70th Prairie Urological Association Annual Meeting

Scientific Abstracts

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Inhibition of ZNF281 Hinders the Tumor Growth and Metastatic Spread of Advanced Prostate Cancer

Guocheng Huang, Runtai Chen, Maria Areli Lorenzana Carrillo, Seyed Amirhossein Tabatabaei Dakhili, Saymon Tejay, Yuanyuan Zhao, Alois Haromy, Evangelos Michelakis, John Ussher, Ronald Moore, Hua Chen, Gopinath Sutendra, and Adam Kinnaird

Background:
Prostate cancer (PCa) is the most common internal malignancy in men and despite advances in treatment options, advanced PCa remains incurable. The Krüppel-type zinc-finger transcription factor ZNF281 has been shown to be involved in regulating embryonic stem cell differentiation, epithelial-mesenchymal transition (EMT) process, and cancer cell stemness. However, its role in PCa progression is unclear and may represent a new therapeutic target. This study aims to investigate the mechanism of ZNF281 in PCa progression and evaluate the therapeutic effects of a putative rhodanine-based ZNF281 inhibitor in advanced prostate cancer.

Methods:
ZNF281 protein expression was assessed in PCa primary tumors, metastatic pelvic lymph nodes, and normal prostate tissues from 15 patients using immunofluorescence staining. An orthotopic xenograft mouse model of human PCa was established to evaluate the effects of ZNF281 knock-out (KO) and the ZNF281 inhibitor in vivo. Molecular mechanisms of ZNF281 were investigated by Western Blot and RT-qPCR. Statistical comparisons between two groups were performed using a two-tailed t-test for categorical and continuous variables, while the Mann Whitney U test was applied when the assumptions of normality and homoscedasticity were not met.

Results:
ZNF281 protein expression was significantly higher in metastatic PCa tissues compared to primary tumors and normal tissues ($p<0.01$). NF281 KO or oral administration of the putative ZNF281 inhibitor significantly inhibited PCa tumor growth ($p<0.001$) and liver metastasis ($p<0.01$) in the orthotopic xenograft mouse model. Mechanisms studies revealed that ZNF281 regulates the EMT-related proteins including SNAIL ($p<0.05$) and directly interacts with the androgen receptor (AR) as a transcriptional coactivator to modulate AR activity.

Conclusions:
ZNF281 is highly expressed in metastatic PCa and promotes tumor growth and metastasis by regulating AR transcriptional activity and EMT pathway. Inhibiting ZNF281 with the ZNF281 inhibitor offers promising potential for treating advanced PCa in future clinical applications.

Robotic Ureterolithotomy for 14 cm Ureteral Stone Burden Around Retained Stent

Shaine Jivan and Kamaljot S. Kaler

Introduction:
Management of extensive ureteral stone burden due to encrusted retained ureteral stents is rare, with few cases documented. We present a case of a 53-year-old male with a 14 cm encrusted ureteral stone around a stent treated with a robotic ureterolithotomy and post operative results.

Methods:
The patient had a long-standing history of indwelling encrusted ureteral stents and large bilateral renal stone burden. They underwent successful bilateral percutaneous nephrolithotomy (PCNL) for renal stones. The patient then underwent left robotic ureterolithotomy to remove the extensive ureteral stone burden (Fig. 1) and reconstruct the ureter.

Results:
Under general anesthesia, the patient was positioned in right lateral decubitus position. Laparoscopic dissection exposed the dilated ureter from the ureteropelvic junction (UPJ) to the bladder. Two ureterotomies facilitated stone and stent removal. First, a proximal ureterotomy 3 cm incision allowed extraction of the 4 cm proximal stone and the 8 cm mid stone. The second, distal ureterotomy enabled removal of an additional 2 cm stone fragment. Intraoperative ureteroscopy and ultrasound ensured complete stone clearance. The ureter was reconstructed using running and interrupted 4-0 absorbable sutures. A double-J ureteral stent was placed for drainage, and a nephrostomy tube was left in situ.

Postoperatively, the patient recovered well. The nephrostomy tube was clamped after three days and removed following a successful nephrostogram demonstrating ureteral patency. Six weeks later, the ureteral stent was removed via flexible cystoscopy without complications.

Follow-up imaging, including nuclear medicine renal scan (MAG3) and CT IVP, showed no ureteral obstruction or stricture. The nuclear scan demonstrated equal split renal function (50% left kidney, 50% right kidney) with no obstruction. The patient reported no major postoperative issues.

Conclusion:
Robotic ureterolithotomy, post bilateral PCNL, proved to be an effective and safe treatment for a 14 cm ureteral stone around a retained stent. This approach enabled complete stone removal, preservation of renal function confirmed on post-operative imaging, and avoidance of more invasive procedures. This case supports the utilization of robotic surgery for extensive ureteral stones.

Source of Funding: None.

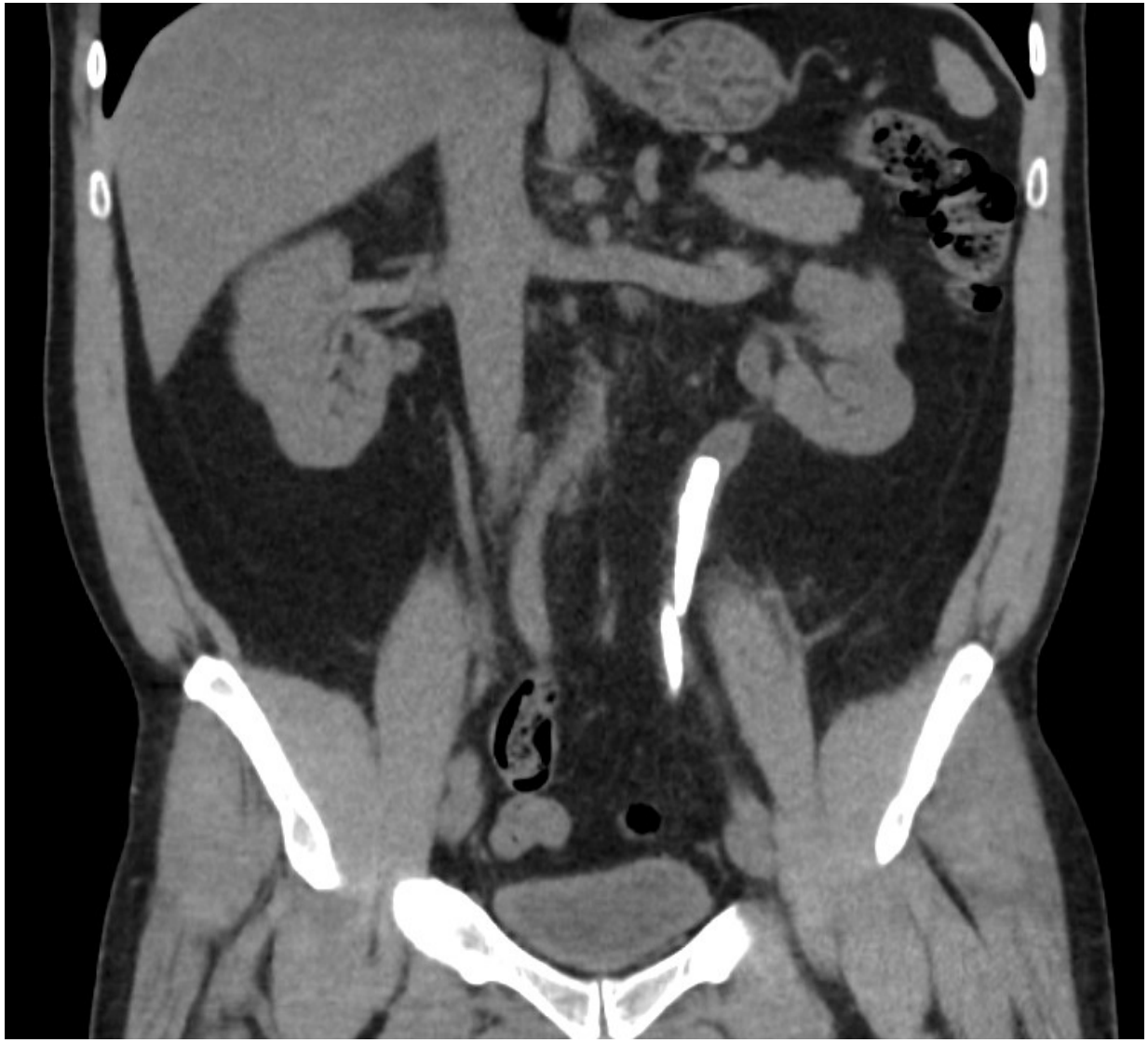
Figure 1. Pre-operative CT of left ureteric stone

