Poster Session 8: Endourology, Stones
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Abstract #99

The impact of anesthesia-induced intraoperative hypotension on hemostasis during holmium laser enucleation of the prostate

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Introduction: Benign prostatic hyperplasia (BPH) is a common cause of lower urinary tract symptoms (LUTS) in men. Holmium laser enucleation of the prostate (HoLEP) has emerged as a superior option for patients with hemostatic concerns. Intraoperative hypotension (IOH) during general anesthesia is a phenomenon whereby general anesthetics reduce a patient's blood pressure (BP) and is commonly defined as a >20% reduction from baseline. Existing literature on the relationship between IOH and postoperative blood loss is sparse in urology but has been proposed in plastic surgery literature. This study aimed to address this critical knowledge gap by investigating the effect of IOH during HoLEP on postoperative hematuria.

Methods: A retrospective analysis was conducted of all patients who underwent HoLEP by a single surgeon from January 1, 2024, to December 31, 2024. The primary comparison group was the incidence of clinically significant hematuria (CSH). Groups with and without CSH were matched by preoperative prostate volume as determined by preoperative imaging using coarsened exact matching. Mean baseline systolic BP (SBP) within one year before HoLEP, highest SBP during the first half of the procedure (the "enucleation phase"), and highest SBP during the second half (the "hemostasis and morcellation phase") were recorded. Patients were considered to have IOH if highest SBP was at least 20% below the mean baseline. Perioperative characteristics were compared using the Wilcoxon rank sum test for continuous variables and either the Chi-squared or Fisher's exact test for categorical variables.

Results: Out of 182 HoLEPs in the study period, there were 26 included in each group after matching. Baseline characteristics were similar. The CSH cohort had a greater incidence of IOH during the hemostasis and morcellation phase (21 vs. 0%, p=0.022). The CSH cohort also demonstrated greater length of stay and incidence of ED visits and readmissions (Table 1).

Conclusions: Patients with IOH throughout the hemostasis and morcellation phase of HoLEP appeared more likely to progress to CSH. Considering IOH role when identifying bleeding vessels and obtaining hemostasis is critical to improving patient safety. Thus, it may be prudent to optimize blood pressure during the hemostasis and morcellation phase of the procedure to minimize risk of CSH.

Funding: Endourology Society Summer Student Fellowship, University of Rochester Translational Science Summer Award.

Abstract #99. Table 1. Comparison of predictors of postoperative hematuria after holmium laser enucleation of the prostate after matching on prostate volume

Variable	n	Hematuria n=26[1,2]	No hematuria n=26[1,2]	p[3]
Baseline characteristics				
Age (years)	52	74.9 (69.1, 79.5)	71.5 (68.2, 76.7)	0.26
Body mass index (kg/m^2)	52	28.3 (25.0, 31.0)	30.9 (26.3, 36.0)	0.11
Charlson comorbidity index	52	4.0 (3.0, 5.0)	4.0 (3.0, 5.0)	0.62
Hypertension diagnosis	52	17 (65%)	17 (65%)	>0.99
Baseline SBP (mmHg)	51	135.0 (123.5, 142.0)	140.0 (131.5, 146.0)	0.41
Clotting disorder diagnosis	52	5 (19%)	4 (15%)	>0.99
Home anticoagulation	51	8 (31%)	3 (12%)	0.10
Prostate volume (cm^3)	52	101.5 (90.0, 125.3)	101.5 (90.0, 126.0)	0.96
Baseline PSA (ng/mL)	49	4.2 (3.7, 8.2)	4.8 (2.7, 8.8)	0.97
Chronic Foley or intermittent cath	52	9 (35%)	6 (23%)	0.36
Intraoperative factors				
Inhaled anesthetics used	52			0.75
Sevoflurane only		20 (77%)	19 (73%)	
Sevoflurane + nitrous oxide		6 (23%)	7 (27%)	
Hypotension in first half of case	49	5 (21%)	1 (4.0%)	0.10
Nypotension in second half of case	49	5 (21%)	0 (0%)	**0.022**
Operative time (minutes)	52	60.5 (53.0, 80.0)	66.0 (54.0, 81.0)	0.66
Estimated blood loss (cm^3)	52	67.5 (50.0, 150.0)	80.0 (50.0, 150.0)	0.74

[1]Median (Q1, Q3); n (%). [2]Hematuria was defined as clot retention, return to operating room due to hematuria, perioperative management variation due to hematuria, or continued gross hematuria past 1 month postoperatively. [3]Wilcoxon rank sum exact test; Wilcoxon rank sum test; Pearson's Chi-squared test; Fisher's exact test.

Abstract #99. Table 1 (cont'd). Comparison of predictors of postoperative hematuria after holmium laser enucleation of the prostate after matching on prostate volume

Variable	n	Hematuria n=26[1,2]	No hematuria n=26[1,2]	p[3]
Outcomes				
Length of stay (days)	52	1.0 (1.0, 2.0)	1.0 (0.0, 1.0)	**0.006**
Delayed discharge	52	12 (46%)	2 (7.7%)	**0.002**
Catheter duration (days)	52	2.0 (1.0, 4.0)	1.0 (1.0, 2.0)	0.058
Urinary retention	52	6 (23%)	2 (7.7%)	0.25
ED visits	52	9 (35%)	1 (3.8%)	**0.005**
Readmissions	52	8 (31%)	0 (0%)	**0.004**

[1]Median (Q1, Q3); n (%). [2]Hematuria was defined as clot retention, return to operating room due to hematuria, perioperative management variation due to hematuria, or continued gross hematuria past 1 month postoperatively. [3]Wilcoxon rank sum exact test; Wilcoxon rank sum test; Pearson's Chi-squared test; Fisher's exact test.

