Poster Session 2: Endourology, BPH (Part 1)
Sunday, June 30, 2024 • 16:10–17:40

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MP 2.1
Percutaneous nephrolithotomy in the prone-flexed position: Airway pressure and body habitus implications

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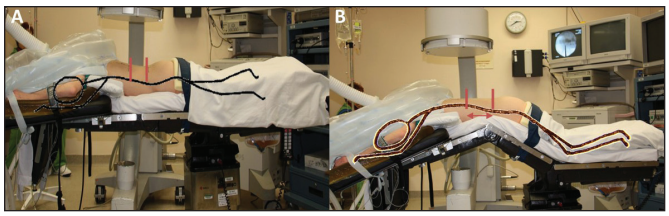
Introduction: The traditional prone position (PP) for percutaneous nephrolithotomy (PCNL) has undergone modifications since it was first described in 1976. The prone-flexed position (PFP) (Figure 1) is one such modification that improves the safety and ergonomics of PCNL; however, the effect of airway pressures and ventilation has been questioned for the PFP. In this study, we sought to quantify the changes in peak airway pressure (PAP) in the supine position (SP), PP and PFP, and to shed light on the relationship between abdominal girth, body mass index (BMI), and PAP.

Methods: This was a prospective study of patients undergoing PCNL. Their PAP and positive end-expiratory pressure (PEEP) were recorded in the SP, PP, and PFP. The PAPs were compared with a repeated measures ANOVA. The paired t-test was used to compare SP and PFP groups across obese and non-obese patients. Linear regression was used to assess if abdominal girth was a predictor of change in PAP from SP to PFP.

Results: Of the 63 patients included in the study, the mean PAP was <35 cm H_2O for all groups. The mean PAP was higher with PFP (20.3±5.6 cm H_2O) than PP (17.2±5.0 cm H_2O, p<0.001), which was higher than SP (15.4±4.1 cm H2O, p<0.001). The mean change in PAP when moving from the SP to PFP did not differ significantly in the obese vs. non-obese population (p=0.13). Abdominal girth was not a significant predictor of the change in PAP from SP to PFP (linear regression, p=0.23); however, girth was a significant predictor of elevated PAP in the PFP (p=0.024). None of the patients required conversion out of the PFP for anesthetic or other reasons.

Conclusions: The prone-flexed position is a safe and simple modification to the traditional prone PCNL. Changes in airway pressures are not clinically significant in PFP compared to PP or SP. Given the anatomical and surgical advantages, PFP is a safe and optimal position for prone PCNL, even in the obese population group.



MP 2.1. Figure 1. Comparison of the (A) prone and (B) prone-flexed positions in the same patient. Note the flattening of the lumbar lordosis and the widening of the space between the iliac crest and the 12th rib (illustrated by skin markers) in the PFP.

MP 2.2
BPH surgical trifecta outcomes: Comparison of Aquablation vs. TURP

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Introduction: The concept of "success" in surgical procedures is crucial, in any field, and needs standardization to 1) assess the patients' postoperative benefits; 2) evaluate the surgical quality within centers and operators; and 3) perform reliable comparisons among techniques. The present study sought to describe and analyze the patient-level trifecta success of Aquablation and TURP for the treatment of benign prostatic obstruction. Clinical and surgical predictors of failure to achieve trifecta were investigated.

Methods: A retrospective analysis of prospectively conducted clinical trials WATER (NCT02505919), WATER II (NCT03123250), and OPEN WATER (NCT02974751) included patients from the U.S., Canada, Germany, Australia, New Zealand, Lebanon, and the United Kingdom from 2017–2021. Trifecta was defined as the contemporary efficiency and safety presence of: 1) freedom from procedure-related sexual dysfunction (either erectile or ejaculatory dysfunction); 2) no pad-use urinary incontinence; and 3) no interventional retreatment due to LUTS. The trifecta success rates were assessed at three, six, and 12 months postoperatively. Subanslysis in the Aquablation cohort was also conducted for prostate volumes <80 bcc and >80 cc. Multivariate logistic regression analysis was performed to assess predictors of trifecta failure.

Results: The cohort included 395 Aquablation patients that treated prostates up to 150 cc and 65 TURP patients that treated prostates up to 80 cc. Mean prostate volumes and age for the Aquablation patients and TURP patients were 70 cc and 52 cc, and 67 and 66 years old, respectively. The achievement of trifecta success at one year was 88.6% for Aquablation and 73.8% for TURP (p=0.0014). Trifecta success at three and six months for the Aquablation cohort compared to the TURP cohort were. 91.4% vs. 75.4% and 89.9% vs. 73.8%, respectively. Subanalysis within the Aquablation cohort <80 cc and >80 cc demonstrated trifecta rates at 12M of 90.3% and 85.5%, respectively. Patient age, preoperative PVR ≥250 mL and larger prostate volume were independent predictors of trifecta failure.

Conclusions: Aquablation has demonstrated significantly better trifecta success compared to TURP while treating a much broader range of prostate sizes, particularly with the preservation of antegrade ejaculation.

MP 2.3
In-vivo acute ureteral dilation using electromotive drug administration in the porcine ureter

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Introduction: Ureteral access sheath (UAS) passage is limited by baseline ureteral tone. Smooth muscle relaxants have the potential to augment ureteral distensibility; however, their impact may be muted due to the poor permeability of the urothelium. Electromotive drug administration (EMDA) has been used to drive a drug deep into the bladder urothelium. Accordingly, we used EMDA

in the ureter with three smooth muscle relaxants to assess its impact on ureteral distensibility.

Methods: In 18 female Yorkshire pigs, baseline distensibility of both ureters was determined by passing 35 cm long Cook Medical urethral dilators (10 Fr to 24 Fr) in 2 Fr increments at a maximal force of 3.5 Newtons. Maximum UAS size and location reached were recorded. Flexible ureteroscopy was used to determine a post-ureteroscopic lesion scale (PULS). In each of six pigs, in one ureter, an EMDA catheter was activated while alfuzosin 10 mg, isoproterenol 1 mg, or aminophylline 500 mg each diluted in 100 ml sterile water were infused at 5 ml/min for 20 minutes. In the contralateral control ureter, the EMDA catheter was not activated and only 0.9% normal saline was infused. Ureteral distensibility was re-evaluated. Dilator progression was recorded in single units (i.e., one unit each for distal, mid, and proximal ureteral progression) and in three units for each Fr increase in dilator size (i.e., 10 Fr to 11 Fr). The differences in dilation scores between the experimental and paired control ureters was assessed using Wilcoxon signed rank test.

Results: Only intra-ureteral EMDA administration of alfuzosin produced a significant increase in ureteral dilation score (alfuzosin 2.33 vs. control -0.33, p=0.0312). EMDA administration of isoproterenol and aminophylline did not reach statistical significance (isoproterenol 0.33 vs. control -1.33, p=0.34; aminophylline 1.00 vs. control -0.17, p=0.13). PULS grades were all <2.

Conclusions: In the porcine ureter, EMDA administration of alfuzosin significantly increased ureteral distensibility.

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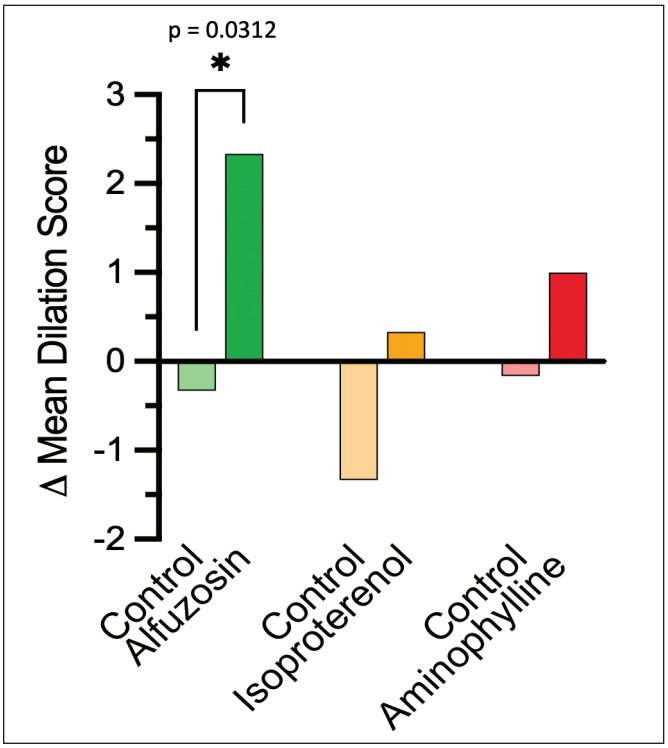

MP 2.3. Figure 1. The paired bar graphs illustrate the mean change in dilation score before and after treatment in each pig. Bars on the left signify normal saline control without EDMA in the contralateral ureter bars on the right signify experimental drug groups with EDMA. To calculate the dilation score, dilator progression between adjacent ureteral locations at the same dilator size were considered in one-unit increments (i.e., distal to mid to proximal); each 1 Fr increase in dilator size was graded as three units (i.e., 10 Fr to 11 Fr).

MP 2.4

The contemporary efficacy and safety of surgical treatments in the management of renal stones ≥2 cm: A network meta-analysis of 5799 patients from randomized controlled trials

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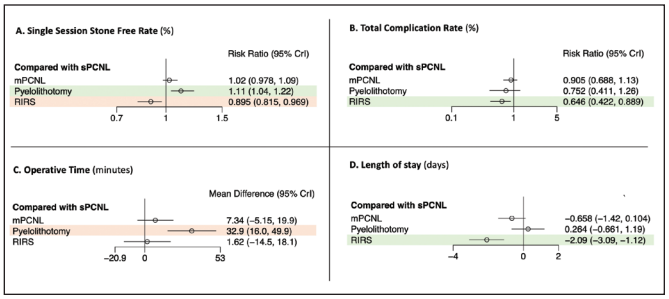
Introduction: The miniaturization of devices has transformed the management of large renal stones. We performed a network meta-analysis (NMA) comparing surgical treatment options for patients with a renal stone burden ≥2 cm.

Methods: A comprehensive search of medical databases was conducted on September 2023. Randomized control trials (RCTs) of patients with renal stones ≥2 cm who underwent surgery were included. Single-session stone-free rate (SFR) was defined as stone clearance with residual fragments ≤4 mm. Other outcomes included operative time (minutes), length of stay (LOS) (days), and complication rate (%). Random-effects Bayesian NMA was performed with the standard percutaneous nephrolithotomy (sPCNL) (24–30 Fr) as our reference treatment. Surface under the cumulative ranking (SUCRA) scores were calculated. Sensitivity analysis was conducted for staghorn stones.

Results: A total of 33 RCTs including 5799 patients who underwent sPCNL, miniPCNL (14–22 Fr), retrograde intrarenal surgery (RIRS), or laparoscopic pyelolithotomy (LP) were included. No studies were conducted in North America and all RIRS cohorts used first-generation holmium lasers. When compared to sPCNL, miniPCNL had similar SFR, while LP had superior SFR, and RIRS had inferior SFR (Figure 1A). Rankogram suggested LP had the highest single-session SFR among treatments (SUCRA 99). RIRS had the lowest pooled rate of complications (SUCRA 88) (Figure 1B). Operative time was significantly longer for patients undergoing LP (Figure 1C), while LOS was shortest among the RIRS group (Figure 1D). Sensitivity analysis for staghorn stones did not change outcomes.

Conclusions: Among patients with a renal stone burden ≥2 cm, LP may be most efficient in stone clearance, although RIRS offers reduced complications and LOS, at the cost of decreased SFR. This NMA highlights the clinical equipoise for similar studies to be conducted with next-generation laser technology, such as the MOSES 2.0 and thulium fiber, especially at tertiary centers in North America.



MP 2.4. Figure 1. (A) Single-session stone-free rate; (B) total complication rate; (C) operative time; and (D) length of stay.

MP 2.5

Failed trial without catheter post-Rezum in non-catheter-dependent patients: Risk factors from the Canadian Rezum registry

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Introduction: Rezūm has become an increasingly popular surgical approach for treating bladder outlet obstruction. Despite the practice of routinely placing a Foley catheter for a median of 3–4 days post-procedure, trial without catheter

(TWOC) failure remains variable and disconcerting for patients and providers alike. This study sought to identify the TWOC failure incidence and risk factors to inform clinical decision-making.
Methods: We conducted a retrospective review of non-catheter-dependent patients who underwent Rezūm therapy between April 2019 and June 2023 in two high-volume, Canadian centers. All patients received a urinary catheter post-treatment. IPSS, QoL, Qmax, and PVR were evaluated. Risk factors for TWOC failure were determined through logistic regression.
Results: Out of 406 patients, 99 patients (24.4%) failed TWOC on first attempt. The median time to TWOC was seven (range 3–30) days. Successful and failure groups had no significant difference in terms of average catheterization time (p=0.79), baseline prostate volume (p=0.288), PVR (p=0.35), or total number of injections per prostate volume ratio (p=0.89) (Table 1). A higher rate of urinary tract infection was observed in the TWOC failure group (10.6% vs. 2.6%, p=0.003). During followup, 12 patients experienced urinary retention. Patients who failed first TWOC were seven times more likely to present with retention during followup (OR 7.0, 95% CI 2.1–23.9, p=0.002). Patients failing their TWOC experienced retention sooner, at a mean time to retention of 3.7±3.7 months vs. 21±11.5 months in the successful TWOC group (p=0.002). Baseline PVR was not a risk factor for failed TWOC in our cohort (p=0.95). Higher IPSS was the only predictor for TWOC failure (OR 1.04, 95% CI 1.01–1.08).
Conclusions: About one in four patients failed first TWOC after Rezūm therapy. High baseline IPSS was identified as the only risk factor for TWOC failure in our cohort. Despite this, overall urinary symptoms improved in all patients.