Evaluating Inhaled Methoxyflurane as a Complement to Local Anesthesia in Scrotal Urologic Procedures: A Randomized Controlled Trial

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Introduction and Objectives:
Local anesthesia (LA) is widely used for outpatient urologic surgeries to reduce risks and improve accessibility.
However, its effectiveness can be compromised by patient anxiety, needle phobia, and discomfort. Methoxyflurane, a short-acting inhaled anesthetic, has demonstrated potential in alleviating pain and anxiety in various medical contexts, making it a promising adjunct to LA in scrotal surgeries.

Methods:
This single-center randomized controlled trial evaluated the effectiveness of inhaled methoxyflurane combined with local anesthesia (LA) versus LA alone in patients undergoing scrotal surgeries, including hydrocelectomy, Spermatocelectomy, and epididymectomy. Forty patients were randomized into two groups: the control group received LA only, while the experimental group received LA with methoxyflurane. Pain and anxiety levels were assessed postoperatively using the Visual Analog Scale (VAS) and a 6-question short form of the State-Trait Anxiety Inventory (STAI). Statistical analysis utilized descriptive statistics and the Mann-Whitney U test to compare pain and anxiety outcomes between groups.

Results:
Table 1 presents the demographic characteristics of both groups. Of the 40 participants, 20 received local anesthesia (LA) combined with methoxyflurane, while the remaining 20 received LA alone. The methoxyflurane group reported less procedural pain (mean score: 1.35 vs. 1.65; $p = 0.33$) and significantly lower anxiety levels (mean score: 0.4 vs. 1.65; $p = 0.01$). Furthermore, this group experienced reduced peak intra operative pain (mean score: 1.1 vs. 3.1; $p = 0.03$). Notably, all patients, regardless of group, expressed a strong preference for using LA with or without methoxyflurane in future procedures (100%). No intra-operative complications occurred in either group.

Conclusions:
The findings show that methoxyflurane, when used alongside local anesthesia can help reduce intra-operative pain and anxiety during scrotal surgeries. Furthermore, this approach can enhance patient experience in outpatient urologic procedures. Additional studies with larger sample sizes are needed to confirm these results and evaluate the long-term safety of methoxyflurane in this setting.

Table 1. *Demographic characteristics of the Local Anesthesia group versus the Local Anesthesia + Inhaled Methoxyflurane group*

Parameter	Local Anesthesia Only (Mean)	Local Anesthesia + Inhaled Methoxyflurane (Mean)	p-value
Age	56.5	56.9	p = 0.74
Charlson Comorbidity Index	0.75	1	p = 0.3
Baseline Anxiety (Short Form STAI)	9.7	10.8	p = 0.32
Baseline Pain	1.2	1.6	p = 0.88

Cost-Effectiveness of the Prostate Cancer Patient Empowerment Program (PC-PEP): Enhancing Mental Health, Quality of Life, and Reducing Healthcare Costs Across Canadian Oncology Centers

Authors:
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Background:
Prostate cancer is the most commonly diagnosed cancer among men in Canada, often leading to significant side effects and increased healthcare costs. Health promotion is essential for improving health outcomes and managing these costs. The Prostate Cancer Patient Empowerment Program (PC-PEP) is a home-based intervention designed to reduce psychological distress and enhance physical and urinary functions, thereby improving quality of life. This study evaluates the cost-effectiveness of PC-PEP, hypothesizing that early implementation at diagnosis reduces healthcare expenditures and improves mental health and health-related quality of life (HRQoL).

Methods:
In a six-month crossover randomized trial, participants were assigned to either the PC-PEP intervention group or a waitlist control group. PC-PEP included daily activities such as stress reduction techniques, physical fitness routines, stress management strategies, pelvic floor exercises, healthy habit formation, intimacy training, social support, and dietary guidance. The program's impact on healthcare costs and patient outcomes was assessed using data from Nova Scotia Medical Services Insurance and self-reported participant data. Incremental cost-effectiveness ratios (ICERs) were calculated, and bootstrapping methods were used to assess uncertainty.

Results:
PC-PEP demonstrated cost-effectiveness by improving mental health, modestly enhancing HRQoL, and reducing healthcare costs. From baseline to six months, the program saved 411.53 CAD per patient and prevented 30% of cases of psychological distress requiring clinical treatment, improving 0.0134 QALYs per patient. By 12 months, savings increased to 660.89 CAD per patient, preventing 31% of cases of psychological distress and improving 0.0344 QALYs per patient.

Conclusion:
PC-PEP is a cost-effective intervention for prostate cancer patients, offering significant reductions in healthcare costs, improvements in mental health, and modest gains in HRQoL. Early implementation supports its integration as a standard health promotion strategy in prostate cancer care. These findings advocate for routine adoption of PC-PEP across Canadian medical centers. Broad implementation could lead to substantial improvements in patient outcomes and more efficient healthcare resource utilization both nationally and internationally.

Evaluating the Impact of the Prostate Cancer Patient Empowerment Program (PC-PEP) Across Canadian Clinical Sites, Including the Prairies: A Phase 4 Trial Assessing Psychological Distress, Urinary Function, and Weight Outcomes

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Abstract

Patients undergoing curative treatment for localized prostate cancer often face complications that adversely affect their quality of life. The Prostate Cancer Patient Empowerment Program (PC-PEP) is a six-month, multifaceted intervention designed to improve patient well-being by promoting physical activity, dietary guidance, stress management, pelvic floor muscle training, and intimacy support. Previous research has shown that PC PEP reduces psychological distress, facilitates weight loss, and improves urinary incontinence outcomes when implemented shortly after diagnosis compared to standard care. Furthermore, PC-PEP offers potential cost savings to the healthcare system.

This Phase 4 trial was conducted to assess the feasibility of expanding PC-PEP to additional clinical sites across Canada and to compare outcomes across provinces and treatment modalities. Enrollment criteria allowed participation irrespective of the time elapsed between diagnosis and trial entry, and this variable was statistically controlled in the analyses. Among the 319 men analyzed, provincial representation included Nova Scotia (63.4%), New Brunswick (4.0%), Prince Edward Island (4.3%), Newfoundland and Labrador (4.0%), Quebec and Ontario (13.7%), Alberta, Manitoba, and Saskatchewan (7.6%), and British Columbia (3.0%).