Abstract #100

Micro-cost analysis of reusable compared to affordable single-use flexible ureteroscopes

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Introduction: Flexible ureteroscopy is increasingly used for managing upper urinary tract pathologies, particularly kidney stones. With the emergence of affordable single-use flexible ureteroscopes (fURS) as an alternative to reusable systems, the contemporary economic impact of each device is unclear. This study performed a micro-cost evaluation comparing reusable fURS with two single-use models (Standard LithoVue™ and EU-Scope™ US 31E-12) in a single-payer Canadian healthcare system.

Methods: Costs of reusable fURS were divided into acquisition, repair, and reprocessing expenses. Acquisition costs were based on the capital expenses to purchase nine fURS and the endoscope sterilization machine amortized over three years and 10 years, respectively. Repair costs consisted of a fixed fee ($50.29) per procedure, in accordance with a local repair contract. Reprocessing costs included automated washing, manual cleaning, assembly, and MDRU labor. Per-procedure costs for reusable fURS were calculated by dividing the total annual costs by the average annual number of procedures, whereas single-use costs were based solely on device prices. The total number of repairs and specific reasons for repairs were also collected for the entire reusable fURS fleet from 2022–2024.

Results: At our center, an average of 438 procedures were performed annually using reusable fURS, with total annual costs of $104 354.60, equating to $238.25 per procedure. In comparison, single-use devices were priced at $850 for Standard LithoVue™ and $575 for EU-Scope™ US 31E-12. Reusable fURS become more cost-effective at volumes exceeding 130 cases compared to EU-Scope™ and 83 cases compared to LithoVue™. Additionally, 65 repair events were recorded from 2022–2024, mainly due to distal tip leakage (77%). One repair was required for roughly 20 procedures (20.22:1).

Conclusions: Our analysis indicates that reusable systems are more cost-efficient in high-volume settings, while single-use devices, especially the EU-Scope™, may be advantageous in lower- volume centers. In tertiary centers, the use of single-use fURS represents an excellent opportunity to preserve the durability of reusable fURS, particularly during complex procedures with a high risk of ureteroscope damage.

Abstract #101

Steerable ureteroscopic renal evacuation significantly reduces healthcare consumption events at 2 years vs. standard ureteroscopy

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Introduction: Patients undergoing standard ureteroscopy (URS) for urolithiasis frequently experience residual stone fragments, leading to increased risk of complications, retreatment, and additional healthcare utilization. This highlights the potential value of aspiration-based technologies. The ASPIRE trial, the first randomized controlled trial evaluating steerable ureteroscopic renal evacuation (SURE) with the CVAC Aspiration System, previously showed enhanced stone clearance, reduced residual volume at 30 days, and fewer healthcare consumption events at one year compared to standard URS. This analysis presents the two-year followup results.

Methods: A total of 123 adult subjects with at least one renal stone and a total stone burden of 7–20 mm were randomized to receive either SURE or standard URS across 11 U.S. centers. The SURE procedure used the first-generation CVAC Aspiration System, a steerable catheter that enables navigation under fluoroscopy to simultaneously irrigate and aspirate fragments and stone dust following laser lithotripsy. Healthcare consumption events (HCE), defined as emergency department visits, hospital admissions, and retreatments, were assessed over two years using survival analysis and Cox proportional hazards modeling.

Results: Among the 101 patients included in the survival analysis (46 SURE vs. 55 URS), the incidence of HCE at two years was significantly lower in the SURE group (4.3%) compared to URS (20%) (log-rank p=0.02). SURE reduced the risk of HCE by 73% relative to URS (HR 0.27, 95% CI 0.09–0.80, p=0.02), with a mean extension of 93.4 days in event-free survival. The average time to event was 701.6 days for SURE vs. 608.2 days for URS. After adjusting for baseline stone volume, treatment type remained a significant predictor of HCE (adjusted HR 0.20, 95% CI 0.04–0.90, p=0.04), revealing a fivefold higher likelihood of HCE in the URS group. Safety outcomes were comparable between groups through the two-year period.

Conclusions: This remains the only study with a two-year, head-to-head comparison of standard URS and an aspiration-based approach. SURE significantly lowers long-term healthcare consumption events, demonstrating sustained clinical value of the CVAC Aspiration System.

Funding: Calyxo, Inc.

Abstract #102

Size-matched comparison of robotic waterjet treatment and laser enucleation of the prostate

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Introduction: Robotic waterjet treatment (RWT) has shown similar outcomes to transurethral resection of the prostate in the WATER trial and has lower adverse effects on ejaculatory function. Holmium laser enucleation of the prostate (HoLEP) is a well-established modality for benign prostatic hyperplasia (BPH) surgery and is appropriate for prostates of all sizes, with the advantage of improved control of postoperative hematuria. There is minimal evidence comparing RWT with HoLEP. The goal of this study was to compare RWT directly with HoLEP in a size-matched comparison.