MP 2.5. Table 1. Characteristics between successful and failed TWOC patients

	Total N=406	Successful TWOC n=307	Failed TWOC n=307	p
Age*	68.2 (62.4–74)	68.7 (60.7–72.2)	0.34	
Median lobe, n (%)	262 (64.5%)	203 (66.1%)	59 (59.6%)	0.28
Diabetes	29 (7.1%)	22 (7.2%)	7 (7.1%)	0.97
Hypertension	117 (28.8%)	88 (28.7%)	29 (29.3%)	0.9
History of previous urinary retention	48 (11.8%)	36 (11.7%)	12 (12.1%)	1
BPH medication usage, n (%)				
Alpha blockers	55 (13.5%)	38 (12.4%)	17 (17.2%)	0.16
5-ARIs	69 (17.0%)	51 (16.6%)	18 (18.2%)	
Alpha blockers + 5-ARIs	24 (5.9%)	16 (5.2%)	8 (8.1%)	
PDE5 only	18 (4.4%)	17 (5.5%)	1 (1.0%)	
Prostate volume, ml*	64 (47–93)	65 (47–93)	60.5 (46.5–92.5)	0.43
Prostate volume, n (%)				
<80 ml	262 (64.7%)	194 (63.2%)	68 (69.4%)	0.28
>80 ml	143 (35.3%)	113 (36.8%)	30 (30.6%)	
PSA, ng/mL*	3 (1.6–5.2)	3 (1.7–5.4)	2.99 (1.4–4.7)	0.46
Qmax, mL/s*	7.6 (5–11.65)	7.9 (5–12)	7.2 (4–10)	0.2
PVR, mL*	107 (31–216)	100 (28–206)	123.5 (47–237)	0.35
IPSS*	23 (18–26.5)	22 (18–26)	24 (19–28)	0.047
QoL*	5 (4–5)	5 (4–5)	5 (4–6)	0.17
Total number of injections*	10 (7–13)	10 (7–13)	9 (7–13)	0.24
Injection/prostate volume ratio (per 10 ml)*	1.4 (1.1–1.7)	1.4 (1.1–1.7)	1.4 (1.1–1.8)	0.89
Patients experiencing retention, n (%)	12 (2.9%)	4 (1.3%)	8 (8.1%)	0.002
Time to retention, months, mean ± SD	9.5±10.8	21±1.5	3.7±3.7	0.002

*Continuous variables were presented as median (IQR).

MP 2.6

Effect of pulse modulation for diode-pumped laser lithotripsy

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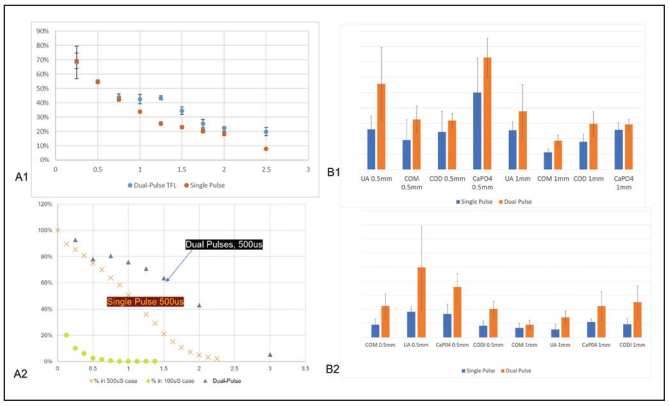
Introduction: Diode-pumped lasers offer versatility in pulse dosimetry for power and temporal modulation settings compared to flash-lamp pumped lasers. Flash-lamp pumped Ho:YAG lithotripsy shows the advantages of using pulse modulation over single pulses. We investigated the efficiency of pulse modulation in diode-pumped laser lithotripsy at two different wavelengths. We examined the effective energy transfer transmission (EET) and ablation crater volumes for single and pulse-modulated diode lasers.
Methods: We tested a thulium fiber laser (TFL 1.94 µm, 600 W peak power) and Tm:YAG laser (2.02 µm, 1500 W peak power) with adjustable pulse parameters in single- and dual-pulse modes to assess EET from the fiber tip to stone target through water at varying stand-off distances (SD). EET was calculated for each experiment using EET=100*(REwater/REair) %, where REwater is the measured pulse radiant energy through water, and REair is the pulse radiant energy measured in air. Pressure transients were measured for all conditions. For both single- and dual-pulse modes, we conducted ablation experiments using native stones (calcium oxalate monohydrate COM, dihydrate COD, calcium phosphate CP, uric acid UA). Stones were ablated with fiber SD of 0.5 and 1 mm. Post-ablation, optical coherence tomography was used to image craters and calculate ablation volumes. Tukey's honest test and analysis of variance were used for statistics.
Results: For both lasers, the peak power, duration, and separation of the first pulse impacted the EET (Figure 1). Pressure transients ranged from 20–40 bars. For both lasers, dual-pulse modulation yielded increased EET. The increased EET was more pronounced for the higher-peak power Tm:YAG than for TFL (panels A1, A2). For both lasers, dual-pulse modulation yielded increased ablation p<0.05



MP 2.6. Figure 1. (A) Effective energy transmission of single-pulse vs. dual-pulse at varying stand-off distances (in mm) for a TFL (panel A1) and Tm:YAG (panel A2). (B) Corresponding stone volume comparison for the two pulse mode conditions for the TFL (panel B1) and Tm:YAG (panel B2).

(panels B1 and B2), with exceptions for TFL COD at 0.5 mm (p=0.3), UA at 1 mm (p=0.2), and COM Tm:YAG at 1 mm (p=0.4).
Conclusions: A key to laser lithotripsy is getting photons to the stone. Pulse-modulated diode-pumped laser lithotripsy (TFL and Tm:YAG) offers increased energy transmission to stones. For the case of higher-peak power Tm:YAG, the increased energy transmission and stone ablation were more pronounced than for the lower-peak power TFL. Dual-pulse or advanced-pulse-modulated diode-pumped laser pulses yield more efficient energy transmission compared to single pulses. Pulse-modulated diode-pumped laser lithotripsy (TFL and Tm:YAG) may offer increased ablation of human stones. Pulse modulated diode-pumped lasers may be more efficient than single-pulse diode-pumped lasers.
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MP 2.7
Efficacy and patient satisfaction of Rezum water vapor therapy for the treatment of catheter-dependent urinary retention: Canadian single-center experience

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Introduction: Urinary retention secondary to benign prostatic hyperplasia (BPH) requiring catheterization is a prevalent and morbid condition geriatric patients endure. The objective of this study was to evaluate the real-world efficacy and safety of Rezūm water vapor therapy for the treatment of catheter-dependent urinary retention in a Canadian population.
Methods: A single-center, retrospective review was conducted on patients with catheter-dependent urinary retention secondary to BPH who were treated with Rezūm water vapor therapy between April 2022 and April 2023. Standardized postoperative followup was mandatory for inclusion. Patient demographics, comorbidities, procedural characteristics, adverse events, and outcome measures were collected minimally at one, three, and six months. Patient satisfaction was assessed using a modified surgical satisfaction questionnaire (SSQ-8).
Results: A total of 24 patients were included. Mean patient age was 70.0 years (range 56–84). Mean Charlson Comorbidity Index (CCI) score was 3.46. Baseline mean prostate volume was 77.86 mL (range 34–124). Patients were catheter-dependent for an average of 196.5 days prior to surgical intervention. Median followup time was 11.15 months. Of the 24 patients treated, 21 (87.5%) patients were able to void spontaneously after treatment. Thirteen (54.2%) patients failed their initial trial of void at 14 days postoperatively. Mean time to catheter independence after intervention was 28.7 days. Mean postoperative Qmax was 12.1 mL/s. Five patients had urinary tract infections and three patients had hematuria beyond one week postoperatively. One patient was admitted to hospital with clot retention. There were no Clavien Dindo >3 complications. Of the patients who are voiding spontaneously after treatment, the majority (76.2%) are not taking any medication for treatment of their BPH. Two (9.5%) patients proceeded to further surgical intervention for ongoing bothersome lower urinary tract symptoms. Twenty (83.3%) of patients would recommend Rezūm water vapor therapy for the treatments of catheter-dependent urinary retention.
Conclusions: Rezūm water vapor therapy effectively treated catheter-dependent urinary retention with high patient satisfaction. Clinicians should consider Rezum for catheter-dependent patients given the simplicity of treatment, accessibility, and minimal anesthetic requirements to minimize indwelling catheter-related morbidity.

MP 2.8
Flow rate improvements maintained through 2 years after treatment with Optilume BPH

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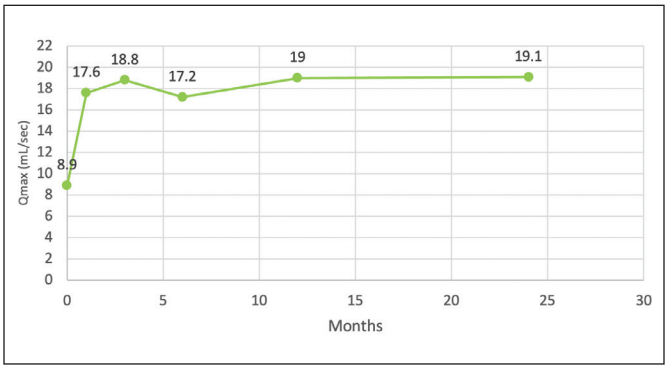
Introduction: Optilume BPH is a novel, minimally invasive surgical therapy (MIST) that combines mechanical dilation with the delivery of paclitaxel for the treatment of lower urinary tract symptoms (LUTS) secondary to benign prostatic hyperplasia (BPH). Mechanical dilation with Optilume BPH achieves an anterior commissurotomy, while delivery of paclitaxel is intended to maintain luminal patency during healing. The PINNACLE study was a randomized, sham-controlled study evaluating Optilume BPH against a sham procedure, with long-term followup limited to the active (Optilume BPH) treatment group.
Methods: A total of 148 subjects were randomized in a 2:1 fashion (100 Optilume BPH, 48 sham) at 18 centers in the U.S. and Canada. Subjects and evaluating personnel were blinded to the treatment received through 12 months; subjects randomized to receive treatment with Optilume BPH continued followup through two years. Symptom improvement was measured using the International Prostate Symptom Score (IPSS), and functional improvement was measured by peak urinary flow rate (Qmax). Erectile and ejaculatory functions were evaluated using validated questionnaires.
Results: Seventy-eight subjects have completed the two-year followup in the per-protocol set. Two subjects (2/100, 2%) have pursued additional surgical management (PAE, TURP) through the two-year timepoint. Improvement in IPSS was maintained through two years (23.4 vs 13, Δ -10.4). Qmax improved from 8.9 mL/sec at baseline to 19.0 at two-year followup. Paired analysis showed minimal changes in IPSS and Qmax from 12-month to two-year followup. There were no changes in perceived sexual or ejaculatory function.
Conclusions: Treatment with Optilume BPH results in impressive and durable functional improvements in flow rate and symptomology. Minimal surgical retreatment has occurred in the cohort of patients randomized to receive Optilume BPH as part of the pivotal, randomized, sham-controlled trial.
Acknowledgements: Dr. Elterman is an investigator at Urotronic, Inc.



MP 2.8. Figure 1. Qmax over time after treatment with Optilume BPH.

MP 2.9

Effectiveness of Rezum for catheter-dependent urinary retention: 12 months outcomes of a real-world Canadian database

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Introduction: Managing catheter-dependent urinary retention typically involves medical therapies, and when these are ineffective, transurethral surgery. Rezūm presents an alternative treatment option. This study aimed to evaluate the clinical outcomes of treating catheter-dependent urinary retention using Rezūm therapy.

Methods: A prospectively collected database from two high-volume Rezūm centers in Canada was analyzed between April 2019 and June 2023. Eligible patients were those with catheter-dependent urinary retention at the time of treatment. Variables, such as patient demographics, operative characteristics, and functional outcomes, were assessed at baseline, three, six, and 12 months post-procedure. Descriptive statistics and logistic regression analyses were employed for data interpretation.

Results: Forty-four patients were catheter-dependent at the time of Rezūm and had a mean age of 69.6±10.3 years. The cohort's average prostate volume was 87.3 (range 29–195) ml, with 11% of prostates exceeding 150 ml. Most (82%) patients had a median lobe. Just over half (52.3%) were under oral BPH medication and 4.5% (2/44) had received prior surgical intervention. Patients received a median of 14.5 (range 7–21) vapor injections at an average procedure time of 5.0±1.7 minutes. Trial of void (TOV) was attempted at a median of 30 (range 7–30) days, with a 38% (15/44) failure rate. No significant associations were found between failed initial TOV and variables such as prostate volume, number of treatments, comorbidities, or presence of a median lobe. IPSS reduced from 23.2±8.8 at baseline to 8.3±7.0 at 12 months. The rates of spontaneous voiding and catheter independence were 30/31 and 24/25 at six and 12 months, respectively. By the 12-month mark, reoperation was required in 4% (1/25), while 96% (24/25) remained catheter-independent.

Conclusions: Rezūm water vapor therapy is a promising and effective treatment alternative for catheter-dependent urinary retention patients who have failed initial TWOC, with high rate of spontaneous voiding at 12 months post-procedure.

MP 2.10

Factors predicting stone-free rates after retrograde intrarenal surgery (RIRS) for lower pole kidney stones: A single-center retrospective analysis

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Introduction: We aimed to investigate the factors impacting stone clearance following retrograde intrarenal surgery (RIRS) for lower pole kidney stones and to determine whether there is a significant relationship between the infundibular pelvic angle (IPA) of the kidney's lower pole and stone fragment clearance.

Methods: We conducted a retrospective review of patients who underwent flexible ureteroscopy (f-URS) for lower pole renal calculi between December 2020 and July 2023 at our institution. Patient demographics and stone parameters were recorded, including stone size, number, volume, and density, as well as IPA. Intraoperative data, including total operative time, lasing time, type of laser used, and stone composition, were collected and analyzed. All patients underwent a CT scan at three months' followup. We recorded the presence of residual stones and the percentage of stone volume reduction. Patients with a stone size <4 mm were deemed stone-free. All patients were discharged home on the same operative day.

Results: A total of 123 patients were included in the study, with 71 in the stone-free group (group 1) and 52 in the residual stones group (group 2). On univariate analysis, there were significant differences between the two groups in terms of stone size, IPA, and the type of ureteroscopy used. At three months' followup, 96% (24/25) of patients with an IPA <30° had residual stones, compared to 28.6% (28/98) of patients with an IPA >30° (p<0.001). There was no significant difference in intraoperative or postoperative complications between the two groups. On multivariate analysis, IPA and stone size were the only predictive factors for the presence of residual stones. Twelve patients (23.1%) from group 2 required retreatment.