The primary objective was to evaluate changes in psychological distress (measured using Kessler's 10 Psychological Distress Scale), urinary symptoms (categorized as mild vs. moderate/severe using the International Prostate Symptom Score [IPSS]), and weight over time. Covariates included treatment modality (surgery ± hormone therapy ± radiation; radiation ± hormone therapy; active surveillance; hormone therapy alone), province, age, Charlson Comorbidity Index (CCI), time elapsed since diagnosis, and metastatic status. An exploratory objective was to examine potential outcome differences for men residing in Alberta compared to other provinces, including those in the Prairies region.

Longitudinal mixed-effects models were employed to assess the effect of time on each outcome variable. Time was found to be a significant predictor of psychological distress ($F(1, 311) = 4.27$, $p = 0.039$) and weight ($F(1, 297) = 5.12$, $p = 0.024$), indicating modest improvements in

psychological well-being and slight reductions in weight over the intervention period. For urinary symptoms, the effect of time was also significant ($\chi^2(1) = 4.62$, $p = 0.032$), with participants reporting improvements in urinary function.

Subgroup analyses by treatment modality did not reveal significant differences in the effect of time on outcomes, indicating that PC-PEP's impact is consistent across various clinical pathways, including surgery, radiation, hormone therapy, and active surveillance. Similarly, no significant differences were found when comparing outcomes across provinces and territories. An analysis of the data from the Prairies, although limited, demonstrated results consistent with those of other provinces. Men with metastatic disease reported the highest levels of psychological distress among all groups. However, they did not experience any injuries following the program and showed significant benefits, particularly in reducing psychological distress.

The findings indicate that PC-PEP is broadly effective in improving psychological well-being, urinary function, and weight outcomes among men undergoing various prostate cancer treatments across Canada. The lack of significant regional and treatment-specific variations underscores the program's feasibility, scalability and adaptability to diverse clinical settings.

Evaluating Safety Outcomes for Benign Scrotal Surgery Performed Under Local Anesthesia

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Introduction and objectives
General and spinal anesthesia are commonly used methods of sedation when performing benign scrotal surgery. However, these methods result in high healthcare costs, potential side effects, and prolonged wait times for patients to receive surgical care due to the nature of the conditions being non-urgent. The use of local anesthesia (LA) only has shown satisfactory patient tolerability and satisfaction for scrotal surgery. However, evidence is limited, and further research is needed to further assess its safety. Our objective was to assess patient tolerance, intra-operative complications, and 4-6 week adverse events related to the procedure.

Methods
We conducted a retrospective study of patients undergoing hydrocelectomy, spermatocelectomy, epididymectomy, and testicular biopsy at a Canadian ambulatory surgical centre from October 2022 to July 2024. LA was administered via a spermatic cord block and along the median raphe for all procedures. For large hydroceles or spermatoceles, where an early block was unfeasible, the block was applied after the delivery of the testicle. Baseline characteristics, intra-operative events, and post-operative adverse events were recorded.

Results
From October 2022 to July 2024, a total of 253 procedures were performed. Of these procedures, 43.5% (n = 110) were hydrocelectomies, 34.0% (n = 86) were spermatocelectomies, 9.9% (n = 25) were epididymectomies, and 12.6% (n = 32) were testicular biopsies. The mean patient age was 52.3 ± 15.8 years with a BMI of 29.9 ± 8.8. No procedures were aborted due to patient intolerability. There were no reported intra-operative complications. At 4-6 weeks post-operative follow-up, no patients sought care from their family doctor with only 1.2% (n = 3) patients requiring an emergency department visit for wound infection. No patients required hospital admission.

Conclusions
Our findings indicate that performing outpatient scrotal surgeries under LA is both safe and feasible. Safely conducting these procedures in an outpatient setting can shorten patient wait times, boost tertiary care centre efficiency by reducing inpatient demand, and maximize the utility of already limited resources such as operating rooms, and inpatient facilities. Longer-term follow-up is needed to further evaluate recurrence rates.

Me? A Surgeon? Evaluating the Impact of Pre-Clerkship Surgical Training Courses on Students' Career Decision-Making

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Background and aims:
Making informed career decisions is challenging for medical students, particularly early in their training when exposure to different specialties is limited. For students who might be interested in surgical careers, having opportunities to engage in surgical careers and lifestyle is important. Early surgical exposure could play a pivotal role in shaping career aspirations. This study aims to evaluate the impact of pre-clerkship surgical exposure on students' career decision-making.

Methods:
A comprehensive scoping review was completed looking at factors that influence North American medical students' residency choice. Followin the screening of 1582 titles and abstracts, 302 articles underwent full text review. A focused review narrowed down articles that explored the impact of surgical training courses on medical students in pre-clerkship years.

Results:
There were 32 papers that explored the impacts of pre-clerkship exposure on students': i) interest in surgery, ii) perception of surgeons/surgery, iii) career-decision making, and iv) match rates into surgery. Of the 32 papers, 20 reported an increase in students' interest in surgery as a career; 10 papers reported an increased understanding of surgery and an increased positive perception of surgeons/surgery; 2 reported that it helped students decide what specialty to apply to; and, 3 papers reported an increase in match rates to surgery.

Conclusion:
Pre-clerkship surgical exposure programs positively influence medical students by increasing interest in surgery, improving perceptions of surgeons, and aiding career decision-making. These findings support integrating such programs in medical education to guide specialty choice and foster interest in surgery.

Beyond Survival: Exploring 5-Year Quality of Life Outcomes in Prostate Cancer

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Introduction and Objectives:
Prostate cancer treatment can significantly impact patient-reported outcomes (PROs), yet long-term comparative data across multiple treatment modalities are limited. This study aimed to evaluate PROs over 5 years in men undergoing different prostate cancer treatments, radical prostatectomy (RP), radiation therapy (RT), cryotherapy (cryo), primary androgen deprivation therapy (ADT), or active surveillance/no prostate cancer (control) for prostate cancer.

Materials & Methods:
A prospective, observational cohort study of 6725 men from the University of Alberta and University of Calgary enrolled in the Alberta Prostate Cancer Research Initiative (APCaRI) was conducted. Men were asked to fill out validated questionnaires including the Expanded Prostate Cancer Index Composite Short Form (EPIC-SF 26), International Prostate Symptom Score (IPSS), and EQ-5D-5L. Patients were assessed at baseline and 12-month intervals post-treatment.

Results:
Baseline scores were similar across groups for most domains except for sexual function which was significantly worse in the RT, Cryo and ADT groups compared to control. RP patients experienced significantly worse urinary incontinence from 12 months onward compared to controls, with minimal recovery observed. Sexual function declined sharply in all treatment groups but was most pronounced in RP patients. RT patients showed worsening sexual function and hormonal function after 12 months. Bowel function deteriorated in RT patients after 12 months. Cryo and ADT groups experienced significant declines in sexual function, with the largest decreases observed 12 months post-treatment.

EQ-5D-5L results showed that mobility, self-care, and usual activity scores were generally high across all groups, with ADT, Cryo, and RT patients reporting worse outcomes than RP and control groups and worsen over time. Pain/discomfort scores remained high, with cryo and RT patients reporting worse outcomes. Anxiety/depression scores were similar across groups, with approximately 90% of patients reporting no or minimal symptoms. Notably, overall quality of life scores was comparable across all treatment modalities at all time points.

Conclusion:
This 5-year study provides comprehensive insights into the long-term PROs associated with various prostate cancer treatments. While all interventions impacted sexual function, RP had the most significant effect on urinary incontinence. RT was associated with late-onset bowel dysfunction. Despite differences in functional outcomes, overall quality of life remained similar across treatment groups. These findings underscore the importance of baseline assessments and long-term follow-up in understanding the impact of prostate cancer treatments on PROs, which can inform shared decision-making between patients and clinicians.