Methods: This is a single-center, retrospective analysis of patients who underwent either HoLEP or RWT for BPH between October 1, 2023, and January 31, 2025. Only subjects with prostate volumes measured preoperatively with transrectal ultrasound, computed tomography, or magnetic resonance imaging were included. Baseline and postoperative characteristics were recorded. Each RWT case was matched with a HoLEP control based on prostate volume using coarsened exact matching. Comparisons were made between surgery groups using either the Kruskal-Wallis test for continuous variables and Chi-squared test for categorical variables. Linear and logistic regression were used to assess differences in outcomes adjusted for confounding.

Results: Of 364 HoLEP and 84 RWT performed for BPH in the study period, there were 84 subjects in each surgery group after matching. The HoLEP group had higher Charlson comorbidity index (4 vs. 3, p=0.02), higher preoperative incontinence rate (35% vs. 11%, p<0.001), and lower prior BPH procedure rate (7.1 vs.

Abstract #102. Table 1. Comparison of perioperative characteristics for robotic waterjet treatment versus holmium laser enucleation of the prostate after matching on prostate volume

Variable	n	HoLEP n=84[1]	RWT n=84[1]	p[2]
Baseline characteristics				
Age	168	71.7 (66.0, 77.0)	69.8 (65.5, 73.7)	0.057
Body mass index	168	29.0 (24.7, 32.2)	27.2 (24.8, 31.6)	0.60
Charlson comorbidity index	168	4.0 (2.0, 5.0)	3.0 (2.0, 4.0)	**0.020**
Home anticoagulation	168	21 (25%)	12 (14%)	0.081
Prostate volume	168	67.0 (49.5, 108.5)	67.0 (49.0, 109.0)	>0.99
Baseline PSA (ng/mL)	158	3.1 (1.9, 5.1)	2.8 (1.4, 6.3)	0.89
Preoperative urinary incontinence	168	29 (35%)	9 (11%)	**<0.001**
Chronic Foley or intermittent cath	168	18 (21%)	12 (14%)	0.23
Prior BPH procedure	168	6 (7.1%)	17 (20%)	**0.014**
Baseline IPSS severity	96	17.5 (11.0, 24.0)	19.0 (14.0, 22.0)	0.53
Baseline IPSS bother	96	4.0 (2.0, 5.0)	4.0 (3.0, 5.0)	0.062

[1]Median (Q1, Q3); n (%). [2]Wilcoxon rank sum test; Pearson's Chi-squared test. [3]Hematuria was defined as clot retention, return to operating room due to hematuria, perioperative management variation due to hematuria, or continued gross hematuria past 1 month postoperatively.

Abstract #102. Table 1 (cont'd). Comparison of perioperative characteristics for robotic waterjet treatment versus holmium laser enucleation of the prostate after matching on prostate volume

Variable	n	HoLEP n=84[1]	RWT n=84[1]	p[2]
Intraoperative factors				
Operative time	168	63.5 (48.0, 83.0)	56.5 (46.0, 68.5)	**0.015**
Outcomes				
Length of stay (days)	168	1.0 (0.0, 1.0)	1.0 (1.0, 1.0)	**<0.001**
Delayed discharge	168	4 (4.8%)	19 (23%)	**<0.001**
Catheter duration (days)	168	2.0 (1.0, 3.0)	1.0 (1.0, 3.0)	0.63
Urinary retention	168	9 (11%)	9 (11%)	>0.99
Hematuria3	168	5 (6.0%)	15 (18%)	**0.017**
ED visits	168	13 (15%)	8 (9.5%)	0.24
Readmissions	168	7 (8.3%)	6 (7.1%)	0.77
Postoperative PSA (ng/mL)	111	0.5 (0.3, 1.0)	1.9 (1.1, 3.5)	**<0.001**
3-month IPSS severity	30	7.5 (3.5, 12.5)	9.0 (3.0, 19.0)	0.76
3-month IPSS bother	30	2.0 (1.0, 3.0)	2.0 (2.0, 4.0)	0.48

[1]Median (Q1, Q3); n (%). [2]Wilcoxon rank sum test; Pearson's Chi-squared test. [3]Hematuria was defined as clot retention, return to operating room due to hematuria, perioperative management variation due to hematuria, or continued gross hematuria past 1 month postoperatively.

Abstract #102. Table 2. Linear and logistic regression analyses of outcomes comparing robotic waterjet treatment with holmium laser enucleation of the prostate after matching on prostate volume

	Univariable				Multivariable		
Outcome	n	Beta[1]	95% CI	p	Beta[1]	95% CI	p
Linear regression							
Operative time (minutes)[3]	168	-10	-17, -3.4	0.004	-9.7	-16, -3.2	0.004
Length of stay (days)[4]	168	0.70	0.42, 0.99	<0.001	0.70	0.43, 0.98	<0.001
Catheter duration (days)[5]	168	0.07	-0.72, 0.87	0.86	0.24	-0.51, 0.99	0.53
Logistic regression							
Delayed discharge[4]	168	5.85	2.08, 20.9	0.002	6.08	2.13, 22.0	0.002
ED visits[6]	168	0.57	0.22, 1.45	0.25	0.64	0.23, 1.68	0.37
Readmissions[4]	168	0.85	0.26, 2.66	0.77	0.84	0.26, 2.67	0.77
Urinary retention[4]	168	1.00	0.37, 2.70	>0.99	1.00	0.37, 2.70	>0.99
Hematuria[2,3]	168	3.43	1.26, 11.0	0.023	4.73	1.62, 16.6	0.008

[1]Beta represents MD for linear regression or OR for logistic regression. [2]Hematuria was defined as clot retention, return to operating room due to hematuria, perioperative management variation due to hematuria, or continued gross hematuria past 1 month postoperatively. [3]Model adjusted for Charlson comorbidity index and prostate volume. [4]Model adjusted for prostate volume. [5]Model adjusted for prostate volume and chronic Foley/intermittent cath. [6]Model adjusted for age and prostate volume.

