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MP-7.1

Analysis of sex-based differences in response to bacillus Calmette-Guérin for non-muscle-invasive bladder cancer

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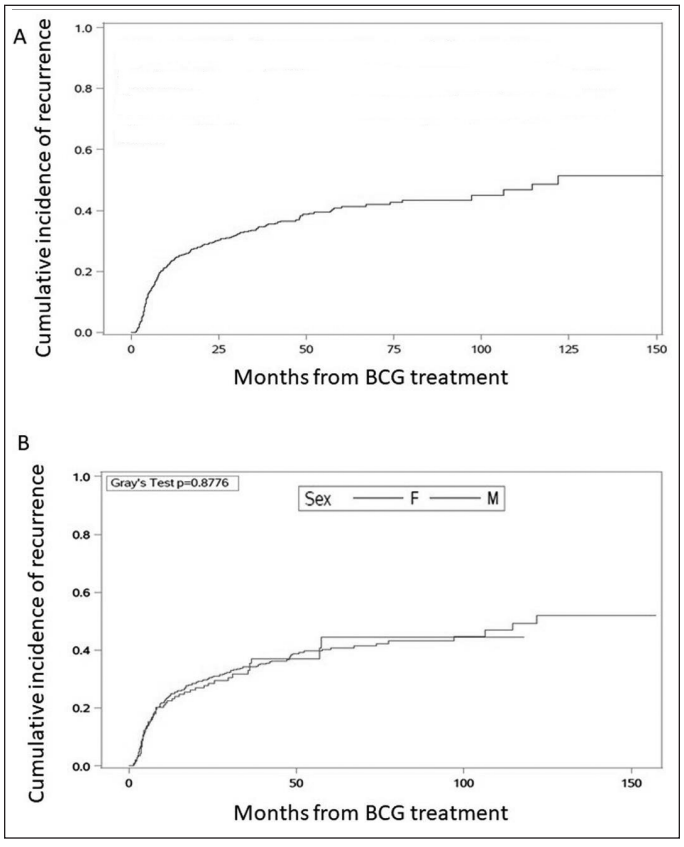
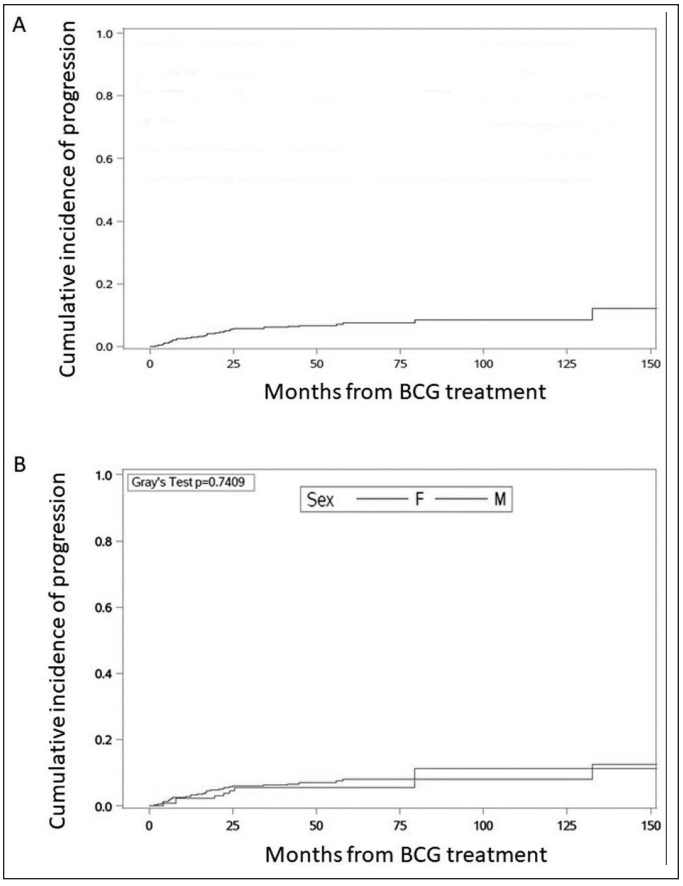
Introduction: The incidence of urothelial carcinoma of the bladder is lower in women but they tend to present with more aggressive and advanced disease. Some prior studies also suggest there are sex-based differences in response to treatment for non-muscle-invasive bladder tumors. Our objective was to evaluate whether differences exist between men and women in response to intravesical bacillus Calmette-Guérin (BCG) treatments.