Calgary Prostate Cancer Prehabilitation Program: An overview of design and implementation

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Introduction and Objectives:
Cancer prehabilitation involves intervention before cancer treatment to enhance patients' readiness and improve post-treatment recovery. The Calgary Prostate Cancer Centre (PCC) designed and implemented a multimodal and individualized prehabilitation program (PCC PreHab). Herein, we provide an overview of the prehabilitation program and implementation metrics of reach to date.

Methods:
PCC PreHab is delivered for 4-12 weeks to patients awaiting radical prostatectomy and includes referral from the urologists, completion of baseline measures on sociodemographic information and patient-reported outcomes via REDCap, and in-person medical clearance by a healthcare provider (Figure 1). All patients receive access to a patient portal that includes general sexual health, pelvic floor, nutrition, and exercise oncology resources. Based on needs, patients are then triaged by the clinical team to additional tailored resources, including (1) exercise assessment, health coaching, and group exercise programming, (2) psychosocial and sexual health counselling, (3) pelvic floor yoga, and (4) additional educational resources via the patient portal.

Results:
PCC PreHab began in March 2024. In the first 10 months, 118 patients were referred to the program, of which 116 competed baseline assessment (BMI: mean=28.1, SD=5.7). 117 patients completed their patient information form (age: mean=63.8, SD=10.5; White race: 79.3%). A total of 81 patients were triaged to exercise, 86 to psychosocial supports, and 108 to yoga. Interim analyses of program effectiveness will be conducted at the one-year timepoint from start of implementation, and further implementation metrics based on the RE-AIM framework will be examined, including adoption, implementation delivery, and maintenance metrics.

Conclusions:
PCC PreHab will continue to develop an evidence-based intervention resource that can support prostate cancer surgical preparation and recovery. The staged implementation of PCC PreHab currently includes surgical patients and will expand to other treatment modalities in the future.

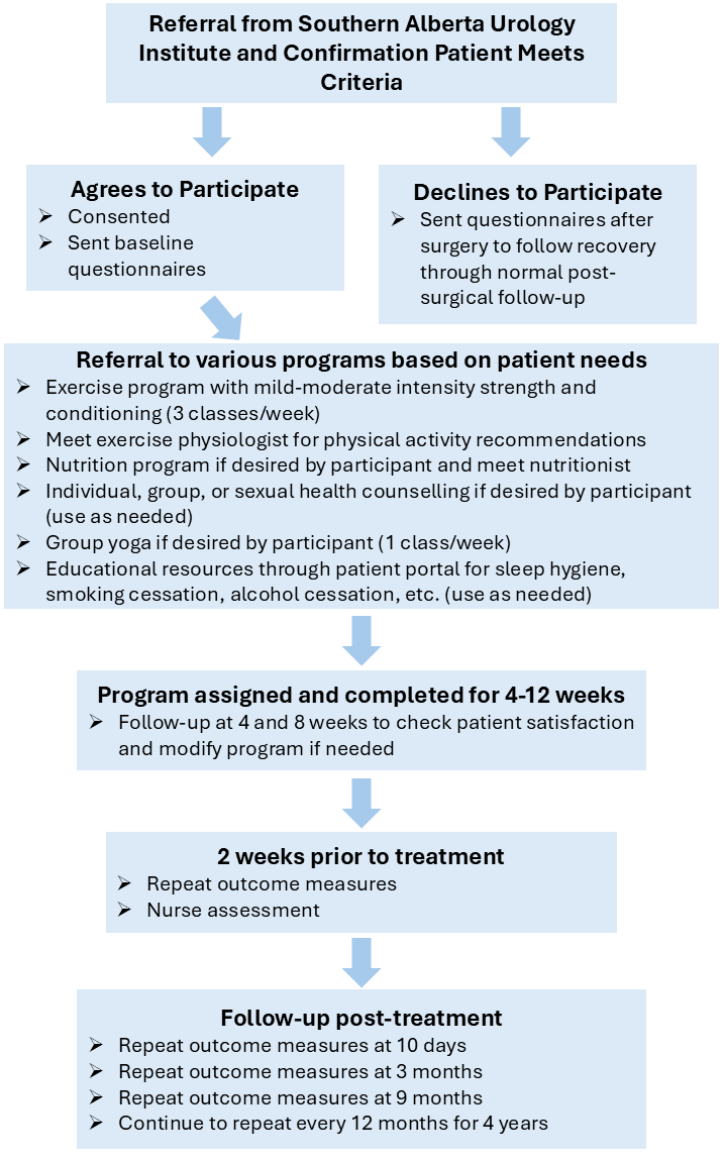

Figure 1. PCC PreHab Program Pathway

Finally Something Promising for Catheters And Utis: Safety and Efficacy of Intravesical Gentamicin

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Aims
To assess the safety and efficacy of intravesical gentamicin in patients with recurrent urinary tract infections (UTI) or catheter blockages.

Methods
This retrospective, single-centre study enrolled adult outpatients prescribed intravesical gentamicin (once-daily 30-60mL instillation at 0.48mg/mL, held for 60minutes) in period 01/06/2024–01/12/2024. Eligible patients had commenced treatment and ≥21 days' follow-up. Primary outcomes were change in subjective (patient-reported) and objective (positive culture with symptoms) rates of UTI.

Results
Thirty eligible patients were identified. Median age was 59 years, 22 patients were female and median follow-up was 2.2 months. Neurological history included spinal cord injury (ten patients), multiple sclerosis (eight) or other neurogenic bladder (ten). Most patients had pre-existing suprapubic catheter (SPC; thirteen), intermittent catheterisation (CIC; ten) or indwelling urethral catheter (IDC; five), while two learned CIC for treatment. Five patients ceased treatment after median 41 days.

Compared with pre-treatment, patients on treatment experienced significantly fewer subjective (median 5 versus 0; $p<0.00001$) and objective (median 3 versus 0; $p=0.0001$) UTIs per 12-month-equivalent. Rates of UTI-related emergency presentations per 12-month-equivalent were also lower (median 1 versus 0; $p=0.01$). For patients with SPC/ IDC, 39% reported decreased catheter blockages. On a 5-point Likert scale, median ease-of-use was 4/5 and likelihood-to-recommend 5/5. Complications were reported by eleven patients (37%), predominantly pelvic discomfort and all Clavien-Dindo Grade I.

Conclusions
Recurrent UTIs and catheter blockages remain enormous challenges for patients and clinicians alike. Early data suggests intravesical gentamicin is safe, effective and potentially a game changer in clinical care.

A Randomized Clinical Utility Study of ClarityDX Prostate in Patients with Suspicion of Prostate Cancer

Adam Kinnaird

Background:
Accurate and early prostate cancer (PCa) diagnosis is important to ensure suitable therapeutic options are offered to patients while preventing overdiagnosis and overtreatment. We have developed ClarityDX Prostate to be an adjunctive screening tool for PCa intended as a reflex test for men with elevated PSA levels1. ClarityDX Prostate uses a patient's total and free PSA plus clinical features in a machine learning model to predict their risk of having clinically significant PCa (csPCa, defined as grade group ≥2). We hypothesize that ClarityDX Prostate is an effective tool that can be used to provide accurate information to the patient and their healthcare provider to improve the prostate cancer screening process. To this end we will be conducting a clinical utility study to quantify the clinical and economic impacts of adopting ClarityDX Prostate into the standard of care in Alberta.

Objective:
The purpose of this study is to investigate the clinical utility of ClarityDX Prostate in reducing further healthcare utilization for men identified to be at risk of prostate cancer.

