less discomfort.

METHODS: Sexological psychotherapeutic treatment: psychoeducational and occupational, over an average period of 6-8 months, with weekly or fortnightly meetings, from 2010 to 2025. Type of hypospadias: perineal, scrotal, penile shaft, glandular hypospadias. Type of sexual dysfunction: anejaculation, delayed ejaculation, retrograde ejaculation, based on their condition.

RESULTS: Cases from 2010 to 2025, divided as follows: 150 perineal hypospadias, 110 scrotal hypospadias, 51 penile

shaft hypospadias, 19 glandular hypospadias. Sexual dysfunctions detected: 30% anejaculation (perineal hypospadias), 55% delayed ejaculation (penile hypospadias), 25% retrograde ejaculation (retrograde ejaculation), based on their condition. A common feature among the entire cohort is a lack of information on the sexual aspects of later life and a difficulty and difference between autoeroticism and sexual intercourse. These data highlight that individuals require psychosexual care in pre-adolescent and adolescent years, along with psychoeducational support.

CONCLUSIONS: The care of this cohort of individuals leads them to experience sexuality with greater awareness for their functioning, their body, and their sexuality.

Artificial Intelligence

The past and the future a challenge between the TWIST score and machine learning in the management of the pediatric acute scrotum

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BACKGROUND: Spermatic cord torsion is a urological emergency requiring prompt diagnosis to preserve testicular viability. The TWIST score is a clinical prediction tool combining five physical findings. This study aimed to assess the diagnostic accuracy of the TWIST score at two clinically relevant cut-offs (≥ 3 and ≥ 5) in identifying spermatic cord torsion, and to compare its performance with three machine learning models.

METHODS: A retrospective cohort of 111 pediatric patients evaluated for suspected spermatic cord torsion was analyzed. The TWIST score (0-6) was calculated from scrotal swelling, testicular consistency, cremasteric reflex, testicular position and nausea/ vomiting. Definitive diagnosis (surgical/clinical) was the reference standard. Sensitivity, specificity, PPV, NPV, accuracy and AUC-ROC were calculated for thresholds ≥ 3 and ≥ 5 , and compared with Random Forest (RF), Support Vector Machine (SVM) and K-Nearest Neighbors (KNN) models trained on the same cohort.

RESULTS: Of 111 patients, 65 (58.6%) had confirmed torsion. At TWIST ≥ 3 : sensitivity 83.1%, specificity 60.9%, accuracy 73.9%. At TWIST ≥ 5 : sensitivity 53.8%, specificity 97.8%, accuracy 72.1%. Overall AUC-ROC across all thresholds was 81.1%. All three machine learning models outperformed the TWIST score, with accuracy of 91.2% and AUC-ROC ranging 91.1-93.6%. The TWIST score shows a clear trade-off: ≥ 3 favors sensitivity, suitable for screening, while ≥ 5 favors specificity, supporting immediate surgical exploration without further imaging. Machine learning models achieved higher and more balanced performance, combining higher sensitivity and specificity simultaneously, suggesting that non-linear integration of the same clinical variables may improve diagnostic discrimination compared to a simple additive score.

CONCLUSIONS: Although the TWIST score remains a valuable bedside tool, its diagnostic performance is strongly influenced by the selected threshold. Machine-learning models demonstrated superior and more balanced performance, suggesting a promising role as adjunctive decision-support tools in the diagnostic assessment of suspected spermatic cord torsion, subject to external validation.

Stones

Feasibility, safety, and efficacy of ILY robot-assisted RIRS for pediatric renal calculi: a prospective evaluation of a new robotic system

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BACKGROUND: The incidence of pediatric urolithiasis has increased significantly over recent decades, posing distinct management challenges due to the smaller anatomical dimensions and delicate urinary tract of children. Among minimally invasive treatments, retrograde intrarenal surgery (RIRS) has emerged as a highly effective option. In adults, the integration of robotic platforms has revolutionized RIRS by improving ergonomics, reducing surgeon fatigue, and enhancing fiber stability. However, clinical evidence regarding the application of endourological robotics in the pediatric population remains absent. This prospective study evaluated the technical feasibility, safety, and therapeutic efficacy of robot-assisted RIRS using the innovative ILY® Robot system in a cohort of pediatric patients presenting with renal stones.

METHODS: This prospective, single-center observational study included pediatric patients treated at our institution between October 2025 and April 2026. Eligibility criteria comprised solitary renal stones ≤ 1.5 cm or multiple stones ≤ 0.7 cm, in the absolute absence of concomitant anatomical urinary tract anomalies. To ensure safe ureteral access, all patients underwent mandatory passive pre-stenting before the main surgery. Procedures were performed under general anesthesia utilizing flexible ureteroscopy, thulium laser lithotripsy for stone dusting, and robotic control through the ILY® platform. Perioperative outcomes, conversion rates, total operative times, intraoperative and postoperative complications, duration of hospital stay, postoperative pain scores, and stone-free status at one month were systematically assessed.