Methods: In this retrospective study, we reviewed all consecutive patients who received BCG at the CHU de Québec – Laval University from 2009–2019. Men and women were treated with intravesical BCG therapy following pathological confirmation of urothelial carcinoma. Outcomes evaluated include recurrence, progression, and treatment tolerability. Recurrence was defined as pathology-confirmed cancer, whereas progression was the new development of high-grade (recurrence) pathology or an increase of stage. Tolerability was defined according to the proportion of prescribed BCG received. All clinical details were obtained through review of the medical records, collaborated by pharmacy records for BCG administration. Competing-risk analysis was used to compare outcomes.

Results: Among 613 patients who received BCG at our institution from 2009–2019, 472 (77.0%) were men and 141 (23.0%) were women. The recurrence rate was not different between sexes (Figure 1), with a five-year recurrence risk of 52% (95% confidence interval [CI] 36.93–65.4)



MP-7.1. Figure 1. (A) Risk of tumor recurrence following BCG treatment adjusted for competing mortality risk. **(B)** No differences in cumulative incidence of recurrence were observed between male and female patients.



MP-7.1. Figure 2. (A) Risk of progression to muscle-invasive, nodal, or metastatic disease following BCG treatment adjusted for competing mortality risk. **(B)** No differences in the risk of progression were observed between male and female patients.

MP-7.1. Table 1. Characteristics of BCG treatments between men and women

	Men (%)	Women (%)	p
Completion of ≥5 induction treatments	450 (95.3)	131 (92.9)	0.28
Received ≥2 maintenance BCG treatments	372 (79.8)	100 (70.9)	
Re-induction BCG prescribed	66 (14.0)	15 (10.6)	
EAU risk group at BCG			0.20
Intermediate risk	144 (30.50)	37 (26.24)	
High risk	305 (64.62)	92 (65.25)	
Very high risk	23 (4.87)	12 (8.50)	
Recurrence history at BCG			0.15
Primary	232 (49.2)	59 (41.8)	
Prior recurrence	242 (50.8)	82 (58.2)	
BCG group			0.29
Group I	21 (5.5)	11 (7.8)	
Group II	236 (48.9)	69 (48.9)	
Group III	215 (45.6)	61 (43.3)	

among women compared to 57.5% (CI 95% 51.9–62.6) among men. The overall non-progression rate at one, three, and five years was 97.3% (95% CI 95.6–98.3%), 93.6% (95% CI 91.2–95.4%), and 91.7% (95% CI 88.4–94.1%), respectively (Figure 2). The completion of ≥5 induction BCG instillations and maintenance BCG use was similar in both genders (characteristics of BCG treatments are listed in Table 1).

Conclusions: We found no clear evidence for sex-based differences in response to BCG treatment in regard to progression, recurrence, and tolerability in a contemporary non-muscle-invasive bladder cancer cohort.

MP-7.2

Raman chemometric urinalysis as a novel, low-cost, and minimally invasive method for bladder cancer screening

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Introduction: The detection of asymptomatic bladder carcinoma remains a challenge. There is no accepted non-invasive, low-cost, and reliable screening modality. Normal human urine contains over 2000 separate chemical entities, reflective of systemic physiology and metabolism. Of existing bladder cancer detection tests, the vast majority rely on a single or a few molecular markers for diagnosis. We have been developing and validating a novel approach to molecular urinalysis, using a combination of Raman spectroscopic, computational, and physicochemical analytical methods. The method is termed Raman chemometric urinalysis and it assesses the whole composition of the evaluated fluid.

Methods: Urine specimens from patients with bladder cancer, other genitourinary (GU) diseases, and healthy volunteers were analyzed using a Raman chemometric urinalysis method. Computational and statistical analysis of spectra from urine specimen was conducted. Based on obtained data, we developed a chemometric urinalysis to detect complex molecular signatures associated with bladder cancer and other GU diseases.

Results: A total of 133 patients were included in this study. Computational analysis was able to discern molecular signatures, indicative of the presence of bladder cancer in this mixed population, with 82.4% sensitivity and 79.5% specificity. Based on the methods to construct these signatures, screen could be fine-tuned for either high sensitivity or specificity.