Methods:
This clinical utility study will be a prospective, randomized, two-armed trial enrolling 1074 patients over three years. Patients ≥ 18 of age who are referred to a urologist for suspicion of PCa and with no prior PCa diagnosis will be randomly assigned to either the ClarityDX Prostate or Standard of Care (SOC) arm. The ClarityDX Prostate results of the ClarityDX Prostate arm will be shared with urologists prior to first appointment; urologists will then decide on next steps of patient care (biopsy and/or advance imaging such as, MRI and PSMA PET CT scan). ClarityDX Prostate results from patients in the control arm will be blinded until an SOC-based care-path decision has been made by the urologist. Results will be unblinded once the care-path decision has been made. We will then assess whether there is a change of decision in the participant's care path based on ClarityDX Prostate results. The primary endpoint will be the proportion of patients who receive biopsy and are not diagnosed with csPCa. We will also calculate the proportion of patients diagnosed with csPCa, with secondary endpoints including the proportion of patients who undergo advance imagining and biopsy.

Expected Findings:
It is hypothesized that the use of ClarityDX Prostate as a reflex test for PSA will reduce the number of biopsies for participants with no or indolent/clinically insignificant prostate cancer upon referral to a urologist.

Conclusion:
A cost effective and scalable adjunctive strategy that can accurately predict csPCa from indolent disease may improve the screening pathway of patients suspected with prostate cancer.

Reference: Development of an effective predictive screening tool for prostate cancer using the ClarityDX machine learning platform. Hyndman, ME, et al. npj Digital Medicine, 2024, Vol. 7.

Generative artificial intelligence-based (ChatGPT) determination of Prostate Cancer risk scores from unstructured consultation notes: a use case

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Introduction:
In the era of precision medicine, prostate cancer (PCa) treatment recommendations are heavily influenced by a patient's risk of treatment failure and cancer-specific mortality. Widely used risk assessment tools such as the National Comprehensive Cancer Network (NCCN), University of California San Francisco Cancer of the Prostate Risk Assessment (UCSF-CAPRA), and D'Amico classifications are well-validated. However, their manual calculation from patient charts is time-consuming, prone to error, and often inconsistently documented. The clinical adoption of large language models (LLMs) like ChatGPT is rapidly expanding. Our study aimed to evaluate the reliability of a generative artificial intelligence (AI) LLM in automating the extraction and calculation of PCa risk scores from unstructured electronic health records.

Methods:
We conducted a retrospective chart review of patients referred to our institution with a prior PCa diagnosis from 2022–2025 (NCT02594202). Risk scores were calculated using the National Institutes of Health (NIH) Integrated Data Analysis Platform (NIDAP), which incorporates OpenAI's ChatGPT-4.0 for text extraction. Custom-designed prompts were developed to extract key data elements from unstructured consultation notes and calculate risk scores. Extracted data were structured into JavaScript Object Notation (JSON) for analysis. The accuracy of LLM-generated risk scores was compared to Urologist-determined scores using the intraclass correlation coefficient (ICC). Statistical analyses were performed with SPSS (IBM, Version 30.0).

Results:
A total of 105 patients were included. The LLM failed to generate NCCN, UCSF-CAPRA, and D'Amico risk scores in 0 (0%), 4 (3.8%), and 24 (22.3%) patients, respectively. Accurate risk stratification was achieved for 50 (47.6%) patients using NCCN and D'Amico scores and for 47 (44.8%) using UCSF-CAPRA scores. Agreement between LLM- and Urologist-generated scores was good for NCCN (ICC = 0.83; 95% CI, 0.75 0.89; p = 0.4), moderate for UCSF-CAPRA (ICC = 0.68; 95% CI, 0.52–0.78; p = 0.2), and poor for D'Amico (ICC = 0.48; 95% CI, 0.23–0.65; p = 0.6). The LLM's inability to assign D'Amico scores often stemmed from missing explicit clinical staging in the notes.

Conclusions:
LLMs show potential for automating risk stratification in prostate cancer but are hindered by inconsistent outputs and variability in clinical charting practices. These findings highlight the current limitations of generative AI in clinical workflows and emphasize the need for further refinement and standardization in their application.

Exercise and Metabolic Syndrome in Prostate Cancer

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Objective
While prostate cancer affects approximately 10% of men, Metabolic Syndrome (MetS) is estimated to affect 40% of Canadians over 65. MetS consists of 3 or more abnormalities of blood pressure, waist circumference, triglycerides, cholesterol, and glucose. Given the high prevalence of MetS, there is a large proportion of men affected by both prostate cancer and MetS. While physical activity improves indicators of MetS, its effects on these same parameters in the context of prostate cancer remains unknown. The objective of this study was to systematically review the current literature on the effects of physical activity on individuals with prostate cancer and a concurrent diagnosis of metabolic syndrome.

Methods
Database searches in MEDLINE, CINAHL, SCOPUS, and WEB OF SCIENCE were performed to identify studies evaluating exercise interventions in men with prostate cancer and MetS. The protocol of this review was registered with PROSPERO. Full length peer-reviewed randomized control trials in English, or translatable to English, were included. Screening of abstracts and full text review were done by two independent reviewers. The Cochrane risk of bias assessment tool was used.

Results
2482 abstracts were reviewed, of which 15 were selected for full text review. Ultimately two articles met inclusion criteria, for a total of N=85 participants. Both articles were deemed low risk of bias. Participants in both studies were undergoing ADT treatment, and received a 12-week exercise intervention. The measured variables evaluating MetS in both studies were consistent and included blood pressure, triglycerides, HDL, blood glucose, and waist circumference. Dawson reported no change in MetS after exercise intervention, other than waist circumference ($d=0.8$), while Lee reported improvements in fasting blood sugar, abdominal circumference, body weight, and BMI ($p<0.05$).

Conclusions
While great undertakings have been made in prostate cancer and MetS research, there remains a paucity of data on their interplay together; specifically when exercise is utilized as an intervention. The results of this study are limited by the number of articles selected, the size of the total sample and their non-unanimous results. Ultimately, further research is warranted in this area of exercise and its benefits in prostate cancer patients with MetS, as it may be a tenable approach to wholistic health maintenance in a comorbid population.

Safety, Efficiency, and Post-operative Outcomes Associated with the Initiation of a Laser Enucleation of the Prostate Mentorship Program at an Academic Center

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Objective:
It has been previously determined that laser enucleation of the prostate (LEP) outperforms standard TURP and open simple prostatectomy in terms of amount of prostate tissue removed, blood loss, catheterization time, length of stay, and improvements in PVR. The steep learning curve associated with LEP has been well studied, however, the system and patient impacts associated with starting an enucleation mentorship program at an academic university have been poorly explored. Our study aims to highlight the efficiency, safety, peri-operative outcomes, and barriers to initiating a LEP mentorship program at an academic institution.

Methods:
This study was a retrospective analysis of patients who had undergone a LEP at the Royal Alexandra Hospital after its introduction in October 2023. All cases were performed with a 60W thulium fiber laser and a Wolf piranha morcellator. The goal of our LEP program is to mentor fellow urologists and resident/fellow trainees, while maintaining safe, efficient, and excellent outcomes. Our LEP mentorship program has been led by a fellowship trained endourologist at the commencement of his independent practice. We collected data on patient characteristics and peri-operative outcome data, including surgeon-specific intra-operative efficiencies. Finally, post-operative outcomes including catheter status, complications, PVR (mL), ED visits, and final pathology were collected at three-month follow-up.

Results:
Overall, 83 patients underwent LEP at RAH. 29 of these cases (39%) were performed with a urologist trainee, 49 cases (59%) were performed with a resident/fellow trainee, and 5 (6%) were performed independently.