20%, p=0.014) (Table 1). Operative time was longer for HoLEP than RWT (63.5 vs. 56.5 minutes, p=0.015), while delayed discharge rate (4.8% vs. 23%, p<0.001) and hematuria rate (6% vs. 18%, p=0.017) were lower for HoLEP. Complication rates were otherwise similar between groups (p>0.05). These differences persisted in adjusted regression analysis (Table 2).
Conclusions: In this real-world direct comparison of HoLEP vs. RWT for surgical treatment of BPH, both modalities demonstrated similar safety profiles. HoLEP demonstrates better control of bleeding. Prospective analyses can further interrogate this comparison with deeper analysis of functional metrics.

Abstract #103

Collapse resistance of Foley catheters under suction: A quantitative benchmark to inform irrigation strategies and design innovation

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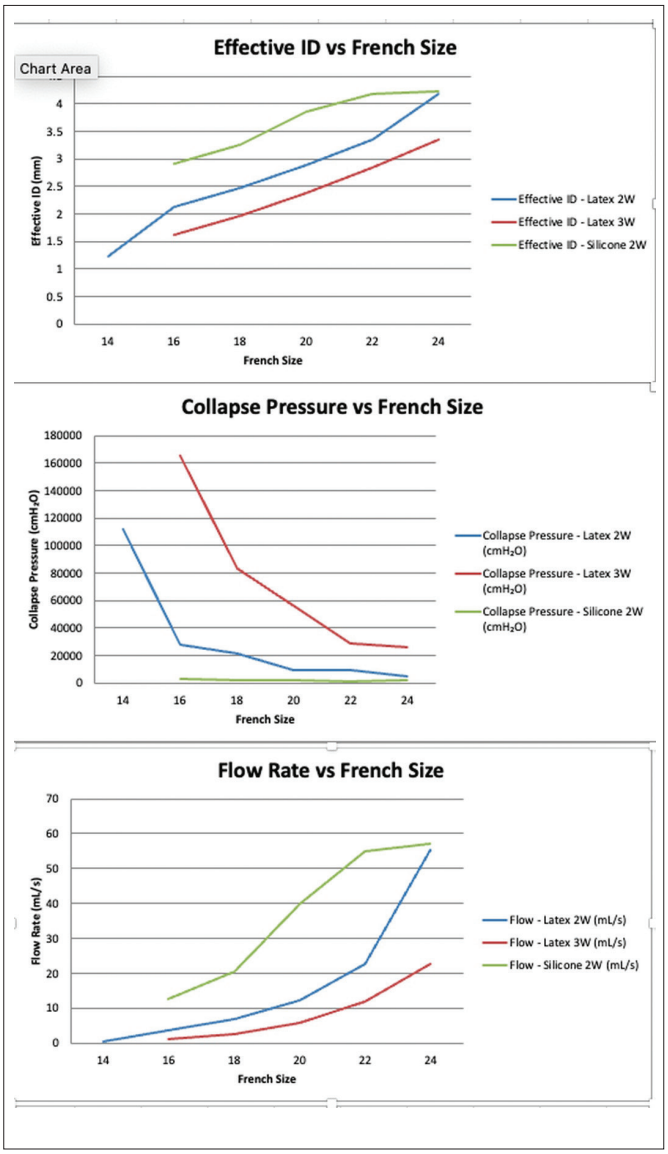
Introduction: Foley catheters are a mainstay for continuous bladder drainage and are frequently used for irrigation during hematuria with clot retention. In this setting, applying suction can cause the catheter lumen to collapse, preventing effective transmission of force to the obstructing clot. While catheter flow capacity has been previously described, resistance to suction-induced collapse remains poorly characterized. This study establishes collapse pressure thresholds and modeled flow values across common Foley catheter types, creating a structural performance benchmark.
Methods: Bard two-way latex, three-way latex, and two-way silicone catheters ranging from 14 Fr to 24 Fr were assessed. Wall thickness was measured directly using calipers, while internal diameters were obtained from casts of the drainage lumens. For non-circular lumens, effective internal diameter was derived using a flattened elliptical approximation. Collapse pressure was calculated using Timoshenko's thin-shell buckling equation, and flow rates were modeled using the Hagen-Poiseuille equation under ideal laminar conditions at 30 cmH_2O.
Results: Collapse resistance varied by design and material. Three-way latex catheters demonstrated the highest mean collapse pressure (71 959 cmH_2O), followed by two-way latex catheters (30 962 cmH_2O). Silicone catheters had the lowest collapse resistance overall (2076 cmH_2O) (Figure 1). Modeled flow scaled predictably with internal diameter across all types. Silicone catheters exhibited the highest theoretical flow rates, while latex catheters demonstrated more moderate values.
Conclusion: This study defines structural thresholds for suction-induced collapse across common Foley catheter types and presents modeled flow capacity as a comparative reference. While flow scaled with size, resistance to collapse varied widely and was determined more by wall geometry and material than diameter alone. Three-way latex catheters exhibited the highest structural durability, while silicone catheters — despite greater luminal diameter — were more prone to deformation. These findings emphasize that effective irrigation depends on both flow and resistance to collapse, and suggest that catheter performance cannot be judged by French size alone. This benchmark may support more informed catheter selection and the development of future designs that optimize both function and patient comfort.