Conclusions: The molecular composition of urine from patients with bladder cancer differs from that of urine from healthy volunteers and patients with GU disorders, as seen in the unique Raman spectral fingerprints identified in this study. This method is based on analyzing the whole spectrum of the metabolites in the urine. While further testing and validation are needed, applying Raman spectroscopy to molecular urinalysis has the potential to improve the cost and efficacy of bladder cancer screening and surveillance.

MP-7.3

Preoperative absolute basophils count predicts recurrence and progression of non-muscle-invasive bladder cancer following bacillus Calmette-Guérin treatment

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Introduction: Intravesical bacillus Calmette-Guérin (BCG) is the main treatment to prevent relapse and progression of high-grade non-muscle-invasive bladder cancer (NMIBC). Th2-related cytokines in the tumor immune microenvironment have been shown to predict adverse response to BCG. Given the implication of basophils in this Th2 response, we sought to evaluate the association between basophil levels and outcomes following BCG treatment for high-grade NMIBC.

Methods: High-grade NMIBC patients were included if they received at least five of six BCG instillations and had a complete blood count (CBC) before transurethral resection of bladder tumor (TURBT). Data were pooled from CHU de Québec-Université Laval (2016–2020) and UBC (2010–2018). Descriptive statistics, Kaplan-Meier analysis, and Cox regression analyses evaluated the predictive value of detectable (vs. undetectable) absolute basophil levels on clinical outcomes. Multivariable regression analysis was conducted on relevant clinical and pathological variables, in addition to detectable basophil levels.

Results: Basophil levels were detectable at baseline in 42 of 217 (19%) patients. Patients with detectable basophils showed less carcinoma in situ and more >3 cm tumors. Recurrence and progression were observed in 84 (39%) and 27 (12%) patients, respectively. The median time to recurrence was 15 months in patients with detectable basophils and not reached in patients with undetectable basophils (p=0.003). Progression-free survival was lower among patients with detectable basophils (p=0.002). On multivariable regression analysis, the presence of detectable basophils significantly increased the risk of recurrence (hazard ratio [HR] 2.04, 95% confidence interval [CI] 1.27–3.32) and progression (HR 2.98, 95% CI 1.36–6.52).

Conclusions: The presence of basophils on the pre-TURBT CBC is an important predictor of the risk of disease progression or recurrence following BCG. As an available and inexpensive biomarker, it can help in clinical decision-making for patients with NMIBC.

MP-7.4

The anti-tumor effect of prebiotics in bladder cancer

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Introduction: Gut microbiota is an emerging factor for the response to immune checkpoint blockade (ICB) immunotherapy in multiple cancers. However, we currently lack a clear understanding of the interaction between gut microbiota and cancer cells. More importantly, we still ignore if targeting the gut microbes is sufficient to impact tumor growth. Our objectives were to first assess the modulatory effect of promising prebiotics on gut microbiota and on promoting antitumor response in

bladder cancer (BCa), and to test the effects of prebiotics on the systemic antitumor efficacy of ICB immunotherapy.
Methods: C3H syngeneic male mice were injected subcutaneously with MBT-2 mouse bladder tumor cells. Prebiotics and control water were daily gavaged until the end of the experiment. Following tumor implantation, mice were treated with four injections of anti-PD1 monoclonal antibody or isotype control intraperitoneally. Tumor growth was monitored twice a week. Fecal samples were collected at many timepoints during tumor growth for the profiling of gut microbiota. Endpoint tumors were dissociated for flow cytometry analysis of tumor-infiltrating lymphocyte composition.
Results: Independently of immunotherapy, two prebiotics induced a significant reduction of tumor growth in comparison to the control group, and improved the overall survival of mice. Interestingly, one prebiotic combined with anti-PD1 immunotherapy also enhanced the systemic antitumor effect of ICB. Interactions between prebiotics and gut microbiota will be identified by 16S rRNA sequencing analysis while underlying mechanisms linking prebiotics treatment with tumor reduction will be deciphered by the flow cytometry analysis.
Conclusions: Overall, our findings support that promising prebiotics can induce an antitumor effect at steady state, and in combination with anti-PD-1 treatment, in BCa mouse model. These data will have a significant impact to enhance the clinical response to ICB treatment for BCa patients.