Conclusions: RIRS is an effective treatment option for the management of lower pole kidney stones. IPA, in conjunction with stone size, appears to dictate the stone clearance rates of RIRS for lower pole stones.

MP 2.10. Table 1. Preoperative, operative, and 3-month followup data

Parameter		Stone-Free 71 patients	Residual Stones 52 patients	p-value
Preoperative Data				
Gender	**Male** n (%)	35 (49.3)	33 (63.5)	0.12
	Female n (%)	36 (50.7)	19 (36.5)	
Age at surgery *years* median (range)		65 (25-84)	69 (24-94)	0.09
Stone size *cm* median (range)		1.1 (0.4-3.9)	1.2 (0.6-3.6)	0.034
Stone volume *mm³* median (range)		378 (42-4795)	514 (101-4760)	0.07
Number of stones median (range)		1 (1-3)	1 (1-3)	0.31
Stone density *HU* median (range)		772 (211-1604)	734 (215-1384)	0.25
IPA median (range)		58.7° (24-77)	31.4° (15-71)	<0.001
IPA	**≤ 30°** n (%)	1 (1.4)	24 (46.2)	<0.001
	> 30° n (%)	70 (98.6)	28 (53.8)	
Operative Data				
Operative time *minutes* median (range)		57 (18-135)	52 (29-121)	0.49
URS type	**Disposable** n (%)	33 (46.5)	35 (67.3)	0.02
	Reusable n (%)	38 (53.5)	17 (32.7)	
Laser type	**MOSES** n (%)	42 (59.2)	38 (73.1)	0.11
	TFL n (%)	29 (40.8)	14 (26.9)	
Lasing time *minutes* median (range)		7 (1-56)	8.5 (1-65)	0.14
3-month Follow-Up Data				
Residual stone size *cm* median (range)		0 (0-0.3)	0.6 (0.4-4)	<0.001
Residual stone volume *mm³* median (range)		0 (0-182.5)	117 (6.8-1755)	<0.001
Residual stone number median (range)		0 (0-1)	1 (1-2)	<0.001
% of volume reduction median (range)		100 (73.7-100)	76.1 (12.6-98)	<0.001
Complications	**Clavien I** n (%)	5 (7)	3 (5.8)	0.91
	Clavien II n (%)	2 (2.8)	1 (1.9)	
Retreatment n (%)		0	12 (23.1)	<0.001

HU, Hounsfield unit; IPA, infundibulopelvic angle; URS, ureteroscopy

MP 2.11

Ambulatory percutaneous nephrolithotomy: A systematic review and meta-analysis

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Introduction: Ambulatory (AMB) percutaneous nephrolithotomy (PCNL) is an emerging clinical model that gained popularity during COVID-19 due to strained hospital resources. We investigated the differences in outcomes between standard inpatient (IP) and AMB PCNL and summarized the perioperative protocols of outpatient pathways.

Methods: This study was completed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines and registered with PROSPERO (CRD42023438692). AMB PCNL was defined as patients who were discharged after an overnight stay (≤23 hours), where same-day discharge (SDD) was considered a subgroup of AMB PCNL who were discharged postoperative day 0.

Results: Twenty-five studies were included in the systematic review, of which 12 comparative studies were used for meta-analysis. We had a pooled population of 2463 patients: 1956 (79.42%) AMB (747 [30.33%] SDD) and 507 (20.58%) IP. When compared to IP, AMB had decreased overall complications (RR 0.65, 95% CI 0.47, 0.90, p=0.010) but similar rates of major complications (≥ Clavien-Dindo 3) (RR 0.46, 95% CI 0.17, 1.21, p=0.12). Additionally, AMB were more likely to be stone-free (RR 1.35, 95% CI 1.09, 1.66, p=0.005). There were no differences

in emergency department visits (RR 1.09; 95% CI 0.69, 1.74, p=0.71), changes in hemoglobin levels (MD -0.10, 95% CI -0.41, 0.21, p=0.54), or 30-day readmission rates (RR 1.09, 95% CI 0.54, 2.21, p=0.81). Sensitivity and subgroup analyses did not alter outcomes significantly. Cost savings ranged from $932.37–5327 USD per case.

Conclusions: AMB PCNL seems to be a safe and efficacious model for select patients with renal stones. Selection bias likely accounts for less complications and improved stone-free rate in our AMB cohort, though this supports the overall safety of current AMB inclusion criteria. We hope this study can help inform the uptake of AMB PCNL for centers looking to transition patients to outpatient surgery.

MP 2.12

The role of PSA kinetic, biopsy, and multiparametric MRI for detection of residual prostate cancer post-holmium laser enucleation of the prostate

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Introduction: The study aimed to assess the role of PSA reduction, as well as biopsy and mpMRI for the detection of residual prostate cancer (PCa) post-HoLEP.

Methods: We retrospectively collected data on patients who underwent HoLEP for clinically diagnosed BPH that was later confirmed to be PCa via final pathology reports (n=27). The collected data comprised patient age, preoperative PSA levels, and PSA levels three months postoperative. Our investigation encompassed patients who had undergone mpMRI three months following HoLEP upon receiving a PCa diagnosis followed by TRUS-guided prostatic biopsy and targeted biopsy if required. The study also incorporated a control group of 27 patients who were treated with HoLEP and subsequently confirmed to have benign prostatic pathology.

Results: Of 27 PCa patients (median age 74 years old), postoperative TRUS biopsy did not show cancer in 18 cases (66.6%), while low-risk and favorable intermediate-risk was shown in seven (26.0%) cases, and unfavorable intermediate-risk or high-risk was reported in two (7.4%) patients. The median PSA reduction was 91% in the control group. The median PSA reduction in the PCa group with benign pathology, low-risk, and high-risk groups was 89%, 82%, and 67%. mpMRI did not add diagnostic value when it was done three months post-HoLEP, with 28% of patients with the final benign pathology having PI-RADS score of 4 and 5 (Table 1).

Conclusions: The study suggests that a post-HoLEP PSA decrease of <70% may be indicative of high-grade prostate cancer, whereas a decrease of >80% tends to correspond with either no remaining cancer or low-grade prostate cancer. Monitoring with a PSA test and biopsy three months after HoLEP appears to be an effective strategy for patients with identified prostate cancer; however, the additional use of MRI at this three-month mark did not enhance diagnostic accuracy. Due to the limited sample size, these observations should be interpreted cautiously, and larger studies are needed to confirm these preliminary findings.

MP 2.13

Prospective evaluation of efficacy, safety, cumulative laser energy, and stone-free rates in the post-market thulium fiber laser (SOLTIVE SuperPulsed Laser System) registry: Insights from Team of Worldwide Endourological Researchers (T.O.W.E.R.) Research Consortium

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Introduction: Thulium fiber laser (TFL) has emerged as an effective tool for endoscopic laser lithotripsy since its introduction in 2019. In this prospective, international clinical registry, the Endourological Society's T.O.W.E.R. Research Consortium evaluated the ablative performance, stone-free rates (SFRs), and safety of the first commercially available TFL system, SOLTIVE(TM) SuperPulsed Laser System (Gyrus ACMI, Brooklyn Park) in a large patient cohort.

Methods: A tottal of 423 patients undergoing ureteroscopy for ureteral and/or renal stones using the TFL were prospectively recruited and treated across eight international institutions between December 2021 and April 2023. Baseline clinical characteristics, intraoperative lithotripsy efficiency, adverse events, and postoperative outcomes were collected. Kidney and ureteral stones were analyzed according to stone volume and density. Adverse events and SFRs were assessed at one and three months.

Results: The stone-free rates (SFR) at three months are listed in Figure 1. Stone ablation speed is statistically comparable across all stone densities within each stone location, (p=0.41, p=0.125) for kidney and ureter, respectively (Figure 2). SFR by location is displayed in Figure 3. Serious adverse events (SAEs) occurred in 3.8% (16/423) of patients and were all due to infection, with two being ureteral stricture (deemed not related to the laser procedure).

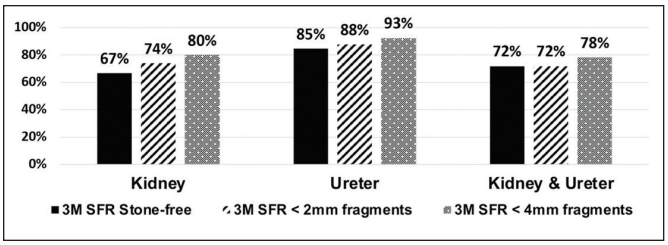
Conclusions: The TFL (SOLTIVE(TM) SuperPulsed Laser System is effective in ureteroscopic lithotripsy for stone disease, with low complications and good SFRs and ablation speeds (0.62 [0.31–1.45] mm3/s) across all stone densities. Stone ablation speeds are consistent through all four quartiles of stone densities indicating the TFL is an effective laser for all stone types.

Acknowledgements: This study was sponsored by Olympus Surgical.

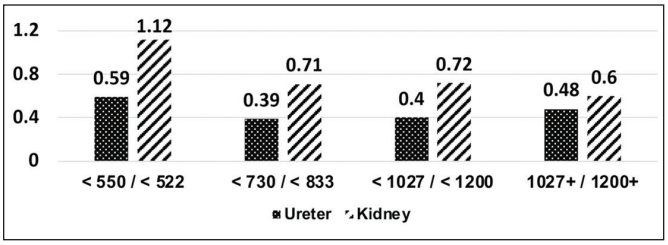
MP 2.12. Table 1. PSA kinetics, 3-month post-HoLEP biopsy and MRI in patients with prostate cancer on HoLEP-pathology

HoLEP pathology	3-mo post-op biopsy (n)	Age (median)	PSA kinetics (% reduction) median (range)	3-mo post-op MRI		
				PIRAD I/II, n (%)	PIRAD III, n (%)	PIRAD IV/V, n (%)
PCa	Benign (n=18)	75	85% (34–98%)	10 (55.5%)	3 (16.7%)	5 (27.8%)
	Low or favorable intermediate-risk* (n=7)	67	82% (40–94%)	2 (28.6%)	2 (28.6%)	3 (42.8%)
	Unfavorable intermediate or high-risk** (n=2)	71	67% (67%)	0 (0%)	1 (50%)	1(50%)
Benign (control)	NA	73	92 (8–100%)	NA	NA	NA

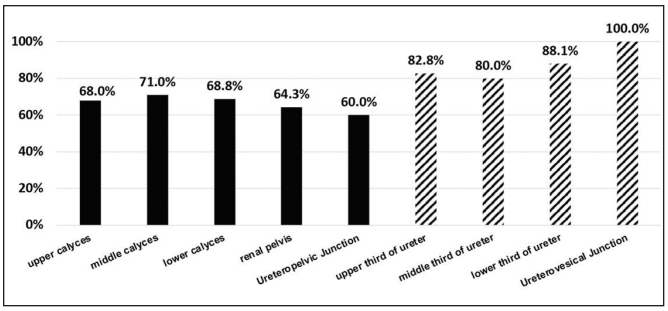
*Gleason scores 3+3 or 3+4. **Gleason score 4+4 was only found.



MP 2.13. Figure 1. Stone-free rate.



MP 2.13. Figure 2. Stone ablation speed by stone density (mm^3/s).



MP 2.13. Figure 3. Stone-free rate at 3 months by location.

MP 2.14

Second-generation MOSES 2.0 vs. MOSES 1.0 pulse-modulation technologies for holmium laser enucleation of the prostate

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Introduction: Herein, we report our initial experience with enhanced MOSES 2.0 technology in patients who underwent holmium laser enucleation of the prostate (HoLEP) for the treatment of benign prostatic hyperplasia (BPH), in comparison to those who underwent HoLEP with MOSES 1.0 technology at our institution.

Methods: We retrospectively reviewed prospectively collected data of 196 patients who underwent HoLEP using MOSES 1.0 or MOSES 2.0 pulse-modulation technology from December 2020 to September 2023. Preoperative and intraoperative parameters and three-month postoperative outcomes, as well as perioperative complications, were collected and analyzed.

Results: A total of 196 patients were included in the study. Among them, 146 patients underwent MOSES 1.0 HoLEP, while 50 had MOSES 2.0 HoLEP. No statistically significant differences in preoperative characteristics were observed between the two groups. The median prostate volume for the MOSES 1.0 and MOSES 2.0 HoLEP groups was 109 cc and 117.5 cc, respectively. Patients in the MOSES 2.0 group had a shorter median enucleation time (52.5 vs. 42.5 min, p<0.001) and hemostasis time (8 vs. 6 min, p=0.002), along with lower laser energy usage (101 vs. 86.4 kJ, p=0.012) when compared to those in the MOSES 1.0 cohort. Postoperative outcomes, including IPSS, QoL, Qmax, and PVR, were comparable between the two groups at one and three months postoperative. The incidence of urge urinary incontinence (p=0.2), stress urinary incontinence (p=0.13), and hospital readmission rates (p=0.42) were also comparable between the cohorts.