Abstract #103. Figure 1. (A) Effective ID vs. French size. (B) Collapse pressure vs. French site. (C) Flow rate vs. French size.

Abstract #105

Development and implementation of a same-day discharge protocol for HoLEP: Evaluating clinical barriers and outcomes

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Introduction: Benign prostatic hyperplasia (BPH) is a common cause of lower urinary tract symptoms (LUTS) in men. Holmium laser enucleation of the prostate (HoLEP) offers a size-independent option for treatment with LUTS. Same-day discharges (SDD) for patients after HoLEP were notably accelerated during the COVID-19 pandemic, improving healthcare efficiency, allowing recovery in familiar surroundings, and reducing healthcare costs. In our institution, we developed a SDD HoLEP program and analyzed barriers to SDD.
Methods: A SDD protocol, including preoperative counseling, postoperative staff education, and standardized discharge criterion, was instituted on December 26, 2023. A single-center, retrospective analysis of consecutive HoLEPs by a single surgeon between December 26, 2023, and January 31, 2025, was conducted.

Abstract #105. Table 1. Comparison of patients after implementing same-day discharge protocol for holmium laser enucleation of the prostate

Variable	n	No SDD (n=136[1])	SDD (n=95[1])	p[2]
Baseline characteristics				
Age (years)	231	71.3 (67.3, 77.0)	70.0 (65.3,74.5)	**0.017**
Social vulnerability index	72	29.7 (15.4, 52.8)	17.9 (9.1,49.6)	0.48
Distance from hospital (km)	231	26.7 (0.0, 66.4)	15.6 (0.0, 43.9)	**0.033**
Married	231	96 (71%)	75 (79%)	0.15
Body mass index (kg/m^2)	231	28.3 (25.0,32.0)	29.3 (25.1, 34.0)	0.085
Charlson comorbidity index	225	3.0 (2.0, 4.0)	3.0 (2.0, 4.0)	0.69
Home anticoagulation	226	37 (28%)	16 (17%)	0.075
Prostate volume (cm^3)	227	104.0 (79.0, 141.0)	88.0 (57.9, 108.0)	**<0.001**
Chronic Foley or intermittent cath	231	47 (35%)	25 (26%)	0.18
Baseline IPSS severity	116	17.0 (10, 21)	14.0 (11,23)	0.59
Baseline IPSS bother	116	4.0 (3, 5)	3.0 (2, 4)	0.15
Intraoperative factors				
Morning case	231	69 (51%)	57 (60%)	0.16
Operative time (minutes)	231	67.0 (55.0, 83.5)	55.0 (45.0, 65.0)	**<0.001**
Estimated blood loss (cm^3)	231	100.0 (50.0, 150.0)	50.0 (20.0, 100.0)	**<0.001**
Outcomes				
Length of stay (days)	231	1.0 (1.0, 1.0)	0.0 (0.0, 0.0)	**<0.001**
Catheter duration (days)	231	1.0 (1.0, 1.0)	2.0 (2.0, 3.0)	**<0.001**
Urinary retention	230	14 (10%)	6 (6.4%)	0.30
Hematuria[3]	231	25 (18%)	4 (4.2%)	**0.001**
ED visits	231	16 (12%)	5 (5.3%)	0.091
Readmissions	231	10 (7.4%)	3 (3.2%)	0.17

[1]Median (Q1, Q3); n (%). [2]Wilcoxon rank sum test; Pearson's Chi-squared test. [3]Hematuria was defined as clot retention, return to operating room due to hematuria, perioperative management variation due to hematuria, or continued gross hematuria past 1 month postoperatively.

Perioperative characteristics were compared between patients who were discharged on the same calendar day that the surgery was performed (SDD) and those who were discharged later (No SDD). Hematuria was defined as clot retention, return to operating room due to hematuria, perioperative management variation due to hematuria, or continued gross hematuria past one month postoperatively. Categorical variables were compared using a Chi- squared test, and continuous variables were compared using a Wilcoxon rank sum test.

Results: Of 231 HoLEPs performed in the study period, SDD was achieved in only 95 (41%) patients. Age, distance from hospital, prostate volume, operative time, estimated blood loss (EBL), and postoperative hematuria rates were lower in the SDD group. The median hospital stay for patients who did not achieve SDD was one day. Notably, there were no differences in marital status, Charlson comorbidity index, percentage of morning cases, or rates of emergency room visits or readmissions (Table 1).

Conclusions: Critical evaluation of failed SDD implementation is paramount. While unanticipated preoperative factors, such as operative time and EBL, should be minimized, baseline predictors, such as age and distance from hospital, can be accounted for in patient counseling and discharge planning. Notably, cases with afternoon start times are not more likely to fail SDD. In conclusion, the identification of predictors of SDD will hopefully result in greater success in implementation. By using the results of this study, a subset of patients who can have surgery in outpatient centers can possibly be identified, and thus reduce the burden on hospital systems.