MP-7.6

External validation of the molecular subtype classifier by immunohistochemistry for muscle-invasive bladder cancer patients within the trimodal therapy cohort

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Introduction: Bladder-sparing approaches for muscle-invasive bladder cancer (MIBC), such as trimodal therapy (TMT), are increasingly offered to select candidates. Oncological outcomes may be affected by distinct molecular subtypes based on gene expression profiling. Tumors of the basal subtype were previously shown to carry a poorer overall survival (OS) compared to tumors of the luminal subtype.
Methods: Tumoral, benign, and transition zone tissue from transurethral resection of bladder tumors of 104 patients were sampled on five tissue microarray blocks. We measured KRT5, GATA3, and P16 biomarkers expression on tumoral slides. Hierarchical clustering was used to classify patients based on the three-antibody IHC algorithm biomarker expression profile. Subtypes were evaluated for association with complete response (CR), recurrence-free survival (RFS), and OS.
Results: The median age was 75.0 years (interquartile range 65–80) and 22.6% were females. Median OS was 43 months (95% confidence interval [CI] 19–77) and median followup was 55 months (95% CI 39–75). On univariate analysis, Eastern Cooperative Oncology Group (ECOG), and CR rate were predictors of significant difference in RFS ($p<0.05$). For OS, age, ECOG, clinical stage, and CR were found to significantly impact OS ($p<0.05$). Of 104 patients, IHC-based subtype classification was feasible in 93. Patients were successfully classified into basal (23.7%), luminal genomically unstable (14.0%), luminal urothelial like (31.2%), and negative/unclassified (31.2%). On survival analysis, no significant differences were observed between the molecular subtypes when comparing basal vs. luminal vs. negatives or basal vs. luminal ($p>0.05$). However, on Cox regression analysis at 10 months, the basal subtype showed a poorer survival compared to the other subtypes combined (hazard ratio [HR] 0.376, 95% CI 0.161–0.882, $p=0.0245$).
Conclusions: Although the classifier was not predictive of CR or survival for MIBC patients post-TMT, tumors of the basal subtype may carry a poorer prognosis early after treatment. Subtype identification using the IHC-based three-antibody classification is feasible in most patients.

MP-7.7

The impact of routine bladder biopsies after bacillus Calmette-Guérin treatment in patients with pure carcinoma in situ of the bladder

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Introduction: Carcinoma in situ (CIS) has a high rate of recurrence despite bacillus Calmette-Guérin (BCG) therapy. Cystoscopy and urine cytology are used for surveillance, but their diagnostic value can be limited by BCG-induced changes. We investigated whether routine bladder biopsy (RB) can increase early detection of CIS persistence and thereby improve patient outcome.
Methods: Patients treated for pure CIS from 2011–2021 were reviewed retrospectively. All patients were treated with transurethral resection of bladder tumor (TURBT) followed by BCG induction and maintenance therapy with standard surveillance. One urologist performed RB in all patients at six months, while all other urologists only performed for-cause biopsy (FC) based on cystoscopic and cytologic abnormalities. Outcomes were compared between RB and FC groups according to an intention-to-treat analysis.
Results: Forty-seven patients were included, of whom 23 had RB and 24 had FC. Median ages were 69 years and 76 years in the RB and FC groups, respectively, and 36 (77%) were male. Median followup was three years and 3.5 years in the RB and FC groups, respectively. High-grade recurrence was observed within six months in five patients (21.7%) in the RB group and two patients (8.3%) in the FC group. There was no significant difference in the rate of high-grade recurrence during the observation period ($p=0.197$). Progression to muscle-invasive or locally advanced bladder cancer was observed in one patient (4.3%) in the RB group and five patients (20.8%) in the FC group ($p=0.09$). Limitations include small sample size, retrospective analysis, and irregular use of cytology in the FC group.
Conclusions: In our single-institutional series of patients with pure CIS, there was a trend towards a higher rate of recurrence within six months but lower rate of progression within the study period when patients were managed with RB at six months compared to FC biopsy. This suggests that early detection of persistent CIS may prevent later progression.

