# Podium Session 3: Oncology–Prostate
# Saturday, June 28, 2025 • 12:50–13:50

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## POD 3.1

### Early retrograde urethral release during robotic-assisted radical prostatectomy and effects on incontinence and erectile function

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**Introduction:** Radical prostatectomy remains the gold standard for localized prostate cancer (ISUP grade 2–5). While robotic-assisted radical prostatectomy (RARP) has gained popularity as a minimally invasive approach, the incidence of postoperative SUI remains a concern. This study investigated the effectiveness of a novel intraoperative approach involving an early retrograde release of the urethra, implemented to minimize traction injury. This randomized controlled trial (RCT) compares this novel technique to a standard RARP approach, evaluating its impact on SUI and erectile function at six-month followup.

**Methods:** This is a single-institution, randomized control trial taking place from December 2023 to December 2024. Fifty-six patients (34 in the experimental group, 22 in the control group) were included. Patients were randomly chosen for the control and experimental approach. Pathology data, including prostate size, TNM staging, and Gleason score were compared using a one-way ANOVA with Tukey test. ICIQ and IIEF scores were obtained from patients at the six-week and six-month followup points and statistical analysis was obtained through a one-way ANOVA and Tukey test analysis.

**Results:** Fifty-six patients were enrolled, with 34 in the experimental group and 22 in the control group. Pathology data, including prostate size, TNM staging, and Gleason score were comparable between the control and experimental groups. ICIQ scores were significantly different between the control and experimental groups at six weeks ($F=5.02362$, $p<0.05$) and six months ($F=5.33265$). At six months, experimental participants saw a 48.2% improvement in ICIQ scores from baseline at six weeks, and control group participants saw a 32.2% improvement. Forty percent of the experimental participants were using no pads during the day or night, while only 25% from the control group had similar results. In terms of IIEF scores, both groups had comparable scores at six months.

**Conclusions:** This single-institution, randomized study demonstrates an early retrograde urethral release during robotic-assisted radical prostatectomy that has a safe oncologic outcome, as well as benefits for patient incontinence status postoperatively compared to the standard retrograde approach. We hope to next have followup data available at the one-year mark.

*Acknowledgements: This abstract has been accepted for video presentation at Saudi Urological Association Conference (SUAC) 2025.*

## POD 3.2

### Establishing the long-term genitourinary toxicity of localized therapy for prostate cancer

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**Introduction:** Treatments for localized prostate cancer are generally effective at prolonging cancer-specific and overall survival; however, long-term genitourinary complications after treatment are sparsely reported, which is critically important given the lead time associated with screening and early diagnosis. The objective of this study was to characterize the long-term incidence and scope of genitourinary (GU) toxicity following localized treatment for prostate cancer.

**Methods:** Men with the diagnosis of prostate cancer from 2002–2021 in the Alberta Cancer Registry were included. Discharge Abstract Data (DAD) and National Ambulatory Care Reporting System (NACRS) were searched and RTOG/EORTC/CTCAE grade 3–5 complications were identified. Patients were allocated into eight different groups: radical prostatectomy (RP), radiotherapy (EBRT), brachytherapy (BT), cryotherapy (Cryo), medical treatment/observation (MT/O), RP+EBRT, BT+EBRT, or Cryo+EBRT. We analyzed the cumulative incidence of GU complications among different groups and performed a multivariable Cox regression examining variables associated with complications.

**Results:** A total of 47 387 patients were identified with a median age of 66 years (IQR 14) and median followup of 70.7 months (IQR 98.7); 39.7% (n=18 823) experienced a GU complication during the observed period and 19.9% (n=9416) underwent a urologic procedure. On Kaplan-Meier assessment, risk of GU complication differed significantly by modality (log-rank test $p<0.001$). RP and BT showed the lowest risk of long-term GU toxicity while combined modalities showed the highest (Table 1). On multivariable Cox regression analysis, age ($p<0.001$), cancer stage ($p<0.001$), and modality ($p<0.001$) were independently associated with GU toxicity. The specific incidence of upper tract morbidity (i.e., hydronephrosis) and lower tract (i.e., hematuria, cystitis) also differed significantly by modality (log-rank test $p<0.001$).