Abstract #106

Prospective evaluation of steerable ureteroscopic renal evacuation with the second-generation CVAC® aspiration system: Findings from the CLEARANCE study

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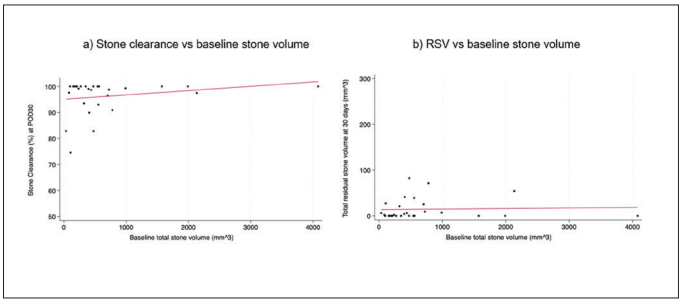
Introduction: This study assessed the safety and performance of the second-generation CVAC® Aspiration System, which combines direct visualization, laser lithotripsy, microjet irrigation, dynamic aspiration, and continuous removal and collection of stone fragments.

Methods: A prospective, single-arm clinical study was conducted in which adults undergoing ureteroscopic laser lithotripsy received treatment using the CVAC system for steerable ureteroscopic renal evacuation (SURE). Outcomes included percent stone clearance, residual stone volume (RSV), presence of residual fragments (RF), and stone-free rate at postoperative days (POD) 1 and 30. Assessments were performed using 2 mm-slice non-contrast CT scans analyzed with semi-automated segmentation software. Regression analysis was used to evaluate the effect of baseline stone volume on outcomes. Safety was monitored by recording adverse events.

Results: A total of 30 subjects (32 renal units) were treated across 10 surgeons. Of these, 26 subjects (28 renal units) had POD 30 imaging data. The average initial stone volume was 703.6 mm^3 with a mean density of 1203 HU. Mean stone clearance improved from 93.8% at POD 1 to 96.2% at POD 30. Correspondingly, mean RSV dropped from 36.0 mm^3 to 14.1 mm^3. The stone-free rate (defined as zero RF) rose from 25.0% at POD 1 to 46.4% at POD 30. High stone clearance and low RSV were maintained regardless of initial stone burden (Figure 1). No device-related complications occurred, and all reported adverse events were mild and resolved uneventfully. No patient required retreatment or readmission due to RF.

Conclusions: The CVAC Aspiration System demonstrates a strong safety profile and delivers effective stone clearance with minimal residual burden, even in cases involving larger or denser stones.

Funding: Calyxo, Inc.



Abstract #106. Figure 1. Regression analysis: (A) Stone clearance; and (B) RSV vs. baseline stone volume at POD 30.

Abstract #107

Delayed urinary retention after holmium laser enucleation of the prostate

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Introduction: Same-day trial of void (SDTOV) is increasingly used after holmium laser enucleation of the prostate (HoLEP). While predictors of successful SDTOV after HoLEP have been studied, literature on contributors to non-clot-related delayed urinary retention (DUR) after successful SDTOV remains scarce. We aimed to identify modifiable perioperative risk factors associated with post-HoLEP DUR.

Methods: Our institution prospectively maintains an IRB-approved, single-surgeon database of HoLEP procedures from which we identified patients with DUR after passing SDTOV. Exclusion criteria included the first 50 cases (due to surgeon's learning curve), patients with failed SDTOV, and clot retention. Using SPSS 26 statistical software, we analyzed various perioperative factors in association with our primary outcome, DUR, using unpaired t-tests for continuous variables and Chi-squared analysis for categorical variables. Multivariate logistic regression was used to assess several preoperative and operative variables in association with DUR ($p<0.05$ as significant).

Results: A total of 500 HoLEPs were performed from January 2020 to August 2024. Eighteen (5.17%) of the 348 patients included had DUR. We found no significant differences in age, BMI, ASA, comorbidities, preoperative prostate size, or medication use between patients who did and did not have DUR. On multivariate logistic regression, intraoperative urethral dilation (25.8% cases) and postoperative continuous bladder irrigation (CBI) (7.7% cases) were significantly associated with DUR ($p<0.05$) (Table 1).

Conclusions: Intraoperative urethral dilation and postoperative CBI were significant predictors of non-clot DUR. Therefore, surgeries involving these contributors warrant additional postoperative patient counseling and consideration of discharge with a catheter to decrease morbidity and cost from unplanned encounters for catheter replacement.

Abstract #107. Table 1. Results of binomial logistic regression for all patients undergoing HoLEP, showing postoperative DUR rates controlling for various patient demographics, preoperative and operative factors

	Delayed urinary retention Multivariate logistic regression	
	OR (95% CI)	p
Age	1.015 [0.845, 1.149]	0.799
BMI	1.154 [0.963,1.383]	0.121
ASA	0.298 [0.33, 2.693]	0.281
Diabetes mellitus	0.937 [0.865, 1.014]	0.062
Prostate size	0.988 [0.974, 1.004]	0.531
Preoperative Foley catheter use	14.531 [0.914, 32.652]	0.058
Preoperative CIC dependence	2.280 [0.085, 50.811]	0.623
Preoperative PVR	0.996 [0.988, 1.004]	0.337
Anticoagulation use	10.64 [0.129, 881.045]	0.295
Intraoperative urethral dilation	12.624 [4.554, 264.258]	**0.002**
Operative time	0.965 [0.918, 1.014]	0.160
Tissue removed	1.017 [0.950, 1.089]	0.632
Postoperative CBI	29.231 [9.429, 387.583]	**<0.001**

Abstract #108

Intraoperative ephedrine reduces successful same-day trial of void after holmium laser enucleation of the prostate

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Introduction: Same-day trial of void (SDTOV) is increasingly used after holmium laser enucleation of the prostate (HoLEP); however, studies have mainly identified non-modifiable risk factors for failed SDTOV. We hypothesized that there exist modifiable risk factors, such as intraoperative anesthetic medication selections, that influence SDTOV rates.