Urologist mentorship cases were associated with worse mean enucleation efficiency 0.61 g vs 1.45 g /min ($p < 0.0001$), however, there was no difference in morcellation efficiency 6.71 g vs 7.45 g/min ($p < 0.583$). Resident/fellow training cases were not associated with a reduction in enucleation (1.25 g vs. 1.45 g/min, $p<0.418$) or morcellation efficiency (7.42 g vs. 7.45 g /min, $p<0.979$). Across all 83 patients, there were two intra-operative complications (2.4%) including a capsule perforation and an equipment failure. The mean post-operative Foley duration was 1.22 days.

Notably, 98.8% of patients (n=82) were catheter free at the 3-week telephone follow-up. The 90-day ER presentation rate was 2.4% (n=2). Additionally, 12 patients (14.4%) reported ongoing degrees of urinary incontinence at 3 months following surgery. Overall, the mean pre operative PVR was 649.4 mL, while the mean 3-month post-operative PVR was significantly reduced to 114.6 mL ($p < 0.000001$).

Conclusion:
Our preliminary data reiterates that while the learning curve to safely and efficiently perform LEP is steep, it provides excellent post-operative outcomes. As our study progresses we will continue to shed further light on the system, patient, and urologist costs of the initiation of a LEP mentorship program into an academic center.

Source of Funding: Not applicable

Robotic-Assisted Kidney Transplantation in a Canadian Centre: A Review of the First in Canada Implementation

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Introduction:
Robotic assisted kidney transplantation (RAKT) is an increasingly adopted technique in select transplant centres around the world, with no implementation in Canada to date. RAKT was introduced at the University of Alberta Transplant Program in June 2024 after specialized training was obtained by one transplant surgeon with a urologic practice that includes regular robotic renal surgery. We sought to review the feasibility of implementing RAKT into a transplant centre in Canada.

Methods:
A review of prospectively collected data of all RAKT completed over the initial 6 months of implementation was performed. Intraoperative and post-operative parameters are describe and compared to published learning curve benchmarks. Data on operative times, both total and component parts, were collected prospectively for quality assurance and reviewed with calculation of mean times. These values were compared to published benchmarks for ideal target times derived from multicenter large volume learning curve data published in the literature.

Results:
Five patients were included in this series. The initial patient underwent nephrectomy with autotransplant for Nutcracker syndrome and 4 subsequent patients have undergone living unrelated donor kidney transplants (LDKT using robotic assistance. Mean age was 49 yr, mean BMI was 25.6 (range 19-30), 2 were males. Four grafts were placed on the right side, and one on the left. All LDKT patients were unsensitized and induced with steroid and basiliximab. Mean total operative time for the LDKT cases was 275min. Mean rewarm time (RWT) was 42 min across cases (range 37-50min). Mean duration of arterial anastomosis was 18.4min, venous anastomosis was 15.2min, and ureteric anastomosis was 37min. No cases went beyond the scheduled operative day. RWT, arterial, and venous anastomosis times were within clinically acceptable deviation from target values based on the largest learning curve data published to date (+4%, +11.5%, -12.6%, respectively).

Conclusions:
Introducing RAKT into a Canadian transplant centre is feasible when there is adequate surgeon/surgical team experience in both robotic and transplant surgery. Components of the operation that influence graft function (RWT, anastomotic times) can be performed satisfactorily even in initial cases. Opportunities for improving efficiency emerge in the non-anastomotic components of the surgery and in improving OR work flow dynamics. Further study of outcomes regarding long term function, complication risks, cost analysis, and patient satisfaction is required.

Acknowledgments: Intuitive Surgical and Paladin Pharmaceuticals contributed in kind support for the proctoring of our initial case

The Rural Disadvantage – An Observational Study of Prostate Cancer Characteristics and Outcomes Between Rural and Urban Patients Over 25 years

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Introduction & Objectives:
Prostate cancer is a leading malignancy among men, with significant disparities in outcomes based on geographic location. Understanding these differences is crucial for developing targeted healthcare interventions and policies.

This study aims to compare prostate cancer mortality rates between rural and urban patients in a universal healthcare system, to identify and understand the disparities in diagnosis, treatment, and survival outcomes.

Design:
A retrospective cohort study was conducted using data from the Alberta Cancer Registry from January 1, 1999 to December 31, 2022 as well as the Alberta Prostate Cancer Research Initiative (APCaRI) cohort from July 1, 2014 to June 7, 2024.

Setting:
The study uses data from all men in Alberta, Canada.

Participants:
APCaRI included 8,932 men diagnosed with prostate cancer, enrolled from July 1, 2014, to June 7, 2024, with data on their residence and health outcomes. Cancer Care Alberta includes data on all males living in Alberta from January 1, 1999, to December 31, 2022 (45,602,119 person-years).

Exposure:
The primary exposure was the place of residence, categorized as urban or rural, based on postal codes.

Main Outcome:
The primary outcome was prostate cancer-specific mortality.

Results:
Rural men were diagnosed at an older age and had higher age-adjusted prostate cancer-specific mortality compared to urban men (52.0 vs 37.6 deaths per 100,000, $p<0.001$). Rural patients had higher PSA level (9% vs 11% >20, $p=0.008$) and Gleason Grade Group (11% vs 14% ≥4, $p<0.001$) at diagnosis and were more likely to receive primary androgen deprivation therapy (5% vs 8%) and radiation (34% vs 36%) rather than active surveillance (30% vs 28%) or radical prostatectomy (29% vs 25%). Despite improvements over time, rural areas consistently had higher age-adjusted mortality rates.

Conclusions and Relevance:
The study highlights significant disparities in prostate cancer outcomes between rural and urban men in Alberta, with rural patients experiencing poorer outcomes. These findings underscore the need for targeted healthcare interventions and policies to improve access to care and address socio-economic and cultural barriers in rural areas. Addressing these disparities is essential for improving the prognosis and quality of life for prostate cancer patients living in rural settings.

Evaluating Biopsy Reclassification in Substratified Grade Group 1 Prostate Cancer Patients on Active Surveillance

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Introduction and Objective:
While the National Comprehensive Cancer Network (NCCN) distinguishes between very low-risk (VLR) and low-risk (LR) categories for localized prostate cancer (PCa), the American Urological Association (AUA) has consolidated these into a single LR category. Given that Active Surveillance (AS) is recommended for both VLR and LR PCa, we sought to determine whether the substratification of LR PCa brings about differences in biopsy reclassification and treatment.

Methods:
We searched our prospectively maintained AS database at Manitoba Prostate Center to identify patients who met the NCCN LR criteria (Grade Group (GG) 1, PSA <10 ng/ml, cT1c- T2a) and VLR criteria (LR criteria and <3 positive biopsy cores, ≤50% cancer per core, PSA density <0.15 ng/ml/g). Grade reclassification was defined as GG ≥2 on subsequent biopsies and treatment was offered when the PCa progressed or at the patient's request. Statistical analysis included Kaplan-Meier analysis to estimate the disease endpoints, log-rank test to compare groups, and multivariable cox-regression analysis for risk of biopsy reclassification.

Results:
A total of 425 patients with GG1 were managed on AS between 2004-2022 with a median follow-up of 81 months. Among this cohort, 124 patients met the NCCN VLR criteria and 217 met the LR criteria. For both groups, the median time until confirmatory biopsy was 13 months. Five-year reclassification-free survival rates after the initial biopsy were similar for VLR (71%) and LR (58%) groups (log-rank $p < 0.12$). However, treatment-free survival differed significantly between VLR (85%) and LR (63%) (log-rank $p < 0.01$). Furthermore, multivariable regression analysis revealed no significant correlation between disease volume and the risk of reclassification (Figure 1).