**Conclusions:** GU toxicity after prostate cancer treatment is common and differs among modalities. In the long-term, RP likely incurs the least risk while combination modalities pose the highest risk independent of patient age and cancer stage.

**POD 3.2. Table 1. Cumulative incidence of GU complications (%)**

| | 5 years | 10 years | 15 years | 20 years |
|---|---|---|---|---|
| Radical prostatectomy | 25% | 34% | 42% | 51% |
| Cryotherapy | 27% | 45% | 63% | 72% |
| EBRT | 30% | 48% | 62% | 75% |
| BT | 21% | 36% | 49% | 61% |
| EBRT+BT | 23% | 40% | 65% | 75% |
| Cryo+RT | 29% | 68% | 84% | 89% |
| Surgery + RT | 34% | 50% | 63% | 75% |
| Medical observation | 35% | 52% | 65% | 73% |

## POD 3.3

### Stimulated Raman histology and artificial intelligence provide near real-time prostate cancer diagnosis and grading of MRI-targeted prostate

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**Introduction:** The initial core during an MRI-targeted prostate biopsy (TB) have demonstrated higher prostate cancer (PCa) diagnostic value compared to additional cores. Stimulated Raman histology (SRH) creates histologic images providing near real-time TB pathology. This study aimed to evaluate the detection and differentiation of low-grade (grade group 1 pGG1]) from clinically significant PCa (csPCa, grade group ≥2 [GG2]) with the first MRI TB imaged with SRH interpreted by a convolutional neural network (CNN).
**Methods:** A total of 115 men with a PI-RADS 3–5 lesion undergoing a transperineal TB were prospectively enrolled in an IRB-approved study. The TB were kept fresh before scanning with the SRH microscope using two Raman spectra, 2845 cm-1 and 2930 cm-1. A CNN developed at NYU Langone Health in April 2022 was incorporated into the SRH microscope to provide a near real-time PCa identification and grading (benign, GG1, and GG2–5). Following SRH creation, the TB underwent standard pathologic processing and interpretation for ground truth diagnosis with the first core separated for independent interpretation (Figure 1). The CNN time to SRH diagnosis of PCa, the ROC AUC of PCa detection, and grading (benign, GG1, and GG2–5) were also determined.
**Results:** The time for TB CNN diagnosis was three minutes. PCa was identified in 57 cases, csPCa was identified in 33 cases, and all csPCa was identified in MRI region of interest (ROI). When a ROI contained csPCa, the first biopsy identified PCa in 84% of cases. The CNN showed an AUC for PCa identification of 0.92 in the first TB and the CNN showed AUC of 0.90 for PCa grading (benign, GG1, GG2–5).
**Conclusions:** The SRH CNN imaged and identified TB containing csPCa within three minutes of biopsy. Clinical implementation may guide biopsy intensity and improve biobanking and PCa focal ablation.
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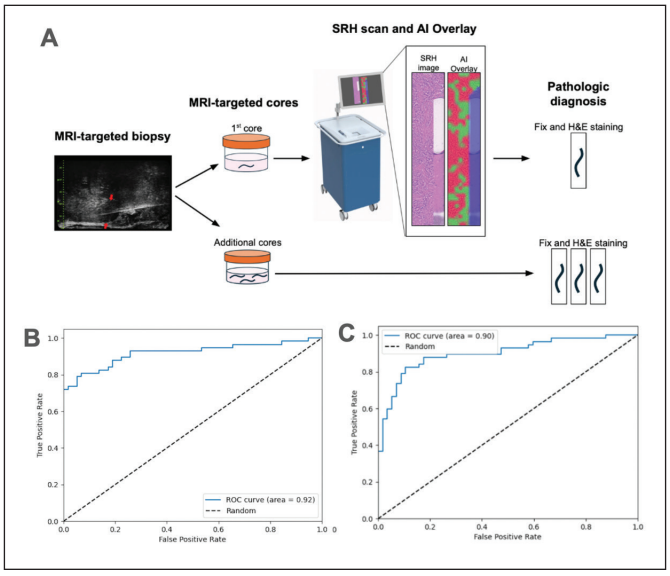