RESULTS: Thirteen pediatric patients were analyzed (mean age: 8.6 years, min 5 e max 16). No conversions to conventional laparoscopic or open surgery were required. The overall mean operative time was 104.8 minutes (min 65' e max 168'), which included approximately 10 minutes for robotic docking. No intraoperative or postoperative complications occurred (Clavien-Dindo 0). Hospital stay averaged 3.3 days (min e max), and postoperative pain was controlled by Paracetamol in all cases. Transient, self-limiting hematuria lasting between one and four days was observed in every patient and resolved spontaneously without intervention. A stone-free rate (SFR) of 100% was successfully achieved perioperatively and confirmed at the one-month follow-up via urinary tract ultrasound. The implementation of the ILY® robotic platform demonstrated excellent efficacy, achieving a 100% SFR that matches or exceeds standard manual RIRS literature. The surgical timeline highlighted a distinct learning curve: initial cases in the extended cohort showed a temporary increase in operative duration (up to 168 minutes), which rapidly stabilized down to 70-75 minutes in the final procedures. This indicates that team coordination and docking proficiency can be optimized swiftly. The absolute absence of complications underscores the safety of robotic assistance, where automated micrometer movements and enhanced fiber stability minimize the risk of pressure-induced ureteral injuries.

CONCLUSIONS: Robot-assisted RIRS with the ILY® Robot system is technically feasible, safe, and highly effective for managing pediatric renal calculi. Despite an initial learning curve reflected in operative times, the excellent stone

clearance and safety profile are promising. Larger, multicenter studies are required to define its definitive role in pediatric endourology.

Robotic

Robot-assisted surgery for pediatric renal tumors: initial experience and technical considerations

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BACKGROUND: Robot-assisted surgery remains a limited field of application in pediatric surgical oncology, particularly for renal tumors, because preservation of oncological principles is paramount. However, the UMBRELLA SIOP-RTSG 2016 protocol recognizes a potential role for nephron-sparing surgery and minimally invasive approaches in highly selected patients, according to strict eligibility criteria. We aimed to report our preliminary single-center experience with robot-assisted surgery for pediatric renal tumors, describe the surgical technique and its evolution over time, and discuss the technical and oncological considerations arising from our initial cases.

METHODS: We retrospectively reviewed five consecutive pediatric patients undergoing robot-assisted renal surgery for oncological indications at our institution. Demographic, clinical, radiological, surgical, pathological, and postoperative data were collected. Outcomes of interest included type of procedure, operative time, intraoperative and postoperative complications, length of stay, surgical margins, and short-term oncological follow-up. In addition, we analyzed the key technical steps of the procedure and the modifications progressively introduced in our surgical approach, including port placement, patient positioning, hilar control.

RESULTS: Between December 2025 and May 2026 five patients underwent robot-assisted renal surgery. Procedures included 3 robot-assisted partial nephrectomies, 1 tumor enucleation and 1 tumor biopsy and subsequent nephrectomy according to tumour characteristics and protocol-based selection criteria. Median age at surgery was 29 months. Median operative time was 197 minutes, with a median console time of 127 minutes and median postoperative stay was 3 days. No conversion to open surgery occurred. One patient experienced a postoperative urinary leak, managed with placement of a ureteral stent during cystoscopy. Histopathological examination showed two wilms tumors, two metanephric adenomas and one cystic nephroma, all specimens had negative margins. Adequate lymph node sampling was carried out in all patients. The first two patients were positioned in the lateral decubitus position, whereas the subsequent patients were positioned supine. In all cases, four trocars were placed and the renal hilum was isolated and secured without vascular clamping. Our initial experience suggests that robot-assisted nephron-sparing surgery is feasible in carefully selected pediatric patients with renal tumors. The progressive change from lateral to supine positioning improved access to the renal hilum and may facilitate a standardized approach. Hilar dissection without vascular clamping was achievable in all cases, potentially avoiding warm ischemia while maintaining adequate vascular control. Nevertheless, oncological safety, including complete resection and avoidance of tumor rupture, must remain the primary determinant of surgical indication.

CONCLUSIONS: Robot-assisted renal surgery may represent a feasible option for selected pediatric renal tumors within a multidisciplinary setting and according to strict protocol-based criteria. Refinement of surgical technique and standardized operative steps may improve reproducibility. Larger multicenter series and longer oncological follow-up are required to define the role of this approach in pediatric renal oncology.