Conclusions:
No significant differences were observed in biopsy reclassification rates between VLR and LR groups and disease volume did not predict reclassification risk. However, patients diagnosed with LR PCa were more likely to undergo definitive treatment. This suggests differences exist in patient counseling based on disease volume. Therefore, the NCCN substratification of GG1 PCa continues to play a crucial role in shared decision making, rather than indicating differences in oncologic outcomes.

a

b

c

Characteristics	Univariate			Multivariate		
	HR	**95% CI**	***P*-value**	**HR**	**95% CI**	***P*-value**
Age, years	1.001	0.9809–1.022	0.9097	0.9976	0.9766–1.019	0.8249
No. positive cores	1.072	0.9733–1.166	0.1308	0.9995	0.8860–1.110	0.9929
Positive core (%)	1.008	0.9975–1.017	0.1211	1.006	0.9950–1.016	0.2625
Prostate density (ng/mL^2)	2.009	0.7642–3.541	0.0597	1.410	0.2795–3.072	0.5441
Risk group	1.243	0.9106–1.713	0.1765	1.263	0.8737–1.860	0.2224

Figure 1. Survival Analysis and Cox Proportional Hazards Regression to Identify Predictors of Reclassification in Very Low and Low-Risk Prostate Cancer Patients. **(a)** Reclassification-Free Survival by Risk Group**. (b)** Treatment-Free Survival by Risk Group. **(c)** Cox Proportional Hazards Regression of Prognostic Variables. *p < 0.05. HR, Hazard Ratio; VLR, Very Low Risk; LR, Low Risk; CI, Confidence Interval.

Assessment of Deflection within ClearPetra of Different Ureteroscopes and Different Ureteroscopic Diameters

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Introduction & Objective:
ClearPetra focuses on optimizing scope maneuverability and visibility to improve the efficiency and accuracy of urologic procedures. Urologic scope deflection is a critical factor in accessing and navigating complex anatomy, as precise deflection enhances the physician's ability to target and treat areas effectively. ClearPetra's design advancements in scope deflection across varying diameters aim to provide superior control and adaptability, meeting the demands of diverse procedural requirements. The goal of this study was to assess the deflection of ureteroscopes of different diameters within ClearPetra.

Methods:
This study assessed deflection performance in urologic scopes across different diameters to evaluate ClearPetra's technology. The scopes included HugeMed's 6.3Fr and 7.5Fr models, as well as Innovex's 8.9Fr scope. Using standardized tests, each scope's upward and downward deflection capabilities were measured to assess maneuverability and control. Testing focused on the flexibility and range of deflection within realistic clinical parameters to determine usability across varying anatomical challenges.

Results:
The results demonstrate a significant relationship between scope diameter and deflection ability. The 6.3Fr scope achieved greater deflection angles in both upward and downward directions compared to the larger 8.9Fr scope, highlighting enhanced flexibility with smaller diameters. The 7.5Fr scope offered a balance between diameter and maneuverability, providing substantial deflection while maintaining robustness. These results underscore the critical role that scope diameter plays in achieving optimal deflection, with smaller scopes displaying superior maneuverability.

Conclusion:
ClearPetra's scope technology enables effective deflection across a range of scope diameters, with smaller scopes excelling in flexibility for precise navigation in urologic procedures. The findings suggest that selecting appropriate scope diameters based on procedural demands can improve endoscopic access and efficiency. This work contributes to understanding the trade-offs between scope diameter and deflection, aiding clinicians in selecting devices tailored to specific anatomical and procedural requirements.

Source of Funding: None

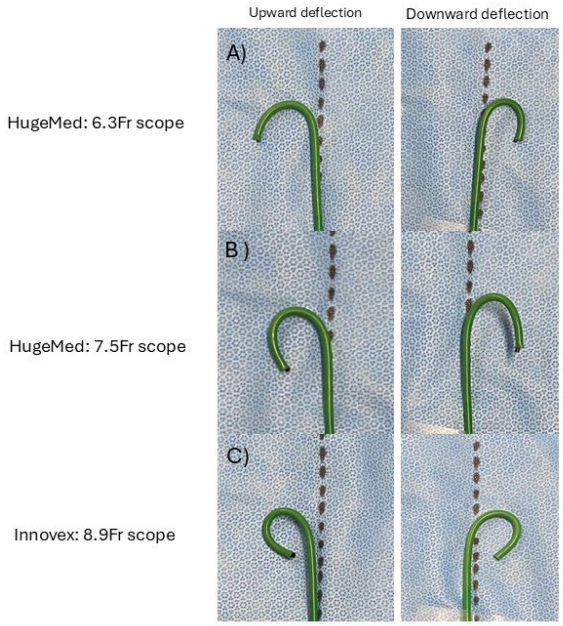

Image 1. Deflection of various scopes within ClearPetra. A) HugeMed 6.3Fr Scope B) 7.5 Fr Scope C) Innovex 8.9Fr Scope

The Utility of Performing Radical Subinguinal Orchiectomies When Compared to the Traditional Inguinal Approach

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Introduction:
Until recently, radical orchiectomies (RO(s)) have routinely been performed utilizing the inguinal approach. Emerging evidence highlights the safety of performing ROs utilizing the subinguinal approach, offering decreased intraoperative complexity and pain for the patient when compared to its inguinal counterpart, without compromising oncologic outcomes. This study sought to further these preliminary findings by investigating the safety, outcomes, and feasibility of performing ROs subinguinally when compared to the standard inguinal approach.

Methods:
An ambi-directional study has been ongoing since September 2022, including all patients undergoing either a subinguinal- or inguinal RO under deep intravenous sedation and those deemed eligible for day surgery at our ambulatory surgical centre (ASA 1-3). Selection for the subinguinal approach required both negative pre-operative tumour markers and CT imaging. Patients with an ASA score greater than 3 or those preferring general anesthesia (GA) were excluded. Intraoperative complications, operating time, surgical margins, and patient tolerability (4-6weeks) were evaluated.

Results:
Currently, 15 patients with a mean age of 41.5 ± 14.9 years and 19 patients with a mean age of 34.0 ± 10.5 years, have undergone a subinguinal-RO and inguinal-RO, respectively. All procedures were performed successfully without any intraoperative complications. Tumour histopathology, pathology, and surgical margins are described in Table 1. The mean operating times were 31.1 ± 4.9 minutes and 42.9 ± 15.2 minutes for the subinguinal and inguinal cohorts, respectively. Lastly, all patients across both cohorts reported tolerating their procedure well at follow-up, 4-6 weeks post-operatively.

Conclusions:
Our results further validate the safety, while demonstrating the tolerability and feasibility, of performing ROs for suspected testicular tumours subinguinally, when compared to the standard inguinal approach. Utilizing this approach may improve the patient experience during ROs while optimizing of efficiency of operating- and procedural rooms. The potential for this approach to deliver post-operative benefits - such as improved healing, enhanced patient satisfaction, and a quicker return to work - while preserving favourable long-term oncologic outcomes, warrants further investigation.

Acknowledgements: None.

Table 1. Histopathology, pathology, and surgical margins, for subinguinal and inguinal RO cohorts.