MP-7.8

Impact of postoperative opioid use on length of hospital stay following radical cystectomy

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Introduction: Radical cystectomy (RC) is associated with high rates of ileus and bowel complications. There has been increased use of u-opioid receptor antagonists to help combat decreased gastric motility associated with opioid use. However, the relationship between postoperative opioid use and length of stay (LOS) is uncertain. This study was aimed at elucidating the relationship between opioid use in postoperative RC patients and LOS.
Methods: We retrospectively identified any patients who underwent RC for bladder cancer at our institution between January 2009 and December 2019. There were no other inclusion or exclusion criteria. Univariable and multivariable analyses were used to determine the relationship between patient-specific factors associated with increased LOS.
Results: A total of 240 patients were included in the study; 81.3% of our population was male (195/240) with a median age of 70.0 years and median body mass index of 27.3. Most patients had T2 disease (54.4%, 124/228), 37.5% (90/240) patients received neoadjuvant chemotherapy, and ileal conduits were created in 85.4% (205/240) of patients. The median LOS was 10.0 days and the median daily morphine equivalents (MEqs) were 43.13. Nasogastric (NG) was required in 89 patients (37.1%), and TPN was given in 56 patients (23.3%) (Table 1). Univariable linear regression demonstrated that intraoperative transfusion, prior pel-

vic radiation, ileus, and takeback ORs were all significantly associated with increased LOS ($p<0.05$). Multivariable regression demonstrated that prior pelvic radiation, higher Clavien grade complication, and daily morphine equivalents had significant correlation and were able to account for 65.2% of the variance in LOS (Table 2). A one-day increase in LOS was seen with an increase of 13.33 daily MEqs of morphine.

MP-7.8. Table 1. Patient demographic, surgical, and perioperative factors

Patient demographics (n=240)	Frequency (%)
Gender	
Male	195 (81.3)
Female	45 (18.7)
Prior IBD/Crohn's	3 (1.2)
Prior IBS	1 (0.4)
Prior laxative use	31 (12.9)
Prior opioid use	24 (10.0)
Neoadjuvant chemotherapy	90 (37.5)
Prior pelvic radiation therapy	9 (3.8)
T stage	
Tis/Ta	14 (6.1)
T1	67 (29.4)
T2	124 (54.4)
T3	13 (5.7)
T4	10 (4.4)
Missing	12 (5.0)
Surgical factors (n=240)	**Frequency (%)**
Diversion type	
Ileal conduit	205 (85.4)
Neobladder	26 (10.8)
Cutaneous ureterostomy	9 (3.8)
Postoperative factors (n=240)	**Frequency (%)**
Highest Clavien-Dindo during admission	
Grade 0	81 (33.8)
Grade 1	41 (17.1)
Grade 2	74 (30.8)
Grade 3	25 (10.4)
Grade 4	14 (5.8)
Grade 5	5 (2.1)
Takeback OR required	25 (10.4)
NG tube required	89 (37.1)
TPN required	56 (23.3)

MP-7.8. Table 2. Multivariable linear regression model of postoperative length of stay after radical cystectomy

Variable	β	95% confidence interval	p
Daily morphine equivalents	0.075	0.067–0.094	<0.001
Highest Clavien-Dindo classification during admission	4.210	2.987–5.433	<0.001
Prior pelvic radiation therapy	20.379	11.178–29.850	<0.001

Conclusions: This study demonstrates that prior pelvic radiation, higher Clavien grade during admission, and increased daily MEqs were significantly associated with increased LOS.

MP-7.9

Chronic exposure to bisphenol A could promote bladder cancer progression

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Introduction: Bisphenol A (BPA) acts as an endocrine disruptor and is found in 90% of urine samples. Exposure to BPA is associated with tumor progression. The bladder is not recognized as a hormone-sensitive tissue, but the activation of hormone receptors plays a role in bladder cancer initiation and progression. We hypothesiezed that chronic exposure of urothelial (UCs) and cancer cells to physiological concentrations of BPA should increase the invasive phenotype of cancer cells, and potentiate the induction of healthy bladder fibroblasts (HBFs) in cancer-associated fibroblasts (CAFs), thus promoting tumor invasion.

Methods: UCs and non-invasive (RT4) and invasive (T24) cancer cells were exposed to 10^{-8} M BPA, which corresponds to the concentrations found in urine. The impact of BPA on energy metabolism, proliferation, and migration was measured. The expression of α-SMA, associated with invasion potential, of RT4 and T24±BPA was analyzed by flow cytometry. HBFs were used and induced into CAFs with media conditioned with RT4 or T24. The impact of BPA on HBF/CAF metabolism was also measured.