MP 2.14. Table 1. Preoperative and operative data

Parameter		MOSES 1.0 HoLEP 146 patients	MOSES 2.0 HoLEP 50 patients	p
Preoperative Data				
Age at surgery median (range) *years*		72.6 (57.6-87.9)	73.8 (56.3-97.7)	0.78
Preoperative IPSS median (range)		26 (16-35)	28 (18-32)	0.15
Preoperative QoL median (range)		5 (3-6)	5 (3-6)	0.95
Preoperative Qmax median (range) *mL/s*		8 (1.4-20)	7.3 (3.1-12.9)	0.31
Preoperative PVR median (range) *mL*		200 (62-875)	219 (46-567)	0.55
Prostate volume median (range) *cc*		109 (50-325)	117.5 (60-300)	0.32
Preoperative PSA median (range) *ng/mL*		5.1 (0.47-26)	5.3 (2.1-25.6)	0.22
Operative Data				
Enucleation time median (range) *min*		52.5 (19-135)	42.5 (18-87)	<0.001
Morcellation time median (range) *min*		11 (2-70)	12 (5-40)	0.44
Hemostasis time median (range) *min*		8 (4-16)	6 (2-11)	0.002
Resected weight median (range) *g*		82 (18-303)	97.5 (32-264)	0.11
Energy median (range) *kJ*		101 (37.5-263.2)	86.4 (34.7-142.8)	0.012
Enucleation efficiency median (range) *g/min*		1.63 (0.6-3.37)	2.2 (1.1-3.3)	<0.001
Hemoglobin drop median (range) *g/L*		11 (2-66)	9 (1-22)	0.44
Blood transfusion n (%)		1 (0.7)	0	0.34
Successful same-day TOV n (%)		128/134 (95.5)	45/47 (95.7)	0.99
Duration of catheterization n (%)	3 hours	134 (91.8)	47 (94)	0.78
	<24 hours	11 (7.5)	3 (6)	
	48 hours	1 (0.7)	0(0)	
Hospital stay, n (%)	4 Hours	133 (91.1)	47 (94)	0.84
	6 hours	1 (0.7)	0	
	<24 hours	11 (7.5)	3 (6)	
	48 hours	1 (0.7)	0	
Readmissions n (%)		1 (0.7)	1 (2)	0.42
3-month follow-up				
Number of patients		138	47	
IPSS median (range)		5 (0-17)	4 (1-9)	0.07
QoL median (range)		1 (0-4)	1 (0-2)	0.37
Qmax median (range) *mL/s*		22.8 (9.9-55.1)	23.9 (17-41.2)	0.33
PVR median (range) *mL*		28 (0-269)	20 (0-50)	0.09
Stress urinary incontinence n (%)		0 (0)	0 (0)	--
Urge urinary incontinence n (%)		0 (0)	0 (0)	--
% PSA reduction median (range)		86.7 (7.7-98.9)	89.4 (7.9 -97)	0.27

Conclusions: HoLEP with second-generation MOSES 2.0 technology is a safe and effective treatment option for BPH. It offers notable improvements, including reduced enucleation and hemostasis times, while using less energy when compared to MOSES 1.0.

MP 2.15

Transurethral intraprostatic anesthesia monotherapy using the Schelin catheter optimizes patient outcomes in a trial of outpatient Rezum procedures

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Introduction: Minimally invasive surgery techniques (MISTs), such as Rezūm treatment (RT) for benign prostatic hyperplasia (BPH), are gaining prominence. Standard analgesia involves periprostatic nerve block (PNB) with transrectal ultrasound (TRUS) or sedation. TRUS is invasive, uncomfortable, and carries infectious risks. Other methods demand time, training, pose safety risks, or require anesthesiology. Transurethral intraprostatic anesthesia (TUIA) using the Schelin catheter (ProstaLund AB, Sweden) (SC) is a non-invasive technique for office-based RT. We aimed to evaluate the analgesic efficacy of SC TUIA in patients undergoing RT. Secondly, we compared these results with a pilot study of TRUS-guided PNB.

Methods: Ten consecutive patients from a single surgeon and outpatient clinic

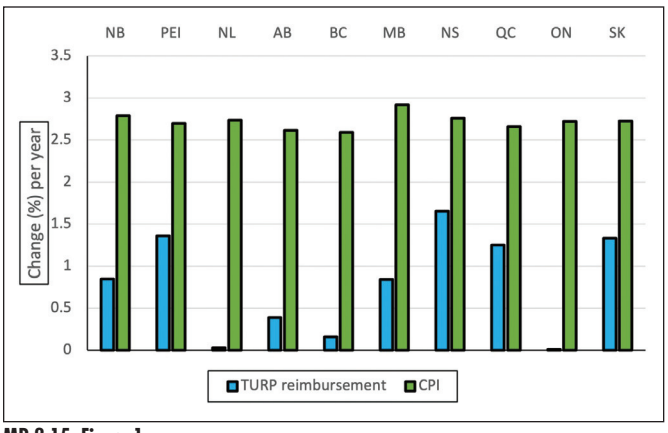
MP 2.15. Table 1. National TURP and laser reimbursement codes for Canadian urologists for 2023

2023	NB	PEI	NL	AB	BC	MB	NS	QC	ON	SK
TURP code Physician fee CAD($)	1394 542	8584 618	97640 489	72.1A 513	8311 475	4321 569	72.1B 656	6247 45	S655 451	123R 688
PVP code Physician fee CAD($)	Same Same	Same Same	97641 487	72.1C 770	Same Same	Same Same	72.1D 656	Same Same	Same Same	Same Same
LEP code Physician fee CAD($)	Same Same	Same Same	Same Same	72.1C 770	>60g S81311 949	Same Same	Same Same	Same Same	Same Same	Same Same

SAME refers to the procedure code/fee being identical to TURP.

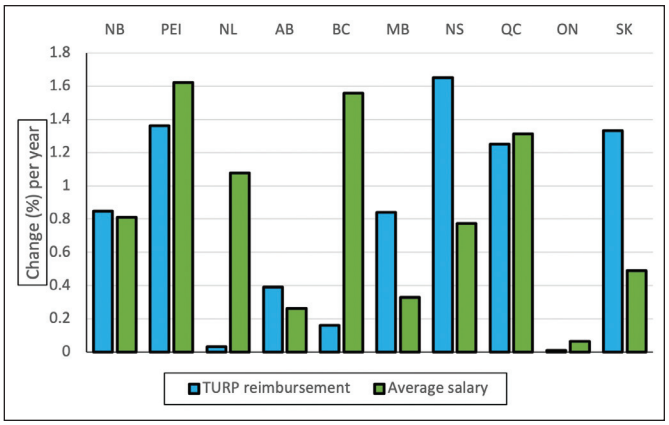
MP 2.15. Table 2. National TURP reimbursement codes in 2010 vs. 2023 in CAD (rounded to nearest dollar)

Province	2010	2023	Change in fee (%)
NL	487	489	0
ON	451	451	0
BC	465	475	2
AB	489	513	5
MB	512	569	11
NB	489	542	11
QC	394	458	16
SK	586	688	17
PEI	515	618	20
NS	540	656	21



MP 2.15. Figure 1.

were recruited based on history, physical exam, and measures for lower urinary tract symptoms (LUTS) and BPH. This included the International Prostate Symptom Score (IPSS), quality of life (QoL), prostate volume, serum prostate-specific antigen (PSA), urodynamic evaluation (maximum urinary flow rate [Qmax]; post-void residual [PVR]). Lidocaine 2% was injected in four quadrants around the prostate base. Pain was measured using the Visual Analogue Scale (VAS) at five time points: baseline, after SC (before Rezūm scope insertion), immediately after Rezūm scope insertion, during RT, and immediately after case completion. Results were compared with TRUS PNB from a prior study with the same methods.



MP 2.15. Figure 2.

Results: Baseline characteristics included median age of 67 (range 55–92) years and prostate volume of 97 (45–156) cc. Forty percent of subjects had baseline urinary retention and 70% had a median lobe. Median Qmax was 4.9 (1.7–8.2) mL/s and PVR was 298.5 (181–720) mL. Median IPSS was 29 (23–35) and QoL was 5 (4–6). The median time for RT was four minutes 27 seconds (three minutes 45 seconds to six minutes 57 seconds) with eight injections (6–20). VAS score (mean ± standard deviation) at each time point was 0.0±0.0, 1.3±0.48, 1.3±0.48, 3.0±0.67, and 1.1±0.57. SC demonstrated lower scores compared to TRUS PNB immediately after Rezūm scope insertion ($p<0.001$), during RT ($p<0.001$), and immediately after case completion ($p<0.05$) (Figure 1).

Conclusions: Our results demonstrate that SC effectively managed pain and suggests that TUIA is superior to TRUS PNB. TUIA shows potential in being effective, non-invasive, and cost-efficient.

MP 2.16

A prospective cohort study on surgical and patient-reported outcomes of ureteroscopy under sedation for nephrolithiasis

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Introduction: Ureteroscopy (URS) is a mainstay in the treatment of nephrolithiasis. URS is often performed under general anesthesia (GA); however, URS under procedural sedation has recently been described. Notably, surgical and patient-reported outcomes (PROs) of URS under sedation vs. GA have yet to be reported.

Methods: Patients undergoing URS for nephrolithiasis from June to August 2023

at our provincial stone center were prospectively recruited. A small representative cohort of GA patients were included for PRO measures comparison. Intra- and perioperative variables were collected. A validated questionnaire was used to assess patient tolerability. Two-tailed T-test and Fisher's exact test were used for analysis. The primary outcome was patient tolerability of URS under sedation vs. GA. Secondary outcomes included operative time, percentage of operative time devoted to surgery, stone-free rate, and perioperative complications.
Results: Sixty URSs from 58 patients were included: 51 (85%) under sedation and nine (15%) under GA. The mean total stone burden was 19 mm (2–72) and similar between sedation (18 mm [2–129]) and GA (23 mm [6–57], p=0.56). Mean operative time was 37 minutes (5–109) and similar between sedation (36 minutes [5–90]) and GA (45 minutes [11–109], p=0.30). The mean percentage of operative time devoted to surgery was 73% and significantly higher under sedation (77% [25–92]) vs. GA (46% [23–73], p<0.00001). The mean stone-free rate was 82% and similar between sedation (80%) and GA (89%, p=0.99). There were no postoperative septic events or admissions. There were three (5%) 30-day postoperative emergency visits, all from the sedation cohort for colic. Forty-two questionnaire responses were obtained (response rate 72%). The mean patient tolerability was 7.8/10 and similar between sedation (7.5) and GA (9.2, p=0.16); 72% of those who received sedation would choose it again.
Conclusions: In this single-center, prospective cohort study, URS under sedation had acceptable patient tolerability compared to a small subset of similarly matched patients who underwent URS under GA. URS under sedation was safe, with comparable stone-free and complication rates to GA, and allowed for more time spent on operative components.

MP 2.17
Tri-layer ureteral stents, with anti-encrustation surface, offer improved comfort: Results from an international stent registry

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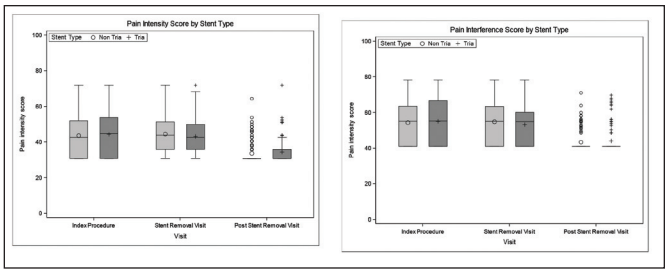
Introduction: The Tria stent has novel Percushield technology on the inner and outer surfaces of a Percuflex stent, which is designed to resist salt adherence to reduce encrustation. We determined the technical success, complications, and patient symptoms in a prospectively collected database to determine if Tria stents improved encrustation, infection, and comfort.
Methods: An international prospective registry with several stent types was conducted in the U.S., Canada, Japan, and France from 2020–2023. PROMIS Pain Intensity (3a) and Pain Interference (6b) scores were obtained at the time of index procedure, stent removal, and post-stent removal. Non-Tria stents included Percuflex, Contour, and Polaris family of stents.
Results: A total of 359 patients were in the international registry. The Tria vs. non-Tria groups were comparable in age (55.9 vs. 58.7 years), gender (57.8% vs. 56.4% male), BMI (28.9 vs. 29.7), and indwell times (11.8 vs. 9.9 days), respectively. Pain intensity (p=0.052) and pain interference (p=0.025) scores were lower for Tria vs. non-Tria stents at the time of stent removal (Figure 1). Tria patients also had slightly lower pain scores at stent removal compared to baseline, while non-Tria subjects had a slight increase in both domains, but both were insignificant. Non-Tria subjects had significantly larger decreases in both domains at post-stent removal compared to stent removal visit (p=0.0245, p=0.0216). Higher age was correlated with lower pain scores (p=0.041). Specific subanalysis shows that Tria



MP 2.17. Figure 1. (A) Pain intensity score by stent type. (B) Pain interference score by stent type.

stents had lower interference and intensity scores compared to Percuflex stents at the time of stent removal (p<0.0001). There was no difference in infections and encrustation between groups (p=0.45).
Conclusions: Tria stents were more comfortable than other Boston Scientific stents at the time of stent removal and post-stent removal in both pain intensity and interference scores. There was no difference in encrustation or urinary tract infections between groups.
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MP 2.18
Treatment modalities of small-sized urolithiases and their impact on quality of life

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Introduction: Quality of life (QoL) is often reduced in a urolithiasis event. Stones vary widely in size and multiple therapeutic options exist, including active surveillance, medical expulsive therapy (MET), shockwave lithotripsy (SWL), and ureteroscopy (URS). This study aimed to perform a systematic review to describe reported QoL in different treatment modalities for urolithiases with a diameter smaller or equal to 10 mm.
Methods: Electronic databases (Medline, Embase, Cochrane Central Register of Controlled Trials, Web of Science) were searched with no language or date restrictions to identify case reports, case series, case-control, cohort and randomized control studies, which were included if they reported: adult patients (≥18 years old), renal or ureteral stone(s) on imagery, validated reporting of QoL, and stone diameter equal or smaller than 10 mm undergoing active surveillance or management.
Results: Of 672 citations, nine articles were eligible (Table 1). Five studies reported QoL according to the medical management of stones, all in the ureter. Of these studies, three found that patients treated with MET had better QoL than those treated with conservative management only, and two studies found no difference in QoL between the groups. Four studies reported QoL according to the surgical management of stones, with three being ureteral and one being renal. Of the ureteral stone studies, two found that patients treated with URS had better QoL, while one study found no difference between the groups. In the renal stone study, patients treated with SWL had better QoL.
Conclusions: Literature shows that patients with urinary stones 10 mm or smaller have better QoL when treated with MET over conservative pain management only, when treated with SWL over URS for renal stones, and when treated with URS over SWL for ureteral stones. In addition to stone location, several other factors, such as stone size and postoperative stenting, should be considered. There is an important need for more studies on this topic.