Methods: We prospectively maintain an IRB-approved, single-surgeon case series of HoLEP procedures. We assessed demographic, preoperative, anesthetic, and intraoperative factors in regards to a primary outcome of successful SDTOV. Univariate logistic regression identified variables with p-values <0.15, which were included in a multivariate logistic regression ($p<0.05$ as significant). The first 50 cases were excluded during the surgeon's learning curve, as were patients who did not attempt SDTOV.

Results: A total of 486 HoLEPs were performed from January 2020 to May 2024, and after excluding the first 50 cases, 334 patients (77%) attempted SDTOV. Mean age was 69.9 years (SD 7.74) and mean body mass index (BMI) was 28.5(SD 4.90). The average prostate volume was 84.2 ml (SD 51.63); 151 patients were in urinary retention before surgery. Mean operative time was 90.87 minutes (SD 39.95). Seventy-one patients (21.3%) failed SDTOV. Univariate analysis identified several correlates to failed SDTOV (Table 1). Controlling for age, BMI, preoperative catheterization, positive urine culture, comorbidities, prostate size, and operative time, only ephedrine was found to be significantly associated with failed SDTOV.

Conclusions: These data demonstrate that intraoperative use of the alpha agonist, ephedrine, is a modifiable factor associated with increased risk of failed SDTOV after HoLEP. These findings may lay the groundwork for future studies on the use of ephedrine during anesthesia across endourologic procedures.

Abstract #108. Table 1. Univariate and multivariate results for factors associated with failed SDTOV

	Univariate p-value	Multivariate p-value	Odds Ratio	Confidence Interval
Age	0.032	0.089	1.038	0.994-1.083
Prostate Volume	0.176	0.053	0.991	0.982-1.000
Body Mass Index	0.463	0.418	0.975	0.917-1.037
History of Neurological Disorder	0.100	0.114	2.102	0.836-5.283
Preoperative Retention	0.114	0.843	1.087	0.478-2.471
Positive Preoperative Culture	0.152	0.438	1.389	0.606-3.180
Urethral Dilation	0.095	0.654	1.193	0.551-2.581
Operative Time	0.516	0.880	0.999	0.986-1.012
Amount Ephedrine Given	0.003	**0.024***	1.040	1.005-1.076
Amount Glycopyrrolate Given	0.002	0.173	11.476	0.433-382.626

Univariate and Multivariate results for factors associated with failed SDTOV.

Abstract #109

"AquaTURP": Pathway for same-day discharge in Aquablation

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Introduction: Aquablation is the newest commercially available treatment, which uses waterjet technology to treat prostates of all sizes; however, it requires the patient to stay in the hospital for a day with overnight continuous bladder irrigation. We devised a pathway for same-day discharge in Aquablation. This study describes the feasibility and efficacy of AquaTURP, a modified ablation therapy allowing same-day discharge.

Methods: Our study evaluated 95 men aged 47–86 years with moderate-to-severe BPH symptoms who underwent AquaTURP in a prospective, single-arm clinical trial.

The primary endpoint was improvement in AUA score at three months following surgery. We also looked at perioperative and immediate postoperative outcomes.
Results: The mean patient age was 66.64 years and the mean prostate volume was 94 cc. The average AquaTURP time was 92.29 minutes. The mean preoperative AUA score was 17.95. Same-day discharge was possible in 90.95% of patients. Over 50% had their catheter removed at two days. The mean postoperative AUA score was 5.56 at three months. Multivariate linear regression model showed uniform, favorable outcomes irrespective of preoperative factors.
Conclusions: Same-day discharge is feasible in Aquablation. Postoperative outcomes were independent of patient characteristics.

Abstract #110

Access in percutaneous nephrolithotomy: Comparing outcomes in urology-obtained endoscopic-assisted vs. interventional radiology-obtained access