Results: After chronic exposure to BPA, energy metabolism, proliferation, and migration of cancer cells are increased, while these parameters are reduced for UCs. RT4 exposed to BPA express more α-SMA. The metabolism of HBFs exposed to BPA is also reduced. CAFs conditioned with BPA demonstrated an enhanced metabolic reprogramming, characterized by increased glycolysis.

Conclusions: Chronic exposure to BPA decreases the energy metabolism of healthy cells (UCs and HBFs), which could impact tissue repair and extracellular matrix production. The increased physiological activity of cancer cells and α-SMA expression in RT4+BPA may promote tumor invasion. The increased glycolytic metabolism of CAFs+BPA leads to the acidification of the extracellular environment, promoting tumor invasion. Our unique 3D bladder cancer model will allow us to confirm these results in more physiological conditions.

MP-7.11

Radical cystectomy for bladder urothelial carcinoma with variant histology

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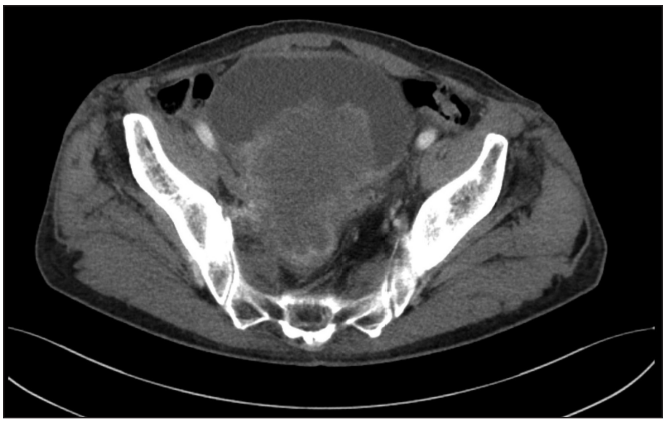
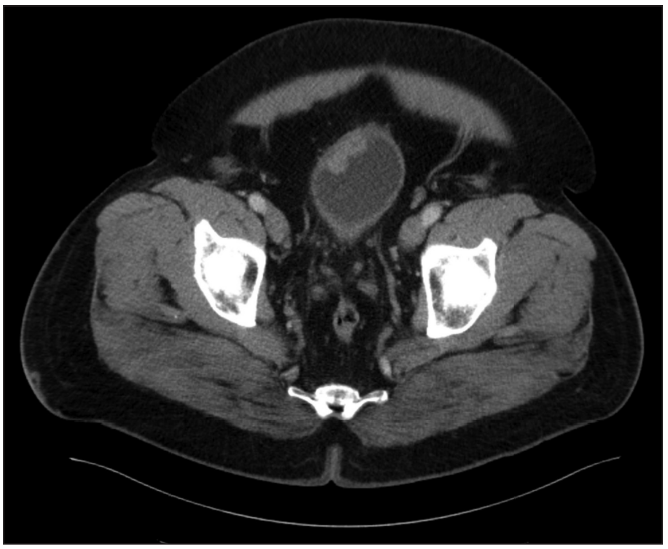
Introduction: The aim of our manuscript was to report our experience in managing bladder cancer in patients with variant pathology.

Methods: We conducted a retrospective data collection for all patients managed by radical cystectomy for a variant pathology over the last three years.

Results: Ten patients could be identified, including eight patients with micropapillary cancer (MPC) and two with nested variants. Nine patients were males. The median age was 75 years (56–84). The two patients with nested variant were 56- and 62-years-old, while all patients with MPC



MP-7.11. Figure 1. Large cT4 MPC.



MP-7.11. Figure 2. cT1 nested variant.

were older than 70. On transurethral resection of bladder tumor (TURBT) for patients with nested variant, one patient had a domal T1 tumor and the other had T2 small trigonal tumor. Radical cystoprostatectomy was done and the final pathology was T2No for the first patient and T4aN1 for the second case. For patients with MPC, two and six patients had T1 and T2, respectively, on TURBT. Intravesical bacillus Calmette-Guérin (BCG) induction course was tried for the T1 cases and upstaging to T2 was identified. Cystectomy was done and the pathology was T2, T3, and T4 in two, two, and four patients, respectively. Urethrectomy was done with cystectomy for the female patient and had cancer invasion. Two patients developed urethral recurrence within 4–6 months after surgery. Three patients (37.5%) had positive lymph nodes invasion at the time of cystectomy. Within a median followup of 13 months, local recurrence developed in three patients (30%), including two urethral and one new lateral pelvic mass. Figure 1 shows a large cT4 MPC and Figure 2 shows cT1 nested variant.