**POD 3.3. Figure 1.** (A) Workflow for simulated Raman histology convolutional neural network identification of PCa in MRI-targeted biopsy. (B) ROC for PCa identification showing AUC 0.92. (C) ROC for PCa grading (GG1, GG2–5) showing AUC 0.90.

## POD 3.4

### Perioperative outcomes of robotic and open prostatectomy in Ontario, Canada: A retrospective, population-based cohort

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**Introduction:** While robotic-assisted radical prostatectomy (RARP) has become the preferred surgical treatment for localized prostate cancer in many parts of the world, its uptake has been slower in Ontario, Canada (14.7 million people), due to the limitations of a publicly funded healthcare system. This unique context facilitates a large-scale comparison of RARP and open radical prostatectomy (ORP) outcomes across multiple surgeons and centers. This study compared perioperative outcomes between RARP and ORP in Ontario from April 1, 2017, to March 31, 2024, to assess the impact of the shift toward robotic surgery.
**Methods:** This retrospective cohort study included all Ontario patients who underwent Quality Based Procedures (QBP)-funded radical prostatectomy for localized prostate cancer during the study period. We analyzed perioperative outcomes, including 30-day and 90-day all-cause mortality, unplanned readmission rates within 30 days, intraoperative blood transfusion rates, surgery duration, hospital stay length, positive margin rates, and rates of surgical reoperation within 30 days and one year.
**Results:** We identified 6645 RARP cases and 8428 ORP cases, with RARP representing 35.1% of cases in 2017, increasing to 56.2% by 2023. In high-volume regions (>1500 cases), RARP constituted 63% of procedures. The median duration of RARP was 232.0 minutes (IQR 95), longer than ORP at 184.0 minutes (IQR 68); however, RARP patients had a shorter average hospital stay (1.4 days, SD 1.6) vs. ORP (2.6 days, SD 1.7, p<0.0001). Blood transfusions were less frequent in RARP (1.2%) than in ORP (4.7%, p<0.0001). Thirty-day mortality occurred in 14 ORP cases (0.2%), with <6 in the RARP group. Readmissions within 30 days were higher in ORP (26.1%) than in the RARP group (23.6%, p=0.0005). Positive margins were more frequent in ORP for both pT2 (25.5% vs. 18.5%, p<0.0001) and pT3 cancers (50.8% vs. 42.9%, p<0.0001). Reoperations within one year due to urethral stricture or anastomotic stenosis were more common in ORP (12.0%) than in RARP (1.2%, p<0.0001).
**Conclusions:** As RARP adoption grows in Ontario, patients who were able to undergo RARP experienced improved outcomes, including shorter hospital stays, reduced transfusion rates, lower positive margins, and fewer complications compared to ORP. Further research will aim to identify patient-, disease-, and surgeon-related factors influencing the choice of surgical approach. This study highlights the potential clinical benefits of robotic surgery in prostate cancer management amid its increasing use.
*Acknowledgements: Funded by Ontario Health.*

## POD 3.5

### Phase 2 clinical trial to evaluate the early return of urinary continence using a novel hybrid transvesical adapted Retzius-sparing robotic-assisted radical prostatectomy technique