MP 2.18. Table 1. Summary of included articles on medical, surgical, and procedural management

Author, year	Stone location	Postop stenting	QoL tool and measure timing	Comparators	Age (SD)	Sex (male)	Secondary treatment rate (%)	Stone passage rate (%)
Eryildirim et al, 2015		No	EuroQOL, 4 weeks	Conservative management	37.23 (1.56)	NA	16.7%	36.7%
				MET	37.07 (2.26)	NA	11.7%	43.3%
Eryildirim et al, 2016		NA	EuroQOL, 4 weeks	Conservative	39.81 (14.21)	NA	NA	NA
				MET	39.04 (12.00)	NA	NA	NA
Ju et al, 2020	Ureter	Yes	Quality of Life scale, 1 week	Conservative management	44.2 (12.2)	63.6%	NA	65.5%
				Terazosin	42.8 (12.2)	69.1%	NA	81.8%
				Terazosin + nifedipine	43.6 (12.9)	65.5%	NA	94.5%
Lee et al, 2014		No	EuroQOL, 4 weeks	Conservative management	47.9 (11.4)	61.1%	20.4%	46.3%
				MET	43.6 (12.4)	64.8%	7.4%	74.1%
Pickard et al, 2015		No	EuroQOL and SF-36, 4 and 12 weeks	Conservative management	42.8 (12.3)	77.9%	NA	79.9%
				Tamsulosin	43.1 (11.5)	82.2%	NA	81.2%
				Nifedipine	42.3 (11.0)	82.8%	NA	80.2%
Ceylan et al, 2018	Ureter	No	SF-36, 4 weeks	SWL	41.3 (12.6)	45.3%	NA	NA
				URS	40.4 (11.0)	46.6%	NA	NA
Pearle et al, 2005	Renal	SWL 3.1%	SF-36, 4 weeks	SWL	52.5 (12.3)	59.4%	15.6%	NA
		URS 88.6%		URS	49.3 (14.2)	48.6%	2,9%	NA
Sarica et al, 2016	Ureter	No	EuroQOL, 4 weeks	SWL	38.73 (2.48)	NA	26.5%	70.6%
				URS	42.27 (2.41)	NA	16.1%	83.9%
Sonmez et al, 2023	Ureter	SWL No	SF-36, 2 weeks	SWL	33.0 (7.8)	34.5%	NA	NA
		URS No		URS	29.2 (7.6)	41.0%	NA	NA
		URS + 4.8 French Yes		URS + 4.8 French	30.3 (7.8)	32.6%	NA	NA
		URS + 6 French Yes		URS + 6 French	32.3 (8.9)	26.2%	NA	NA

Poster Session 3: Oncology – Bladder
Sunday, June 30, 2024 • 16:10–17:40

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MP 3.1

Downstaging of primary vs. secondary muscle-invasive bladder cancer after cystectomy and its association with survival

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Introduction: Although previous studies have suggested that patients who progress to muscle-invasive bladder cancer (secondary MIBC) after previous treatment for non-invasive disease have worse outcomes than those that present de novo (primary MIBC), contemporary studies have been conflicting. Further, most analyses have generally not assessed possible explanatory factors, although there is emerging evidence that secondary MIBC may be more resistant to perioperative chemotherapy. The aim of the current study was to assess whether there were differences in downstaging, and its association with survival outcomes, in patients with primary MIBC as compared to secondary MIBC in a large, retrospective cohort of patients from tertiary care centers.

Methods: This retrospective, multicenter study used the Canadian Bladder Cancer information system (CBCis) database, a registry that includes patient, tumor, and treatment data from 14 centers across Canada. The main study outcome was the rate of downstaging at cystectomy, defined as <pT2. Descriptive statistics were used to compare baseline demographic factors. Cox's proportional hazards models and multivariable regression analyses, adjusted for key patient and treatment variables, were performed to assess factors associated with downstaging, as well as overall survival (OS).

Results: During the study period, 908 patients received cystectomy between January 5, 2017, and September 1, 2020. Patients had localized primary MIBC (n=678) or secondary MIBC (n=230) at the time of TURBT. There were no observed differences in baseline variables based on MIBC status (primary vs. secondary), including sex, age at surgery, comorbidity, clinical stage, variant pathology, or use of neoadjuvant chemotherapy (NAC, 47% vs. 44%, p=0.43). Postoperatively, there were observed differences in rate of lymph node metastases (primary vs. secondary; 16% vs. 59%, p=0.037) and subsequent use of adjuvant chemotherapy (5 vs. 9%, p=0.016). Downstaging to <pT2 for those with primary MIBC was 28% vs. 14% with secondary MIBC (p<0.001) and downstaging to pT0 was 15% vs. 5%, respectively. Multivariable analysis of factors associated with downstaging at cystectomy included urothelial (vs. variant) pathology (OR 6.39, 95% CI 3.22–12.69), use of NAC (OR 2.23, 95% CI 1.39–3.60), and primary vs. secondary MIBC (OR 2.65, 95% CI 1.50–4.71). Lower OS was also associated with those with secondary vs. primary MIBC (HR 2.90, 95% CI 1.64–5.14, p<0.0001).

Conclusions: In this large, multicenter registry of patients with MIBC, those who had secondary, progressed disease were observed to have decreased survival on multivariable analysis. Further, those cases were associated with lower downstaging rates post-cystectomy vs. those with de novo, primary MIBC. Limitations of these observations include selection biases of those registered in CBCis and incomplete details of previous management for non-invasive disease. Although these observations are likely confounded by assessed clinical stage at the time of cystectomy, they support further work investigating the chemosensitivity of MIBC that has progressed from non-invasive disease, as it may represent a more global, treatment-resistant phenotype.

MP 3.2

Quality of life and health state utilities in bladder cancer patients across the care trajectory

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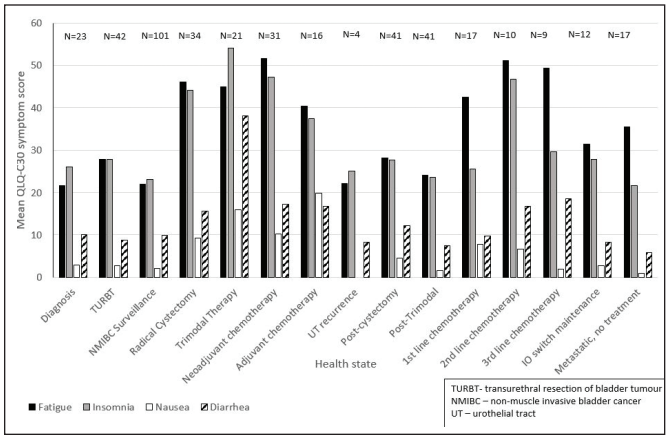
Introduction: Utility is a preference-based measure of health-related quality of life (HRQoL) used in cost-effectiveness and decision models. There are few utility data for bladder cancer (BCa) patients, and none span the care trajectory. The objective of this study was to measure utilities and HRQoL in BCa patients at all phases of care.

Methods: We identified 15 BCa health states from diagnosis to third-line systemic therapy for metastatic disease based on patients' expected pathways (Table 1). In a prospective, multicenter study, consenting BCa patients attending outpatient urology, medical oncology, and palliative care clinics at three tertiary care centers in Vancouver, Montreal, and Toronto were allocated to a health state based on medical chart review, and re-evaluated every 1–6 months for up to two years for transition to another health state. At baseline and transition, patients completed three validated published utility scales: our internally developed Bladder Utility



MP 3.2. Figure 1. Selected EORTC QLQ-C30 symptoms scores for patients in bladder cancer health states. The bar chart indicates mean fatigue, insomnia, nausea, and diarrhea EORTC QLQ-C30 symptom scores for each of the 15 health states. Higher scores indicate higher symptomology.

Symptom Scale (BUSS), EQ-5D-5L, and the Quality of Life Utility-Core 10 Dimensions (QLU-C10D; derived from the EORTC QLQ-C30). We report descriptive statistics across instruments and health states.
Results: A total of 378 patients (mean age 69 years, 76% male) completed at least one utility instrument and 365 completed all three at least once, for 426 health state observations. Mean utilities were higher at diagnosis (BUSS: 0.88; EQ-5D-5L: 0.86; QLU-C10D: 0.81) and NMIBC surveillance (BUSS: 0.91; EQ-5D-5L: 0.86; QLU-C10D: 0.81) than during treatment (Table 1). The lowest mean utilities were with radical cystectomy, at 0.65 (BUSS), 0.76 (EQ-5D-5L), and 0.55 (QLU-C10D). EORTC QLQ-C30 function and symptom scales mirrored trends in utilities. Fatigue, insomnia, and gastrointestinal symptoms were common during treatment states (Figure 1).
Conclusions: Patients reported large variability in HRQoL outcomes over the care pathway. We generated a robust standard set of utilities for all phases of BCa care, that can inform future cost-effectiveness analyses.
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MP 3.3

The Bladder Utility Symptom Scale (Utility): A novel tool to measure utilities and quality of life in bladder cancer patients

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Introduction: Bladder cancer (BCa) and its treatments have significant impacts on patient quality of life (QoL) and decision-making. To facilitate comparative effectiveness research, a BCa specific tool to measure both quality of life and utilities is required. We previously created and validated the Bladder Utility Symptom Scale (BUSS)-Psychometric (P), a 10-item multiple-choice questionnaire to measure QoL in all phases of BCa care. Our objective was to create two distinct algorithms to calculate utilities from BUSS-P responses.
Methods: We conducted in-person interviews with 200 BCa patients and 200 members of the general public. Purposeful sampling was used to ensure proportionate numbers of non-muscle-invasive (NMIBC), muscle-invasive (MIBC), and metastatic BCa patients. The general public sample was recruited proportionate to national age, sex, and income distributions. Each respondent provided time tradeoff (TTO) utilities for 12 randomly generated health state scenarios based on the BUSS-P attributes. Bayesian generalized linear multilevel models were used to estimate the impact of each of the 10 BUSS-P attributes to utility, which was bound by 0 and 1. Pearson correlation coefficients were calculated between observed and expected model values. Two algorithms to calculate utilities from BUSS-P responses were then generated: one derived from BCa patients and one from the general public.

MP 3.2. Table 1. Health state utilities for bladder cancer patients in each health state

	Utility instrument (N patients)					
	BUSS (n=371)		EQ-5D-5L (n=376)		QLU-C10D (n=372)	
Health state	n	Mean (SD)	n	Mean (SD)	n	Mean (SD)
Diagnosis	22	0.88 (0.14)	23	0.86 (0.14)	23	0.81 (0.18)
TURBT	40	0.78 (0.17)	41	0.81 (0.15)	41	0.75 (0.20)
NMIBC surveillance	101	0.91 (0.12)	102	0.86 (0.11)	100	0.81 (0.17)
Radical cystectomy	34	0.65 (0.18)	33	0.76 (0.15)	34	0.55 (0.22)
Trimodal therapy	21	0.78 (0.16)	21	0.82 (0.14)	21	0.57 (0.29)
Neoadjuvant chemotherapy	31	0.76 (0.20)	31	0.77 (0.22)	31	0.59 (0.26)
Adjuvant chemotherapy	16	0.74 (0.16)	16	0.81 (0.10)	16	0.60 (0.22)
Urothelial tract recurrence	4	0.81 (0.12)	4	0.87 (0.07)	4	0.79 (0.09)
Post-cystectomy	41	0.80 (0.13)	41	0.84 (0.10)	41	0.77 (0.19)
Post-trimodal	40	0.91 (0.08)	41	0.88 (0.09)	41	0.84 (0.15)
1st-line chemotherapy	17	0.75 (0.20)	17	0.78 (0.20)	16	0.72 (0.16)
2nd-line chemotherapy	10	0.69 (0.12)	10	0.76 (0.13)	10	0.61 (0.21)
3rd-line chemotherapy	9	0.75 (0.15)	9	0.73 (0.16)	9	0.58 (0.19)
IO switch	12	0.82 (0.12)	12	0.86 (0.08)	12	0.75 (0.13)
Metastatic, no treatment	17	0.78 (0.18)	17	0.75 (0.28)	17	0.72 (0.25)

Note: Canadian utility weights from patients (BUSS) or the general population (EQ-5D-5L, QLQ-C10D) were used.

Results: Of 400 participants, 322 completed the TTO exercises with adequate comprehension. Of the BCa patients, 70 were NMIBC, 53 MIBC, and 32 metastatic. A total of 3288 randomly generated, unique BUSS-P health state valuations were obtained. The final model had a weighted correlation coefficient between predicted and observed utilities of 0.733 and 0.734 in the community and patient groups, respectively. A final table of weights for each response level of each question was created for the final utility calculation. In an exploratory analysis of patients' own BUSS-U responses, discrimination of utilities across health states was observed, with mean (SD) utilities in NMIBC, cystectomy, and minimally symptomatic metastatic patients at 0.897 (0.099), 0.831 (0.109), and 0.825 (0.157), respectively.
Conclusions: The BUSS-P is the first instrument that provides utilities for BCa derived from both BCa patients and the general public. Grounded in robust TTO methodology, utilities in all phases of BCa care can be measured for use in comparative effectiveness research, cost-effectiveness, and decision-modeling and policy work.
Acknowledgements: This research was supported by grants from CIHR and CCSRI. This work has been accepted for presentation at the European Association of Urology annual congress in 2024.