Conclusions: Patients with micropapillary and nested variants of bladder cancer are always muscle-invasive and cystectomy should not be delayed. Upfront urethrectomy or early and frequent postoperative urethroscopy should be offered. In our cohort, MPC affected elderly patients, while nested variant affected younger patients. Bladder-sparing protocols and prostate-sparing cystectomy may not be the best options for bladder cancer variants.

MP-7.12

Assessment of transurethral resection of a bladder tumor as a tool of detection for bladder cancer recurrence

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Introduction: In Canada, bladder cancer ranks fifth in incidence and eighth in cancer death rate. Transurethral resection of a bladder tumor (TURBT) is an invasive surgery to diagnose and resect bladder cancer. Between 31% and 78% of patients with a non-invasive bladder cancer will experience a recurrence. Hence, all patients have cystoscopy followups to prevent potential cancer progression. Suspicious cases undergo TURBT, which confirms or informs the presence of recurrent cancer. The sensitivity of cystoscopy to detect recurrence varies from 57–97% depending on the source. The main objective of this study was to evaluate, on an institutional basis, the sensitivity of a visual recurrence by cystoscopy. To do so, we evaluated the proportion of TURBT following a visual recurrence at cystoscopy, leading to a positive pathological result.

Methods: This retrospective study was carried out using clinical data from the medical records of 217 patients who underwent a followup TURBT between January 2018 and January 2021 at L'Hôtel-Dieu de Québec, in order to analyze the associations between the rate of visual recurrence observed by cystoscopy and the actual rate of cancer recurrence pathologically confirmed with the TURBT.

Results: During the targeted period, 279 TURBT/biopsies were performed. From these, 201 TURBT/biopsies were found to be positive following a suspicious cystoscopy, while 78 TURBT/biopsies were negative. Thus, 72% of visual recurrences by cystoscopy turned out to be actual pathological recurrence of bladder cancer, while 28% were false positives.

Conclusions: Considering that TURBT is a very invasive method for cancer diagnosis, it is essential to determine whether the use of this method is still justified in clinic to confirm bladder cancer recurrence. Our results suggest that cystoscopy can lead to false positives, still justifying the use of TURBT in this context.

MP-7.13

An in-depth analysis on the effects of body composition in patients receiving neoadjuvant chemotherapy for urothelial carcinoma

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Introduction: Neoadjuvant chemotherapy (NAC) is the standard of care for those patients undergoing radical cystectomy (RC) for muscle-invasive bladder cancer (MIBC).[1] However, NAC can be associated with significant side effects and morbidity in some patients.[2] Recent studies have shown that sarcopenia, obesity, and sarcopenic obesity are risk factors for increased morbidity and mortality after RC.[3,4] NAC may contribute to these conditions. Our study examined the association between these conditions and morbidity in patients undergoing NAC.

Methods: We created a retrospective database of patients with non-metastatic MIBC receiving NAC prior to RC after receiving approval. Skeletal muscle index (SMI) and fat mass index (FMI) were calculated using computed tomography (CT) imaging at the L3 level. The change in SMI and FMI for a cohort of patients was calculated using CT scans done within three months prior to NAC and after the first two cycles, which is typically six weeks. The association between body composition (sarcopenia, obesity, and sarcopenic obesity) and preoperative adverse events was investigated using Chi-squared testing.