			Subinguinal (n=15)	Inguinal (n=19)
Histopathology	**Primary tumours**	Seminoma, n	8	11
		Non-seminoma, n	2	5
		Mixed, n	2	1
	Secondary tumours	Large B-cell lymphoma, n	1	1
	Benign Tumours	Leydig cell tumour, n	0	1
		Epididymal cyst, n	1	0
	Negative[a], n		1	0
Pathology	**pT1, n**		9 [b]	14 [b]
	pT2, n		2 [b]	3 [b]
Surgical parameters	**Size of tumour, cm (range)**		3.1 (1.6-7.3)	4.1 (0.7-9.3)
	Negative margin status, n (%)		14 (100)[c]	18 (100) [c]

[a] Specimen indicated negative on pathology
[b] Pathology was not described for secondary tumours
[c] Surgical margins were not described for secondary tumours

Effects of Opioid Sparing Protocol Implementation for Hand- and Robot-Assisted Laparoscopic Urologic Surgery

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Objective:
With advances in minimally invasive urologic surgery, similarly effective procedures may be performed with less painful incisions. As such, we may be able to reduce the number of opioids prescribed after surgery to limit their harmful side effects. We sought to measure the effects of implementation of an opioid sparing protocol in patients undergoing minimally invasive laparoscopic or robotic surgery at our centre.

Methods:
A case-control retrospective analysis was performed. All eligible patients who underwent laparoscopic or robotic surgery surrounding implementation of the opioid sparing protocol (cases after implementation, controls beforehand) at a single site performed by one of three surgeons were included. Exclusion criteria were history of myocardial infarction or coronary stents, peptic ulcer disease, NSAID (non-steroidal anti-inflammatory) allergy, GFR<30, refusal of NSAID therapy, or existing preoperative opioid use. Measured variables include morphine equivalent (ME) usage in hospital, ME in discharge prescription, pain scores, persistent or recurrent opioid use after discharge, number of patients representing to ED for pain, and renal function in the immediate postoperative and 1-month time period. The study is ongoing, and preliminary data are reported herein.

Results:
Seventy-two patients have been included in the case group thus far. After protocol implementation, forty-one (57%) patients did not require opioids in hospital or at home, sixteen (22%) patients required opioids in hospital but not at home, and fifteen (21%) required opioids both in hospital and at home. Controls were historically always prescribed opioids in hospital and at home. In the robotic prostatectomy (RALP) group, no patients required an opioid prescription for home, and only six (40%) required them in hospital. Laparoscopic nephrectomy (LapNx) and robotic partial nephrectomy (pNx) patients had a similar rate of opioid use in hospital at six (40%) and ten (40%) patients respectively. LapNx and pNx required more opioid prescriptions than RALP at three (20%) and six (24%) patients respectively.

Conclusion:
Preliminary data show that opioid sparing protocols are feasible after laparoscopic or robotic urologic surgery, supporting ongoing study. RALP require less opioid usage after surgery than pNx or LapNx. Further data will be helpful to complications and long-term outcomes from protocol change.

Source of Funding: Not applicable

Comparative Analysis of Artificial Urinary Sphincter (Aus) and Adjustable Transobturator Male System (Atoms) for Post Prostatectomy Incontinence at a Canadian Tertiary Care Centre

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Introduction:
The artificial urinary sphincter (AUS) has long been considered the gold standard treatment for post-prostatectomy incontinence (PPI). More recently, the adjustable transobturator male system (ATOMS) has been introduced as an alternative treatment option with considerable overlap in patient populations. Though both are effective treatments, there is minimal data comparing these two procedures. Our study provides an update on the safety and efficacy of AUS and ATOMS for patients with moderate incontinence to further inform surgical management recommendations.

Methods:
We conducted a retrospective single-center cohort study of adult patients (>18 years) receiving AUS or ATOMS at the University of Alberta Hospital between September 1, 2015 and August 1, 2023. Patients were hierarchically case-control matched based on pre-operative pads per day (PPD), etiology of incontinence, previous radiation and/or urologic surgery, and age. Data was analyzed using descriptive and univariate statistics, with paired two-tailed t test and Fisher's exact test to compare cohorts. Kaplan Meier curves were used to assess revision-free survival, with Logrank test to compare cohorts.

Results:
122 patients receiving ATOMS were case-control matched to patients receiving AUS during the study period (n=244). Average follow-up time for ATOMS patients was 20.6 months compared to 34.6 months in AUS. Mean age (68.0 vs 70.2; p=0.07) and pre-operative PPD (3.7 vs 4.0; p=0.13) were similar between cohorts, with 56% (n=68) of patients reporting moderate incontinence (3-4 PPD). Absolute change in PPD was similar between groups (3.3 vs 3.1; p=0.35). However, patients receiving ATOMS had a larger relative reduction in PPD (89.5% vs 78.1; p=0.005) and were more likely to achieve post-operative continence (<1 PPD) compared to patients receiving AUS (OR=3.2; 95% CI 1.8 to 5.7; p<0.001). Median volume instilled for ATOMS devices was 8.0mL, with only 30% (n=37) of patients requiring >1 adjustment. There were no differences in the rates of post-operative complications between groups (ATOMS=15%; AUS=19%). AUS was associated with increased risk of requiring surgical revision compared to ATOMS (OR=4.3; 95% CI 1.8 to 9.1; p>0.0001).

Conclusions:
Our findings show that when controlling for key patient characteristics patients receiving ATOMS had comparable reductions in post-op PPD use, but decreased risk of requiring surgical revision compared to patients receiving AUS. This data supports ATOMS as an excellent treatment option for patients with moderate urinary incontinence post prostatectomy.

Buccal Mucosal Grafts Perform Less Favorably in a Radiated Setting After Bulbar Urethroplasty

Kennedy Dirk, Alexis Filyk, Keith Rourke

Introduction:
Buccal mucosal grafts (BMG) are the preferred tissue for substitution urethroplasty particularly in the bulbar urethra. However, it is unclear if BMG performs equally well across all stricture etiologies especially in the longer-term. The objective of this study is to examine etiology specific outcomes of bulbar urethroplasty using BMG.

Methods:
From September 2003–May 2023, 1870 patients undergoing anterior urethroplasty a single-center were reviewed using regional electronic records and telephone interview. The primary outcome was urethroplasty failure defined as a recurrent stricture (<16Fr) confirmed on cystoscopy. Secondary outcomes included 90-day complications (Clavien ≥2), patient-reported erectile dysfunction, chordee and satisfaction. Multivariable Cox regression analysis was used to evaluate associations with stricture recurrence and Chi-square to assess secondary outcomes.

Results:
Of 914 patients undergoing bulbar urethroplasty with BMG, the median patient age was 48 years (IQR 24) and stricture length was 4.0 cm (IQR 2). 91.0% of patients failed a median of 2 (IQR 2) prior endoscopic treatments. With a median follow-up of 103 months (IQR 106), 62 recurrences were observed. For the entire cohort, the cumulative incidence of stricture recurrence was 5.1%, 6.7%, 7.8%, and 9.0% after 1, 2, 5 and 10 years. On multivariable assessment, stricture etiology in particular radiation (Hazard Ratio 6.3, 95%C.I. 3.0-13.0; p<0.0001) was associated with a heightened risk of stricture recurrence as well as stricture length (HR 1.2, 95%C.I. 1.1-1.3; p=0.0001), diabetes (HR 2.0, 95%C.I. 1.1-3.7; p=0.02), and prior urethroplasty (HR 2.4, 95%C.I. 1.3-4.5; p=0.007). For radiation strictures, the estimated incidence of recurrence was 28.2%, 31.9%, and 39.5% at 1, 2, and 5 years respectively compared to 2.9%, 4.8%, and 6.1% for idiopathic strictures (p<0.001). There was no difference between etiologies with respect to 90-day complications (p=0.77) or de novo erectile dysfunction (p=0.53) but patients with radiation strictures reported lower post-operative satisfaction when compared to other etiologies (83.9% vs. 92.2%; p=0.04).

Conclusions:
While bulbar urethroplasty with buccal mucosa is an effective treatment for recurrent bulbar urethral strictures, this tissue does not perform as favorably in the radiated setting perhaps due to a poor peri-urethral milieu associated with this condition.