MP 3.4

Impact of multifocal carcinoma in situ on the risk of tumor progression in non-muscle-invasive bladder cancer

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Introduction: Concomitant carcinoma in situ (CIS) is a well-established prognosticator of non-muscle-invasive bladder cancer (NMIBC) progression; however, the impact of CIS distribution (unifocal or multifocal) on progression risk remains uncertain. We sought to assess whether CIS distribution impacts progression risk.
Methods: In this multi-institutional, retrospective cohort study involving both academic and community hospitals, clinicopathologic data were collected from Ta/T1 NMIBC patients treated from 2005–2022. Unifocal CIS was defined as CIS in only one specimen (i.e., papillary disease with CIS at the tumor base or isolated CIS in only one specimen). Multifocal CIS was characterized by CIS in multiple specimens. Progression was defined as the development of muscle-invasive or metastatic disease. Multivariable Cox regression was performed to identify progression-associated factors.
Results: Among 2924 patients, 384 (13%) experienced progression over a median followup of 4.8 years. Median age was 71 years; 697 (24%) were female; 943 (32%) had T1 disease and 1488 (51%) had high-grade disease. Concomitant CIS occurred in 328 patients (11%); 234 (8%) and 94 (3%) presented with unifocal and multifocal CIS, respectively. Older age, T1 stage, high-grade disease, multifocal CIS (but not unifocal), and multiple tumors were associated with an increased risk of progression (Table 1). Among concomitant CIS patients, multifocal CIS remained a significant prognosticator (HR 2.0, 95% CI 1.2–3.2, p=0.006) after adjusting for age, stage, grade, tumor size, and number of tumors.
Conclusions: NMIBC progression risk varies with CIS distribution. Multifocal CIS seems to be an independent prognosticator of progression in Ta/T1 NMIBC. Distinguishing between unifocal and multifocal CIS should be encouraged and our results warrant further external validation. Our findings support submitting separate tumor specimens to pathology at the time of transurethral resection for tumor mapping and CIS characterization.
Acknowledgements: Dr. Kwong was supported by the University of Toronto Surgeon Scientist Training Program

MP 3.4. Table 1. Cox regression to predict tumor progression (muscle-invasive or metastatic disease) among patients with Ta/T1 non-muscle-invasive bladder cancer (n=2924)

	Univariable analysis*	Multivariable analysis	
Variable	HR (95% CI)	HR (95% CI)	p
Age (per 10 years)	1.3 (1.1–1.4)	1.2 (1.1–1.3)	0.002
T1 stage	5.6 (4.5–7.0)	2.7 (2.1–3.4)	<0.0001
High-grade	7.5 (5.6–10)	3.6 (2.6–5.1)	<0.0001
Concomitant CIS	2.4 (1.9–3.1)	Excluded, collinear with degree of CIS	
Degree of CIS			
None	Ref	Ref	–
Unifocal	2.0 (1.5–2.7)	0.9 (0.7–1.2)	0.5
Multifocal	3.6 (2.5–5.2)	1.6 (1.1–2.3)	0.02
Multiple tumors	1.9 (1.5–2.3)	1.4 (1.1–1.7)	0.002
Tumor diameter ≥3 cm	1.6 (1.3–2.0)	1.1 (0.9–1.4)	0.2

*All HR statistically significant at p<0.0001.

MP 3.5

Comparison of 90-day morbidity and mortality between ileal conduit and orthotopic neobladder following radical cystectomy in a large, multi-institutional database: The Canadian CBCis experience

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Introduction: Ileal conduit (IC) urinary diversions are more frequently offered to patients undergoing radical cystectomy than orthotopic neobladder reconstructions (ONB). Patients selected for IC usually have more comorbidities, advanced disease, and older age. We aimed to assess 90-day complications and mortality for patients undergoing either procedure in a large, Canadian, contemporary cohort to guide patient counselling and care.
Methods: Patient information was obtained from the Canadian Bladder Cancer information system (CBCIS), a prospective registry that includes data on patients treated in 14 academic Canadian centers. A retrospective analysis of 2256 patients who underwent radical cystectomy between February 2015 and September 2023 was carried out. Ninety-day complications were analyzed according to the Clavien-Dindo severity scale. Perioperative parameters and survival rates were compared between IC and ONB diversion. We used rank sum and Chi-squared exact tests for descriptive statistics. Unconditional logistic regression was used to evaluate the

association between complications of IC vs. ONB. Multivariable Cox regression was used for assessing potential confounders in 90-day mortality.
Results: Of the 2256 cases, 95 were excluded for incomplete data. Of the 2161 remaining patients, 1799 received an IC and 362 an ONB. Patients were followed up for a median duration of 235 days (IQR 486). The cohort mean age was 65.1 years (SD 16.2). Patients in the IC group were significantly older (average 66.2 vs. 58.6 years, p<0.001). Males accounted for 76.% of the IC group and 86% of the ONB group (p<0.001). The age-adjusted Charlson comorbidity index (aCCI) was significantly higher in the IC diversion group (mean ± SD 4.9±2.0 vs. 3.9±1.6, p<0.001). Neoadjuvant chemotherapy was given more frequently in the ONB group (50% vs. 31%, p<0,001). The overall 90-day complication and 90-day mortality rates following RC were 46% and 4.3%, respectively. Unplanned readmission rates were higher in the ONB group (48% vs. 34%, p<0.001). The most common complications were ileus, wound infection, and facial dehiscence, occurring in 16%, 6.5%, and 3.5% of patients. respectively. The risk of overall complications was significantly higher in the ONB group than in the IC group on multivariable logistics regression (OR 2.21, 95% CI 1.70–2.88, p<0.001). Patients with ONB had a higher risk of urine leak (16% vs. 2%, OR 10.20, 95% CI 6.10–17.01, p<0.001) and lymphocele (5.6% vs. 2.0%, OR 2.91, 95% CI 1.53–5.52, p=0.001). Clavien-Dindo complications of 3–5 severity were noted in 28% of IC patients and 35% on ONB patients (p=0.18). Ninety-day mortality was 4.9% in the IC group and 0.82% in the ONB group (p<0.001); however, multivariable analysis could not be carried out due to a very small number of events in the ONB group (3 in ONB vs. 89 in IC).
Conclusions: In this multi-institutional cohort, patients with IC had higher 90-day mortality rate, possibly reflecting the selection of patients with lower health status. Patients with ONB had a higher risk of perioperative complications. Although complications were higher in severity in the ONB group, the difference did not reach statistical significance. These findings may help facilitate patient decision-making when choosing the best diversion option.
Acknowledgements: The authors thank Camilla Tajzler for her administrative support.

MP 3.6

Outcomes among rural and urban Canadian patients with high-risk non-muscle-invasive bladder cancer: Results from the Canadian Bladder Cancer information system (CBCis)

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Introduction: Patients with high-risk non-muscle-invasive bladder cancer (NMIBC) require frequent surveillance and adjuvant intravesical therapy. Access to such care may be limited in patients with rural residences. Previous studies have suggested that patients of rural residence comparatively have worse cancer-related outcomes. We hypothesized that the management of rural patients with high-risk NMIBC (defined as HG Ta, any T1 disease, CIS) will be less CUA guideline-concordant compared to urban patients.
Methods: The Canadian Bladder Cancer information system (CBCis) database was used to identify all patients diagnosed with high-risk NMIBC (defined as HG Ta, any T1 disease, CIS) on initial transurethral resection of bladder tumor (TURBT). Rural/urban designation was defined using the first three digits of the patient's postal code in conjunction with the Statistics Canada definition. Exclusion criteria included patients with non-urothelial histology, benign histology, unknown T stage, or evidence of nodal or distant metastases at the time of diagnosis. Statistical analysis was performed using the rank sum tests for continuous variables and durations. Chi-squared method was used for comparison of proportions.
Results: Analysis was performed on 2838 patients with high-risk NMIBC who met inclusion criteria, of whom 88.8% (n=2511) were urban and 11.2% (n=327) were rural. Rural patients were more likely than urban patients to present with high-grade (HG) T1 tumors (42.8% vs. 37.8%, p=0.03). Repeat TURBT was performed within 60 days for HG T1 disease in 5.5% of urban and 8.6% of rural patients (p=0.078). Rural patients were less likely than urban patients to receive induction BCG (54% vs. 61%, p=0.054); however, no significant differences were seen between both groups undergoing induction BCG with one year of maintenance (35% vs. 32%, p=0.089). After a median followup of 394 days, progression to muscle-invasive bladder cancer (MIBC) was significantly higher in the rural cohort (15% urban vs. 20% rural, p=0.022).
Conclusions: From a practice pattern perspective, repeat TURBT for HG T1 disease was performed at a lower-than-expected rate in both rural and urban populations. Additionally, access to intravesical immunotherapies may be more limited among rural patients. Overall, among high-risk NMIBC patients, rural patients appear to have significantly higher rates of progression to MIBC.
Acknowledgements: The authors wish to thank Camilla Tajzler, Clinical Research Project Manager.

MP 3.7

The link between TURBT documentation, NMIBC risk stratification, and management

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Introduction: Transurethral resection of bladder tumor (TURBT) is currently the mainstay in the diagnosis and therapeutic management of bladder cancer. Accurate risk stratification based on histopathology and documented intraoperative findings is essential for guiding further treatment. This study aimed to examine intraoperative documentation and its implication for risk stratification and management according to the 2016 European Association of Urology (EAU) non-muscle-invasive bladder cancer (NMIBC) guidelines.
Methods: A retrospective analysis was conducted on all TURBT and bladder biopsies undertaken at a single institution in 2022 to evaluate the documentation of 11 predetermined critical parameters. An algorithm that combined these findings with histopathology results was developed to generate a risk-group outcome corresponding to EAU guidelines. Possible outcomes were: 1) low-risk; 2) intermediate-risk; 3) high-risk; 4) muscle-invasive bladder cancer (MIBC); 5) requires repeat resection; and 6) unable to stratify; or a combination of these where applicable. Further audits were also conducted on the instillation of intravesical therapy both as a postoperative single instillation (POSI) and as adjuvant therapy, as a marker of guideline adherence.
Results: A total of 124 TURBT and bladder biopsy procedures with histologically confirmed bladder cancer were reviewed. Of these, 90 (73%) received a risk stratification grouping and 34 (27%) received an outcome of "unable to stratify." Of the former, nine (10%) were deemed low-risk, seven (8%) intermediate-risk, 58 (64%) high-risk, and 16 (18%) MIBC. Sixty procedures were also doubly classified as requiring repeat resection (48%), with 20 being from the unable to stratify group (59%). In total, POSI was performed in nine (7%) instances. Of these, seven (78%) were classified as unable to stratify, one (11%) as high-risk, and one (11%) intermediate-risk. POSI was not performed in any low-risk classified procedures. Of the 41 patients who had at least one procedure classified as high-risk, 22 (54%) continued on to receive adjuvant therapy. All patients who did not receive adjuvant therapy had justifiable reasons for this diversion. Of the seven patients with at least one procedure classified as intermediate-risk, none received adjuvant chemotherapy as recommended.
Conclusions: Inadequate intraoperative documentation hinders accurate risk stratification, particularly in cases of low- and intermediate-risk NMIBC, leading to suboptimal treatment, as evidenced by poor rates of adjuvant intravesical chemotherapy administration. High-risk patients remain more consistently identified, likely due to the prominent role of histopathology in the stratification process for this group. These observations highlight the importance of standardized documentation in TURBT procedures to facilitate accurate risk stratification and guide subsequent therapeutic management.
Acknowledgements: This study has been accepted for publication in the BJUI as an article entitled: Quality of TURBT documentation: Implications for NMIBC risk stratification and management (https://pubmed.ncbi.nlm.nih.gov/38116588/)
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MP 3.7. Table 1. Intraoperative documentation findings in all 203 TURBT and bladder biopsy procedures

Variables	Histopathology result		Total, N=203 (%)
	BC present n=125 (62%)	BC absent n=78 (38%)	
Tumor number			
0	9	20	29 (14%)
1	54	22	76 (37%)
2-5	21	7	29 (14%)
>5	1	0	2 (1%)
Diffuse	13	9	22 (11%)
Not recorded	26	20	46 (23%)
Size of largest tumor			
<3 cm	31	3	34 (17%)
3 cm or more	17	2	19 (9%)
Not recorded	68	53	121 (60%)
N/A	9	20	29 (14%)
Tumor characteristics			
Sessile	0	2	2 (1%)
Nodular	13	2	15 (7%)
Papillary	58	12	70 (34%)
Flat/erythema	20	37	57 (28%)
Not recorded	25	5	30 (15%)
N/A	9	20	29 (14%)
Presence of CIS			
Suspicious	13	12	25 (12%)
Not suspicious	24	14	38 (19%)
Not recorded	88	52	140 (69%)
Visually complete resection			
Complete	27	2	29 (14%)
Not complete	17	4	21 (10%)
Not recorded	72	52	124 (61%)
N/A	9	20	29 (14%)
Visualisation of DM in resection base			
Seen	25	0	25 (12%)
Not seen	0	1	1 (0%)
Not recorded	91	57	148 (73%)
N/A	9	20	29 (14%)

MP 3.7. Table 1 (cont'd). Intraoperative documentation findings in all 203 TURBT and bladder biopsy procedures

Variables	Histopathology result		Total, N=203 (%)
	BC present n=125 (62%)	BC absent n=78 (38%)	
Appears muscle-invasive			
Yes	12	0	12 (6%)
No	2	0	2 (1%)
Not recorded	102	58	160 (79%)
N/A	9	20	29 (14%)
Concern for bladder perforation			
Yes	0	0	0 (0%)
No	16	5	21 (10%)
Not examined	0	0	0 (0%)
Not recorded	109	73	182 (90%)
Adequate hemostasis			
Yes	83	50	133 (66%)
No	3	1	4 (2%)
Not recorded	39	27	66 (33%)
Bimanual EUA/DRE			
Performed (+ findings)	41	7	48 (24%)
Not performed	3	2	5 (2%)
Not recorded	81	69	150 (74%)
Post-op intravesical therapy administered within 24 hrs			
Administered (+ agent)	5	4	9 (4%)
Not administered	1	2	3 (1%)
Not recorded	119	72	191 (94%)

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MP 3.8

Metachronous upper tract urothelial carcinoma following non-muscle-invasive bladder cancer: A retrospective, multi-institutional study

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Introduction: Metachronous upper tract urothelial carcinoma (UTUC) following non-muscle-invasive bladder cancer (NMIBC) is uncommon. There is limited evidence, often from small, single-institutional studies, to inform the frequency of upper tract imaging. We aimed to assess the risk factors of UTUC after NMIBC in a large, multi-institutional cohort study.

Methods: Clinicopathologic data were collected for NMIBC patients treated at four academic or community hospitals in Ontario, Canada from 2005–2022. Patients with prior or synchronous UTUC at NMIBC diagnosis were excluded. Presence of UTUC was confirmed on pathology or unequivocal upper tract imaging. Cumulative incidence curves were estimated for time to UTUC, with all-cause mortality as a competing risk. Fine-Gray regression was performed to identify adverse prognostic factors for UTUC.