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Introduction: Renal access for percutaneous nephrolithotomy (PCNL) is obtained by either urologists or interventional radiologists (IR) using fluoroscopy or ultrasound guidance. Endoscopic-assisted guidance in the prone split-leg position has enabled urologists to target the calyx of choice more accurately under direct visualization and to have a combined retrograde approach to stones when needed. The aim of this study was to analyze outcomes of patients who underwent prone split-leg endoscopic-guided PCNL access compared to access obtained by IR.
Methods: A retrospective chart review was conducted of all subjects aged 18 years and older who underwent PCNL at a large tertiary care center from September 2019 through December 2023. Patients who had access obtained through a previously inserted nephrostomy tube were excluded from this study. Demographic data, comorbidities, Guy's stone complexity, stone density, intraoperative outcomes, fluoroscopy use, access location, and postoperative complications were compared between both study groups using Chi-squared and unpaired t-test. Stone-free was defined as fragments <3 mm on followup imaging 3–4 months after the procedure.
Results: Of the 146 patients who were evaluated in this study, 66 (45%) underwent urology access. Demographic characteristics were similar between the two groups. Stone location, complexity (graded by Guy's stone score), and radiodensity were similar between the two cohorts. Mean stone size was larger in the IR group compared to the urology group (38±18 mm vs. 31±13 mm, $p<0.05$). Fluoroscopy time (11±6.8 minutes vs. 6.7±3.6 minutes, $p<0.001$) and radiation exposure (329±259 mGy vs. 112±76 mGy, $p<0.001$) were significantly greater in procedures of IR access compared to urology access. Procedures with urology access had a longer operative time when compared to procedures with IR access (142±41 minutes vs. 112±39 minutes, $p<0.001$). IRs more frequently accessed the lower pole compared to urologists. After one month, a significantly higher proportion of patients in the IR group underwent ureteroscopy (12.5% vs. 1.5%, $p<0.05$). At three months, stone-free rate was not statistically significant between the two groups.
Conclusions: In this study, the method of renal access did not demonstrate a statistically significant difference in overall outcomes. IR renal access is associated with greater fluoroscopy time and greater radiation exposure, while urologist access is associated with longer operative time. Also, second-look ureteroscopy was more common in patients with IR-established access.

Abstract #111

A preliminary retrospective analysis of CVAC ureteroscopy stone clearance and complications

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Introduction: Flexible ureteroscopy is the first-line treatment for renal stones for many urologists. CVAC ureteroscopy is a steerable flexible ureteroscope with both irrigation and vacuum capability. We present our preliminary data for stone clearance with CVAC ureteroscopy, patient demographics, stone characteristics, and complications.
Methods: This is a preliminary, retrospective analysis of our institution's experience with the second-generation CVAC ureteroscope from March 2024 to January 2025 at two hospitals with 21 attending urologists. The primary objectives were to evaluate stone clearance and complications. Institutional review board approval was obtained for both locations. We reviewed 198 charts. Eighty-eight patients were identified with preoperative and postoperative CT scans, which were reviewed by an independent radiologist. Stone clearance was calculated from the preoperative and postoperative CT-measured volumes using the ellipsoid formula. Complications were categorized using Clavien-Dindo classification.
Results: The overall median stone clearance rate was 95% (interquartile range 78.3–98.4) of the 88 patients with CT scans. The largest linear stone on preoperative imaging had a median measurement of 10.8 mm. Twenty-two patients were identified with complications. Clavien-Dindo category of four or greater encompassed 1% of all complications. Clavien-Dindo category five complication rate was 0.5%. Clavien-Dindo category four complication rate was 0.5%. UTI and postoperative fever were the most common complications.
Conclusions: CVAC ureteroscopy appears to be effective in clearing renal calculi <2 cm. UTI and fever appear to be the most common postoperative complications after CVAC ureteroscopy.

Abstract #112

Histopathologic examination of pyeloplasty specimens yields insights into potential etiologies of symptomatic ureteropelvic junction obstruction

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Introduction: The etiology of and factors contributing to symptomatic ureteropelvic junction (UPJ) obstruction are incompletely understood. Our objectives were to report the incidence of fibrosis and inflammation in the specimens from subjects undergoing robotic-assisted pyeloplasty to repair UPJ obstruction and correlate histopathologic features with the incidence of intraoperative findings, including crossing vessels and stones.
Methods: A retrospective chart review was performed for patients receiving pyeloplasty for UPJ obstruction. The incidence of fibrosis and inflammation seen in specimens sent for formal pathologic analysis was tabulated and reported as a percentage. The relationship between histopathology findings and intraoperative observations of crossing vessels and stones was analyzed using a hypergeometric model, with $p<0.05$ denoting statistical significance.
Results: Between June 2015 and November 2018, 64 underwent robotic-assisted laparoscopic pyeloplasty and had a formal pathology report examining tissue from the UPJ. Median subject age was 49 years (range 14–88). Intraoperatively, 44% had crossing vessels, with 14% presenting with stones. Histopathologically, 33% of the subjects demonstrated fibrosis, and 42% demonstrated inflammation; this was not mutually exclusive, with 14% of samples having both inflammation and fibrosis. Of histopathology reports noting inflammation, 7% had both acute and chronic inflammation, while the remainder had only chronic inflammation. Crossing vessels were seen with inflammation 11% of the time and with fibrosis 11% of the time. Stones were seen with inflammation 5% of the time and with fibrosis 8% of the time. Crossing vessels were found to be negatively associated with inflammation ($p=0.02$). For all other combinations, there were no statistically significant associations ($p>0.05$) between intraoperative findings of crossing vessels or stones and pathology reports of inflammation or fibrosis.
Conclusions: The factors driving the development of symptomatic UPJ obstruction are not well-understood. This study sought to evaluate the incidence of histopathologic findings of fibrosis and inflammation in UPJ specimens collected during robotic-assisted pyeloplasty. It was found that crossing vessels are negatively associated with findings of inflammation on pathology. These results indicate that UPJ obstruction with inflammation or fibrosis may represent a distinct pathologic process compared with extrinsic obstruction etiologies (i.e., crossing vessels). Furthermore, underlying etiologies of symptomatic UPJ obstruction are variable and warrant further investigation.
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