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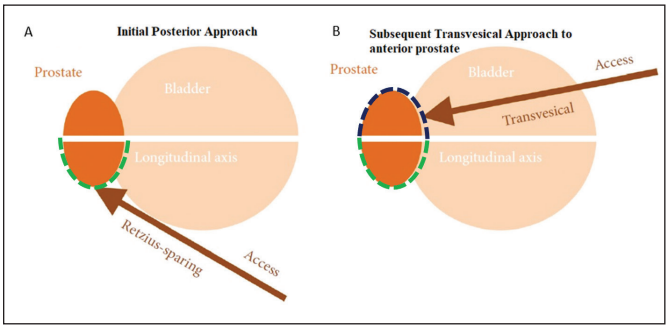
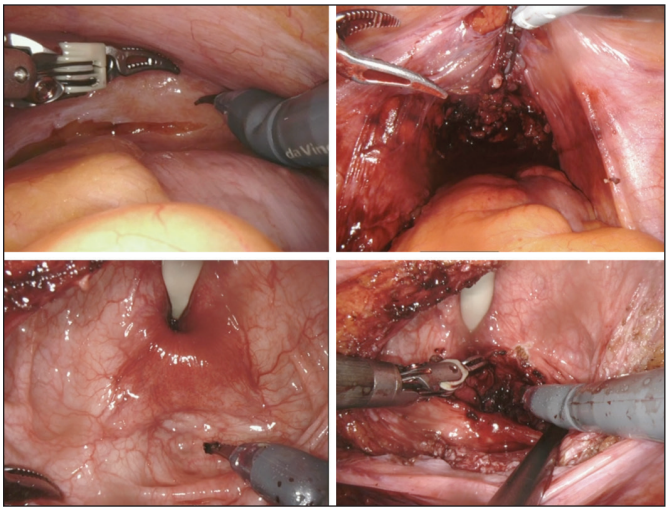
**Introduction:** Open retropubic radical prostatectomy and standard robotic prostatectomy have substantial effects on postoperative quality of life through resultant urinary incontinence and erectile dysfunction. Retzius-sparing robotic-assisted radical prostatectomy (RS-RARP) has emerged as a technique potentially improving early return of continence. Alternative strategies, including transvesical approaches, have shown promise in achieving similar continence outcomes. This study aimed to evaluate a novel hybrid technique, transvesical Retzius-sparing robotic-assisted radical prostatectomy (TRS-RARP) at the Jewish General Hospital in Montreal, Quebec.
**Methods:** We conducted a single-arm, prospective, phase 2 clinical trial using Simon's two-stage design (NCT06237114) (Figures 1, 2). The primary objective was the rate of urinary continence, defined as 0–1 pad per day at three months postoperatively. the secondary objectives included continence rates at one and six months, and quality of life using EQ-5D-5L and EPIC-CP questionnaires. The

study was powered to detect a 65% continence rate (H1) vs. 40% (H0) at three months, with planned 30-patient enrollment.
**Results:** Data from 30 enrolled patients indicate promising initial results. Median age is 62.5 years, Most of the enrolled patients completed a three-month followup (14/30 patients). Regarding EQ-5D, 66% of patients had a baseline score of 11111, with 58% maintaining this score at three months. The average EQ-5D score was 87.7 at three-month followup. In terms of the EPIC-26, the average overall score was 8 at baseline and 13 at three months. The average number of pads/day was 0 at baseline and 0–1 pads/day at three months, with an average of 78.5%.
**Conclusions:** TRS-RARP represents a novel approach combining elements of RS-RARP and transvesical techniques to potentially enhance early urinary continence recovery following radical prostatectomy. Early results suggest promising trends towards achieving the study's primary endpoint of improved early continence rates compared to historical benchmarks.




**POD 3.5. Figure 1.** The TRS-RALP proceeds in two stages. (A) The first stage involves access to the prostate along the posterior plane through the pouch of Douglas. (B) The second stage uses access to the anterior prostate via the transvesical technique, ensuring visualization of the anterior prostate during dissection.



**POD 3.5. Figure 2.**

## POD 3.6

### 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:** 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 aimed 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.
**Methods:** 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. The study uses data from all men in Alberta, Canada. APCaRI included 8932 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). The primary exposure was the place of residence, categorized as urban or rural based on postal codes. 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:** 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 socioeconomic 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.
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