Results: Among 3034 patients, 1281 (42%) were low-risk, 555 (18%) intermediate-risk, 1026 (34%) high-risk, and 172 (6%) very high-risk, according to the European Association of Urology risk groups. During a median followup of 4.9 years (IQR 2.7–8.4), 69 (2%) patients developed UTUC after NMIBC. On multivariable analysis, only high-grade disease (SHR 2.2, 95% CI 1.2–4.1, p=0.02) and multiple tumors (SHR 2.5, 95% CI 1.5–4.3, p<0.001) were associated with an increased risk of UTUC. The cumulative incidences of UTUC after NMIBC are shown in Table 1.

Conclusions: UTUC risk after NMIBC remains minimal for low- and intermediate-risk patients even at 10 years, although it can reach 5% among high-risk patients. Multifocal and high-grade tumors are associated with an increased risk of UTUC. These findings, stemming from the largest, multi-institutional study on UTUC post-NMIBC, suggest that the contemporary risk may be lower than historical data have shown. These discrepancies may be attributed to differences in smoking exposure and consideration of competing risks. These insights may inform decisions regarding the optimal frequency of upper tract imaging for NMIBC patients.

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MP 3.8. Table 1. Cumulative incidence of metachronous UTUC at 5 and 10 years following diagnosis of NMIBC, stratified by EAU risk groups

EAU risk group	Risk of UTUC within 5 years (%)	Risk of UTUC within 10 years (%)
Low (n=1281)	1.3	1.4
Intermediate (n=555)	1.5	2.2
High and very high (n=1198)	2.9	5.0

All-cause mortality was considered a competing risk. The number of patients in each risk group is shown in parentheses.

MP 3.9

The natural history of node-positive bladder cancer in a multi-institutional Canadian cohort

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Introduction: Node-positive (N+) bladder cancer confers a poor prognosis, with a five-year overall survival (OS) of 32–36% compared to 60–70% with TanyN0M0 disease. There is relatively limited evidence to guide management options for patients with N+ disease, with multiple treatment modalities often needed during the treatment course. This contemporary analysis of the management of patients with N+ bladder cancer highlights the natural history of this disease with respect to newer treatment modalities and guideline recommendations.

Methods: A retrospective review of the prospectively maintained Canadian Bladder Cancer information system (CBCis) was conducted, identifying 290 patients older than 18 years of age diagnosed with clinical TanyN1-3+M0 bladder cancer. Descriptive statistics were obtained. Kaplan-Meier estimates and Cox regression were performed for OS, with stratification for nodal involvement and treatment received.

Results: Of the 290 patients, T≥2 disease was present in 76.6%. N1, N2, and N3 staging was found in 49.7%, 34.1%, and 16.2% of patients, respectively. Variant histology and lymphovascular invasion were found in 35% and 33.6% of patients, respectively. CIS was found in 26.6%. For initial treatment, 58 patients (20%) received neoadjuvant chemotherapy (NAC) followed by cystectomy; 94 patients (32.4%) received cystectomy only and 35 patients (12.1%) received radiation. Maximal TURBT with concurrent chemoradiation was performed in 44 patients (15.2%), while the remainder of patients (20.3%) received various other combinations of treatment modalities. Kaplan-Meier OS results are displayed by node status (Figure 1). There was no statistically significant difference in OS found between node status N1, N2, or N3 by Cox regression. On multivariable regression analysis, having N+ disease confers a HR of 1.68 (p=0.028) for OS (Table 1). Receiving NAC followed by cystectomy was associated with improved OS, with a HR of 0.63 (p=0.001) compared with cystectomy alone (Figure 2).

Conclusions: Node-positive disease confers a worse prognosis for bladder cancer patients, with no difference found in this series between N1, N2, and N3 disease. Patients who received neoadjuvant chemotherapy had improved survival compared to cystectomy alone.

Acknowledgements: Special thanks to the CBCis.

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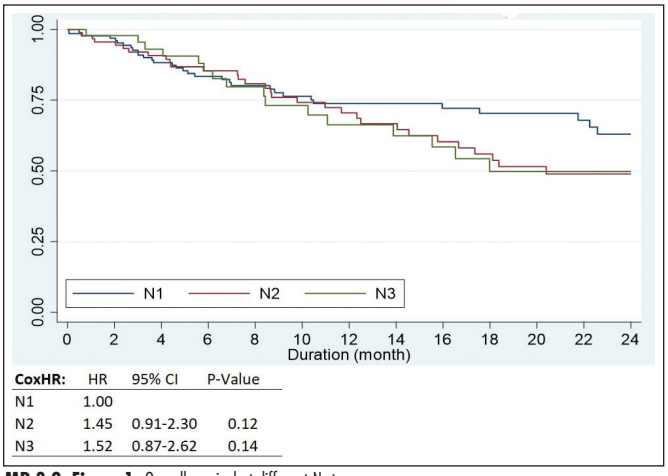
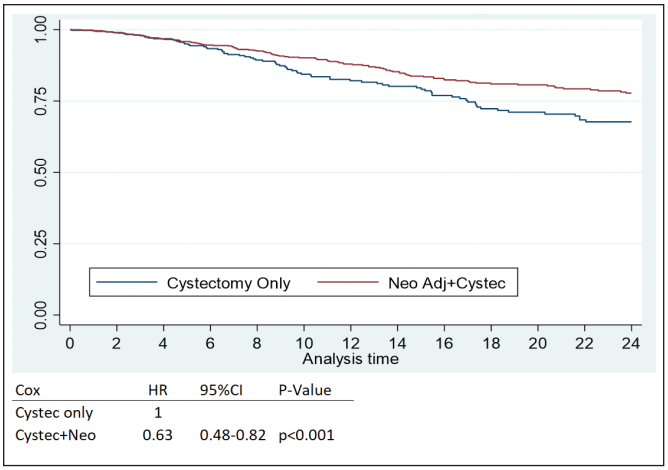
MP 3.9. Table 1. Cox multivariable regression analysis for overall survival in node-positive bladder ca patients

Variable	HR	95% CI	p
Node-negative (n=290)	1.00		
Node-positive (n=2948)	1.68	1.05–2.68	0.028
Age	1.15	0.93–1.34	0.202
Sex	1.49	1.01–2.18	0.029
Charlston comorbidity score	1.42	1.03–1.93	0.03
ASA score	1.04	0.87–1.25	0.668
+Smoking	0.92	0.87–1.25	0.668



CoxHR:	HR	95% CI	P-Value
N1	1.00		
N2	1.45	0.91-2.30	0.12
N3	1.52	0.87-2.62	0.14

MP 3.9. Figure 1. Overall survival at different N-stages.



Cox	HR	95%CI	P-Value
Cystec only	1		
Cystec+Neo	0.63	0.48-0.82	p<0.001

MP 3.9. Figure 2. Survival of treatment groups.

MP 3.10

Primary vs. secondary muscle-invasive bladder cancer: Prognostic impact on cancer-specific survival in a large, population-based cohort

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Introduction: Currently, it is unclear whether patients diagnosed with muscle-invasive bladder cancer (MIBC) in the primary setting (de novo) vs. the secondary setting (progression after prior non-muscle-invasive disease) have differing cancer-specific survival (CSS). Secondary MIBC might be indicative of either better (due to prior non-invasive tumor character) or worse (due to progressive tumor biology) outcomes. Therefore, our study aimed to investigate the association between presentation of MIBC and CSS in a large population-based cohort.

Methods: We derived a population-based cohort in the province of Ontario, Canada, by linking manually abstracted TURBT pathology reports to health administrative databases. Patients diagnosed with MIBC between January 2001 and December 2015 who lived within the province of Ontario for at least five years before the diagnosis of MIBC were included. Secondary MIBC was defined by a prior diagnosis of bladder cancer in the five years preceding the index date. Patients were followed for the occurrence of bladder cancer-specific mortality and censored at the date of death due to other causes or at the date of the last contact with the healthcare system or on December 31, 2018. Fine and Gray's univariable and multivariable proportional subdistribution hazards regression (competing risks analysis) was used to quantify the association between presentation (reference: primary MIBC) and CSS. Adjustments were made for age and comorbidity (measured by the Charlson Comorbidity Index, as well as by resource utilization bands and predicted one-year mortality according to Johns Hopkins ACG algorithm). Effect estimates were presented as hazard ratios (HR, 95% confidence interval, p-value).

Results: A cohort of 7240 patients was identified, of which 3898 individuals (53.8%) had a prior diagnosis of bladder cancer (i.e., secondary presentation). Patients were followed for a median of 1.4 (IQR 0.5–4.2) years. Univariable regression analysis did not reveal an association between presentation and CSS (HR 1.00, 0.93–1.07, p = 0.92) but patients with secondary MIBC were more likely to die of other causes (HR 1.07. 1.00–1.16, p=0.08]), suggesting confounding due to age/comorbidity. After adjusting for the latter, we observed that secondary MIBC was associated with a slightly more favorable prognosis regarding CSS (HR 0.92, 0.86–1.00, p=0.03]) and that the prior statistically significant association between secondary MIBC and other-cause mortality subsided (HR 0.96, 0.89–1.05, p=0.39).

Conclusions: While prior studies found the type of presentation of MIBC to be strongly associated with prognosis, in our large cohort we observed only a small effect size, with secondary MIBC associated with a more favorable prognosis. Causal mediation analysis might shed light on the mechanisms mediating these findings.

MP 3.11

The survival impact of pelvic lymph node dissection among octogenarians who underwent partial cystectomy for muscle-invasive bladder cancer

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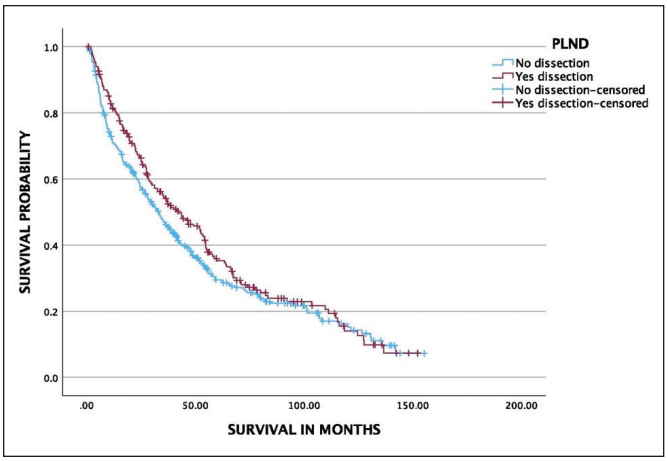
Introduction: The gold-standard treatment for muscle-invasive bladder cancer (MIBC) is radical cystectomy; however, there is a growing interest among elderly individuals in bladder-preservation protocols. Current guidelines suggest partial cystectomy (PC) with pelvic lymph node dissection (PLND) can be considered a feasible option in carefully selected individuals with stage II bladder cancer. Few published studies have evaluated the significance of PLND after PC in the elderly population. In this study, we used the National Cancer Database to evaluate the overall survival among octogenarians who underwent PC with or without PLND.

Methods: Our study focused on octogenarians who underwent PC with or without PLND for localized MIBC (cT2-4aN0M0) with urothelial histology from



MP 3.11. Figure 1.

2004–2017. Based on the lymph node yield (LNY), the PLND arm was subcategorized into inadequate (<10 nodes) and adequate (≥10 nodes) arms. A Kaplan-Meier survival curve was done to compare the survival between PLND and non-PLND.

Results: A total of 2573 patients underwent PC and 532 octogenarians met our selection criteria. Among them, 227(42.7%) underwent PLND and 305(57.3%) had no PLND. Within the PLND arm, 57 (25.1%) had adequate and 170 (74.9%) had inadequate PLND. The median OS for the PLND and non-PLND patients were 41.5 and 32.3 months, respectively (p=0.12) (Figure 1). Similarly, adequate and inadequate PLND had 53.4 and 37.0 months, respectively (p=0.30). In T2 tumors, OS with and without PLND were 46.6 and 38.2 months, respectively. Similarly, in T3/T4 tumors, the OS with and without PLND were 25.0 and 17.3 months, respectively (p=0.16).

Conclusions: In our study on PC with a PLND and a LNY of ≥10, there was no statistically significant difference in the median OS. Therefore, PLND may not be beneficial in the octogenarian population.

MP 3.12

Characterization of urothelial cancer associated with enterocystoplasty

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Introduction: The association of augmentation cystoplasty (AC) with the development of urothelial cancer (UC) is controversial. In order to characterize the incidence and outcome of patients who developed UC, we analyzed our institutional experience in all patients who underwent AC.

Methods: All patients who underwent AC from 1985–2023 were tracked prospectively. From a total of 266 patients, 156 females and 110 males (mean age 39 years, range 18–76, median 37), seven patients (four females and three males, mean age 35 years, range 20-46, median 37) developed UC. Diagnoses were spina bifida in two (three females, two males) and spinal cord injury in two (one female, one male). Preoperative management was foley catheter in three, ileal conduit in two, condom drainage in one, and intermittent catheterization (IC) in one. AC was done for incontinence in five and as part of undiversion from ileal conduit in two. AC involved ileum (n=5), caecum (n=1), and sigmoid (n=1). Ureteral reimplants were done in the two undiversion patients and bladder neck (BN) slings were done in four and BN closure with continent stoma in one. Followup protocol consisted of ultrasound imaging at 6–12-month intervals and periodic cystoscopy.

Results: Tumors were detected after a mean of 14 (range 4–23, median 15) years after AC. Mean age at diagnosis was 48 (median 50) years. Six of seven patients had been on IC and one had a Foley catheter. All patients were followed from the date of AC. Followup visits were occasionally interrupted by patient mobility problems, illness, and/or COVID-19. All patients had negative evaluations (GU ultrasound and cystoscopy) from six months to three years (mean 13 months, median seven months) prior to cancer diagnosis (Table 1). Gross hematuria prompted evaluation in two (patients 6 and 7). Cytology was not positive in any patient prior to or at time of diagnosis. Diagnosis was made by cystoscopy with change in imaging findings. All patients had high-grade carcinoma and only 2/7 had organ-confined disease at diagnosis. Six of seven died of metastatic disease despite surgery in three, and one of respiratory failure after cystectomy.

Conclusions: While the overall risk of developing UC in patients after AC was low (2.6%, 1/38), all tumors were high-grade and patients fared poorly. Early clinical symptoms were uncommon. Cystoscopy alone was not always adequate, whereas change in imaging findings was more reliable for diagnosis. While current literature does not support screening, the lethal nature of UC in these patients merits a prospective followup protocol.