Transitional care

Testicular microlithiasis in transition age: a five-year single centre follow-up experience

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BACKGROUND: Testicular microlithiasis (TM) is an ultrasound finding whose clinical relevance in adolescents remains debated, particularly during transition from paediatric to adult care. Although isolated TM is generally considered low risk, associated risk factors may influence surveillance. The aim of this study was to evaluate the clinical course of patients with known TM and the applicability of a risk-adapted follow-up model.

METHODS: We retrospectively reviewed 25 adolescents and young adults with known ultrasound-diagnosed TM followed at our centre between 2020 and 2025. Median age at first evaluation was 15.6 years (range 12-21), and median follow-up was 30 months (range 12-60). Patients were analysed according to age, laterality, TM pattern, testicular volume, symptoms and risk factors for testicular malignancy, including previous cryptorchidism/orchiopexy, testicular hypotrophy, family history of germ cell tumour and suspicious clinical or ultrasound findings. Patients were stratified into low-, intermediate- and high-risk groups.

RESULTS: TM was bilateral in 16 patients (64%) and unilateral in 9 (36%); a diffuse/classic pattern was observed in 14 cases (56%). Fifteen patients (60%) were classified as low risk, 6 (24%) as intermediate risk and 4 (16%) as high risk. The most frequent indications for surveillance were previous diagnosis during ultrasound for scrotal pain, varicocele, testicular asymmetry or follow-up after cryptorchidism. During follow-up, ultrasound findings remained stable in 22 patients (88%), with no palpable testicular masses. Low-risk patients remained asymptomatic and did not require escalation of diagnostic workup. Patients with previous cryptorchidism/orchiopexy or reduced testicular volume continued scheduled urological and ultrasound surveillance. Tumour markers were requested only in selected higher-risk cases and were negative. No surgical exploration and no testicular malignancy were recorded. Known TM in transition age showed a stable clinical and ultrasound course in most patients. Follow-up intensity was mainly driven by associated risk factors rather than by TM alone. The absence of malignant events in this small cohort should be interpreted cautiously, but supports a conservative risk-adapted approach in low-risk adolescents.

CONCLUSIONS: In this five-year single-centre experience, isolated TM did not justify intensive ultrasound surveillance. Counselling and testicular self-examination appear appropriate for low-risk patients, whereas adolescents with TM and additional risk factors may benefit from structured follow-up during transition to adult care. Larger prospective multicentre studies are needed to standardise recommendations.

Posterior urethral valves

Diagnosis of fetal megacystis: where do we stand? Single center study of 40 consecutive cases

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BACKGROUND: Prenatal counselling after diagnosis of fetal megacystis is challenging, as predictive parameters of postnatal renal function and of diagnosis of Lower Urinary tract Obstruct (LUTO) are yet to be defined. Primary aim of the study was to analyse the outcome of 40 consecutive unselected cases of prenatal LUTO.

METHODS: Retrospective single center study on all consecutive fetal megacystis observed from 03.2015 to 07.2025. For all patients data were extracted from Trackcare: prenatale US, pregnancy, delivery, perinatal period, CrS, postnatal imaging, surgery. Statistical analysis conducted with Graph Pad Prism (vers 10, San Diego, CA, USA) (Mann-Whitney Test for continuous variables, Fisher's Test for categorical variables; P value <0,05).

RESULTS: fetused were observed at a mean GA of 26

weeks, 11/40 before 18 week (27.5% "early megacystis"). 7, with an average LBD 50 mm, underwent TOP, 1 IUFD. 32 were live born (80%), 3 with a normal urinary tract, 26 (60%) were confirmed as LUTO at VCUG or autopsy (52% PUV). Perinatal mortality was 35% in LUTO and 9% in non-LUTO.

CONCLUSIONS: Among all the parameters evaluated (Hydronephrosis, ureteral dilatation, AF, LBD, GA, keyhole sign) only a reduced AF was predictive of LUTO (P 0.027). among post natal variables, LUTO higher difficulties in post-natal adaptation (P 0.016) and higher CrS (P 0.044). At a mean follow-up of 36 mths, 5 LUTO pts developed CKD, 2 of them underwent renal transplant. Strength: all pts followed with the same protocol, no pt lost at follow-up. Limits: retrospective, short follow-up. As in the literature 60% of fetal megacystis were found to have a LUTO, but only 7.5% had a normal urinary tract. The high perinatal survival (80%) could be due to the "late" diagnosis in the majority of our pts. Out of all the parameters evaluated, only the reduction of AF was predictive of LUTO and increased post natal CrS. At a 36 mths followup, only pts with LUTO presented with CKD, which underlines the importance of prenatal parameters able to distinguish LUTO from non LUTO.