Results: A total of 73 patients were included in our study. There was a mean decrease in SMI of 2.2±3.2 cm^2 m^{-2} ($p<0.001$). Adiposity and FMI were essentially unchanged by NAC, although there were outliers at either end of the distribution with significant changes. Overall, neither sarcopenia, obesity, or sarcopenic obesity were found to be associated

with adverse events among patients receiving NAC in this univariable analysis. There was a total of 665 preoperative complications with grades 1–2 and 31 complications with grades 3–5.
Conclusions: Based on our retrospective cohort study, NAC did not seem to change obesity and FMI, but there was a significant decrease in SMI, indicating that NAC may worsen pre-existing sarcopenia. Sarcopenia, obesity, and sarcopenic obesity, however, may not significantly affect the rate of adverse events associated with NAC. As such, the presence of these factors may not help predict tolerance of NAC.
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MP-7.14
Bladder cancer in Aboriginal and Torres Strait Islanders: A scoping review

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Introduction: Bladder cancer is the third most common urological malignancy affecting Australians. Aboriginal and Torres Strait Islander (ATSI) people suffer from a higher prevalence of risk factors, are diagnosed at a younger age, and have poorer survival than the general population. This scoping review is the first study to comprehensively map current knowledge on this topic.
Methods: A systematic literature search of multiple indexed databases and grey literature sources was conducted. Dual independent screening of abstracts, then full-text review was undertaken. The references and citing articles of included sources were reviewed for additional relevant sources.
Results: A total of 1045 sources were screened by title and abstract and 832 were excluded as irrelevant; 208 sources underwent full-text review and 185 were excluded based on study inclusion and exclusion criteria. Twenty-three sources underwent data extraction. Most sources were from peer-reviewed literature rather than grey sources (15 vs. 8). Twenty sources used cancer registry data for any analysis. One source reported data from a specific health service cohort of patients. One source considered non-invasive bladder cancer patients, while the remainder only reported invasive cases. Two sources discussed the treatment modality used for bladder cancer treatment. Consideration of social determinants of health in ATSI Australians with bladder cancer varied between studies (Table 1). Social determinants of health were usually discussed in the context of cancer, rather than specifically bladder cancer.
Conclusions: There is limited literature on bladder cancer in ATSI Australians. Gaps in current literature include statistics on non-invasive bladder cancers and the use of treatment modalities. While there is evidence about the social determinants of health relating to cancer in ATSI people, little is known of their effects specifically in patients with bladder cancer, and this should be an area of future exploration.

MP-7.14. Table 1. Social determinants of health

	Number of sources
Cultural & societal values	
Cultural beliefs	4
Socioeconomic norms	
Education	1
Intermediary	
Geographic barriers	4
Risk behaviors	3
Cross cutting	
Social cohesion	1

UP-7.1
Tumor adjacent tertiary lymphoid structures associate with poor response to bacillus Calmette-Guérin (BCG) immunotherapy in non-muscle-invasive bladder cancer

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Introduction: Tertiary lymphoid structures (TLSs) are emerging indicators of prognosis and therapeutic efficacy, specifically in the context of immunomodulatory therapies. TLSs form at mucosal sites as a result of biological aging, following exposure to normal commensal and pathogenic microbes, chronic inflammation, and cancer, and generally evolve to provide local immune protection. Therapy-induced TLSs have also been shown as predictive biomarkers in muscle-invasive bladder cancer. Given the widespread presence of TLSs in bladder mucosa as a result of biological aging, urinary tract infections, or cancer, we hypothesized that tumor-associated pre-treatment TLS may inform response to locally administered bacillus Calmette-Guérin (BCG) in non-muscle-invasive bladder (NMIBC) cancer. The goal of this study was to characterize lymphoid aggregates/TLSs in tumors from patients with NMIBC who either responded to or failed BCG immunotherapy.
Methods: Using a multiplexed immunofluorescence (IF) assay, we characterized the organizational and developmental status of lymphoid aggregates/TLSs in tumors from NMIBC patients who either responded to (recurrence-free survival over two years) or failed BCG therapy (recurrence within one year of BCG therapy). Formalin fixed paraffin embedded whole tumor sections from patients (n=31) who underwent adequate BCG immunotherapy were subjected to multiplexed immunofluorescence assay using markers specific TLS (CD79a+ B cells, PNAd+ high endothelial venules, CD3+ T cells, CD8+ cytotoxic T cells, CD208+ and CD21+ dendritic cells).
Results: Various stages of pre-existing TLSs were present in tumors from both groups of patients. A higher number of mature TLSs were located in peri-tumoral regions in tumors from patients deemed as BCG non-responders.
Conclusions: Findings from this study demonstrate the significance of pre-treatment TLSs and their spatial organization as prognostic indicators in NMIBC and will potentially help in the early identification of BCG non-responsive patients.