MP 3.13

The impact of national non-muscle-invasive bladder cancer quality indicators on treatment patterns in a comprehensive Ontario community hospital

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Introduction: The Canadian Bladder Cancer information system (CBCis), a national registry capturing Canadian bladder cancer practice and treatment out-

MP 3.12. Table 1. Patient characteristics

Pt. no.	Age at diagnosis	Prior normal tests and time	Diagnosis made by	Pathology	Clinical course
1	37	Ultrasound, 6 mo.	Cysto, US, liver mets	Small cell carcinoma	Died soon after diagnosis
2	29	Ultrasound, 6 mo.	Cysto mass found	Signet ring adenoca at anastomosis	Cystectomy, died at 10 y with metastases
3	50	Cysto and ultrasound, 6 mo.	CT for left ureteral stones, bladder mass, TUR	High grade UC with glandular diff.	Died with mets
4	69	Ultrasound, cysto Bx low grade UC; 7 mos.	CT for abdo pain, bladder mass with mets, TUR	High grade UC	Died with mets
5	36	Ultrasound 1 y, cysto 6 mos.	US left hydro; CT renal pelvic mass	High grade UC with squamous diff. (renal)	L nephrectomy; died with mets
6	55	Ultrasound, cysto, 18 mos.	Cysto, TUR, CT	High grade UC with sarcomatoid diff.	Cystectomy; died with mets
7	60	Ultrasound, cysto, 3 y.	Cysto, CT mass	High grade UC with squamous diff.	Cystectomy, died of respiratory failure

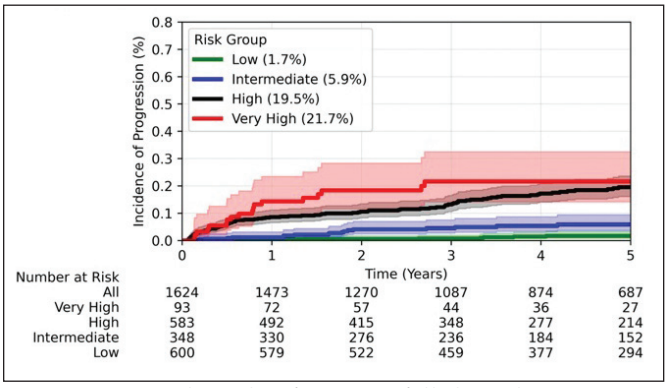
comes, has established quality indicators (QI) pertaining to the management of non-muscle-invasive bladder cancer (NMIBC). We sought to assess the rates of QI compliance at Trillium Health Partners (THP) — the largest community-based hospital network in Canada and the newest contributor to CBCis.
Methods: A retrospective cohort analysis of patients diagnosed with NMIBC from 2005–2022 was conducted. The rates of compliance to QIs were tabulated and compared to national averages established by the CBCis. The cumulative incidence of progression was examined based on the current European Association of Urology (EAU) risk groups.
Results: A total of 1624 NMIBC patients were identified: 77.1% were male, and median age was 72.0 years. Comparison of QI compliance between THP and CBCis groups revealed lower rates of muscle sampling in first TURBT specimens in THP patients vs. CBCis, but higher rates of re-TURBT for T1 tumors and BCG induction (Table 1). The overall rate of one-year recurrence of TaHG was lower at THP than CBCis. The cumulative incidence of progression observed at five years at THP was 1.7% for the low-risk group, 5.9% for intermediate, 20% for high, and 22% for very high-risk. In contrast, the predicted progression rates for the EAU risk groups were 0.93, 4.9, 9.6, and 40%, respectively.
Conclusions: Our data demonstrates comparable implementation of CBCis QI at THP compared to other participating institutions. The observed risk of progression for higher-risk groups differed from those predicted by the EAU risk groups, suggesting that these risk groups may not accurately prognosticate high-risk patients in the community. This underscores the role that large, academic-affiliated community hospitals may play in providing both high-quality care to bladder cancer patients and in aiding the development of comprehensive national registries to better inform national practice patterns.
Reference:

1. Black PC, Alimohamed N, Kassouf W, et al; for the Canadian Bladder Cancer Research Network. Building the Canadian Bladder Cancer Research Network (CBCRN): Progress during a pandemic. *Can Urol Assoc J* 2022;16:E307-14. https://doi.org/10.5489/cuaj.7810

MP 3.13. Table 1. Performance of selected NMIBC quality indicators at THP and CBCis

Quality indicators without benchmarks	THP	CBCis
Percent of TURBT with muscle in the specimen	49%	62%
Percent of T1 with muscle on TURBT	60%	60%
Percent of T1 undergoing re-TURBT (<90 days)	44%*	17%
Percent of HR-NMIBC receiving induction BCG	51%	40%
Percent with 1-year recurrence of TaHG	15%	31%

*<42 days



MP 3.13. Figure 1. Cumulative incidence of progression stratified by the EAU risk groups.

MP 3.14

Impact of bladder cuff management on oncologic outcomes following radical nephroureterectomy for upper tract urothelial carcinoma: A systematic review and meta-analysis

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Introduction: Bladder cuff excision (BCE) is an integral component of radical nephroureterectomy (RNU) for upper tract urothelial carcinoma (UTUC). While many approaches have been described, the most optimal BCE technique for providing maximal oncologic control remains unclear. We aimed to perform a systematic review and meta-analysis to compare oncologic outcomes of different BCE techniques.
Methods: The Ovid MEDLINE, Embase, CENTRAL, and Web of Science databases were searched for studies comparing oncologic outcomes of RNU for UTUC based on different BCE approaches. Techniques for BCE were categorized as intravesical, extravesical, or endoscopic. Our primary outcomes were intravesical recurrence rate (IVR) and intravesical recurrence-free survival (IVRFS). Secondary outcomes included recurrence-free survival (RFS) and cancer-specific survival (CSS). Meta-analysis was performed to compare the recurrence rates and survival outcomes associated with different BCE techniques.
Results: Forty studies assessing a total of 17 168 patients were identified for inclusion. Open intravesical BCE was associated with superior univariate IVRFS (HR 1.27, 95% CI 1.13–1.42, p=0.04, I2=43%), multivariate IVRFS (HR 1.44, 95% CI 1.16–1.80, p 0.0001, I2=75%), univariate RFS (HR 2.30, 95% CI 1.04–5.10, p=0.0002, I2=71%), and multivariate CSS (HR 1.62, 95% CI 1.22–2.15, p=0.33, I2=14%) when compared to non-intravesical techniques. Subgroup analysis revealed that this difference was primarily driven by the inferiority of the open extravesical approach. Endoscopic and non-endoscopic BCE demonstrated equivalent univariate and multivariate IVRFS, RFS, and CSS.
Conclusions: Open intravesical BCE is associated with superior oncologic outcomes when compared to non-intravesical techniques. This difference is primarily driven by the open intravesical approach's superiority to the open extravesical approach. Endoscopic BCE showed equivalent outcomes when compared to non-endoscopic approaches. Prospective randomized trials can shed further light on the optimal approach to BCE.

MP 3.15

Neoadjuvant chemotherapy for muscle-invasive bladder cancer: Insights from a Canadian population-based study

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Introduction: Level-1 evidence supports the use of neoadjuvant chemotherapy (NAC) for localized muscle-invasive bladder cancer (MIBC), and also implies equivalence of the regimens gemcitabine-cisplatin (GC) and dose-dense methotrexate, vinblastine, doxorubicin and cisplatin (DD-MVAC). Opponents of NAC fear missing a window of opportunity to deliver definitive therapy due to NAC-related toxicity or due to NAC-unresponsive disease. We aimed to identify factors associated with the receipt of definitive therapy among patients diagnosed with MIBC who initiated NAC by GC or DD-MVAC in a real-world cohort.
Methods: We linked manually abstracted bladder cancer pathology reports (June 2005 to December 2015) to health administrative databases from the province of Ontario, Canada, to health administrative databases to identify patients diagnosed with MIBC who received at least one dose of GC or DD-MVAC with non-palliative intention within 90 days of diagnosis. Patients were followed for the receipt of definitive therapy (i.e., radical cystectomy, curative chemoradiation, curative radiation), death due to bladder cancer, and death due to other causes. We used competing-risk regression analysis to identify factors associated with the receipt of definitive radical therapy. Effect estimates are presented as hazard ratios (HR, 95% confidence intervals; reference: GC). P-values <0.05 were considered statistically significant (two-sided).
Results: A cohort of 486 patients diagnosed with MIBC that initiated NAC by either GC (85.0%, n=413) or DD-MVAC (15.0%, n=73) was identified. On average, patients who initiated GC compared to DD-MVAC were older (65.8 vs. 60.9

years, p<0.001) and more comorbid (predicted one-year mortality according to Johns Hopkins ACG algorithm: 2.6 vs. 1.4%, p<0.001). A total of 385 patients (79.2%) underwent definitive therapy (91.6% radical cystectomy). The cumulative incidence of definitive therapy within one year of treatment initiation significantly differed as a function of NAC regimen (GC: 82.8%, DD-MVAC: 92.4%, HR 1.61, 1.20–2.16, p=0.002). This association remained statistically significant even after adjusting for age and comorbidity (HR 1.58, 1.17–2.13, p=0.003).

Conclusions: Our population-based study suggests that among patients diagnosed with MIBC who initiated NAC, DD-MVAC vs. GC is independently associated with the likelihood of receiving definitive therapy. This hypothesis-generating study is limited by the relative underrepresentation of DD-MVAC and the associated challenge of exploring potential causal pathways.

MP 3.16

Practice patterns of high-risk non-muscle-invasive bladder cancer in real-world Canadian practice

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Introduction: There is a paucity of evidence pertaining to real-world treatment of localized bladder cancer, particularly in Canada. We sought to investigate real-world treatment patterns in high-risk non-muscle-invasive bladder cancer (HR-NMIBC) patients treated in Alberta to understand current treatment practices, predictors of BCG use, and real-world survival outcomes.

Methods: We conducted a retrospective, observational cohort study of de novo HR-NMIBC patients diagnosed from 2010–2022 using population-level administrative databases in Alberta. Data sources included Alberta Cancer Registry (ACR), Vital Statistics, Pharmaceutical Information Network (PIN), Health Practitioner Claims, Discharge Abstract Database (DAD), and National Ambulatory Care Report System (NACRS) databases. HR-NMIBC was defined as AJCC stage N0 and M0 with either Tis, T1, or high-grade Ta (HG-Ta). Patients were followed from diagnosis to last known contact with the healthcare system, end of 2021, or death. Multivariable logistic regression analysis was used to identify features associated with receipt of BCG.

Results: In this cohort, 3874 HR-NMIBC patients were identified: 82% were male and mean age was 71 years. Tumor stage was T1 in 50%, HG-Ta in 33% and Tis in 17%. Following TURBT, 60.8% of the cohort received no intravesical therapy, while 35.6% received BCG treatment, 2.9% intravesical gemcitabine, and 0.6% mitomycin C. Patients who received BCG were predominantly male (83.9%), had T1 tumors (52%), and had a CCI of 0–1 (83.5%). Few (<10%) patients underwent cystectomy. In patients who received BCG, 28.3% completed only one dose, 56.9% completed five induction doses, and 32% received "adequate" dosing (≥5 induction doses + ≥2 maintenance doses). In multivariable regression analysis, the strongest predictor of receipt of BCG was high-grade disease (OR 1.62, 95% CI 1.25–2.10, p<0.001). Other features associated with higher BCG use were younger age, fewer comorbidities, rural residence, and being diagnosed closer to 2010. Overall survival was 10.3 (95% CI 116–131) years.

Conclusions: In this large, population-based, retrospective study, we identify relatively poor use of BCG among patients with HR-NMIBC, with 32% of patients receiving adequate BCG therapy, per FDA definitions. These data, while concordant with other jurisdictions, do not address underlying causes that may relate to BCG supply issues, patient preference, fitness to receive therapy, or physician beliefs regarding treatment efficacy. Additional research is needed to identify strategies to improve the use of guideline-recommended therapy among HR-NMIBC patients in real-world settings.

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MP 3.17

Real-world response to first-line platinum-based chemotherapy in locally advanced or metastatic urothelial carcinoma

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Introduction: Contemporary, real-world reports of outcomes for patients with locally advanced or metastatic (LA/mUC) urothelial carcinoma are limited. Especially with the advent of switch maintenance immunotherapy and the availability of established second- and third-line treatment options, it has become imperative to better characterize real-world patient outcomes after first-line chemotherapy. The objective of this study was to determine real-world practice patterns and outcomes after first-line platinum-based chemotherapy in a large multicenter cohort of LA/mUC.

Methods: The Canadian Bladder Cancer information system (CBCis) is a national, prospectively maintained database across 15 academic institutions in Canada. Patients who received systemic therapy for locally advanced (cT4b or cN1-3) or metastatic urothelial carcinoma of the bladder were included between January 2015 and April 2023. Patients were included if they had at least one followup imaging after the initiation of systemic therapy. Treatment parameters and response rates were assessed.

Results: A total of 501 patients received first-line systemic therapy for LA/mUC, of whom 370 (73.9%) received platinum-based chemotherapy. Of those receiving platinum-based chemotherapy, 190 (51.4%) patients received cisplatin/gemcitabine and 172 (46.5%) patients received carboplatin/gemcitabine. Treatment was completed in 97 (26%) of 370 patients and discontinued in 140 (37.8%). Out of 370 patients who were initiated on platinum-based chemotherapy, 210 (56.7%) died at a median followup of 12.8 months. Of those who discontinued treatment, 47 (33.8%) patients stopped treatment due to progression and 68 (48.9%) due to an adverse event. After a median followup of 10.4 months, complete response was observed in four (1.1%) patients treated with platinum-based chemotherapy, partial response or stable disease in 121 (32.9%), and progression in 99 (26.9%). Switch maintenance with avelumab was used in 59 (15.9%) patients after platinum-based chemotherapy. Second-line systemic therapy was administered to 245 (48.9%) patients.

Conclusions: The real-world response rates after first-line platinum-based chemotherapy in this study are lower than previously reported. This study highlights the need for further research to better evaluate the true real-world effects of treatment in locally advanced and metastatic urothelial carcinoma.

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