

CUA 2023 Annual Meeting Abstracts – Podium Session 4: Oncology – Bladder/Kidney/Other

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POD 4.1

Primary retroperitoneal lymph node dissection for metastatic non-seminomatous germ cell tumor: Review of oncological outcomes and the role of adjuvant chemotherapy

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Introduction: There is renewed controversy regarding the role of adjuvant chemotherapy (AC) post-primary retroperitoneal lymph node dissection (pRPLND) in the management of pathologic stage (PS) II (pN1-3) non-seminomatous germ cell tumors (NSGCT). We compared the outcomes and treatment burden of pRPLND alone vs. pRPLND + AC in this setting.

Methods: A retrospective review of the Princess Margaret Cancer Centre cancer database identified men with PS II NSGCT after pRPLND between 1995-2020. The primary outcome was relapse-free survival (RFS). Secondary outcomes included disease-specific survival (DSS) and burden of relapse treatment. Uni- and multivariable analyses were conducted to identify factors associated with relapse.

Results: A total of 109 PS II patients were included in the study. There were 96 patients treated with pRPLND alone and 13 treated with pRPLND + AC. Median followup was 58 months. Of the 109 patients, 20 (18%) had pN1 and 89 (82%) had pN2/3 disease. The five-year RFS was 72% for the pRPLND-only group vs. 92% for the pRPLND + AC group ($p=0.11$). Within the pRPLND only group five-year RFS differed by pN stage (pN1=94% vs. pN2/N3=67%, $p=0.03$). The presence of extra-nodal extension in the RPLND specimen was associated with relapse (HR 3.97, 95% CI 1.68–9.36, $p=0.002$). Despite a higher relapse rate within the pRPLND-only group, DSS was similar at five years (98% pRPLND-only vs. 100% pRPLND + AC, $p=0.48$). Only 24 (25%) patients in the pRPLND-only group required any chemotherapy. Extrapolating our outcomes to compare a hypothetical group of 100 patients treated with pRPLND alone to 100 with pRPLND + AC, the overall burden of chemotherapy was substantially higher in the pRPLND + AC arm (246 vs. 79 cycles).

Conclusions: The majority of men with PS II NSGCT treated with pRPLND alone do not experience a recurrence or require systemic therapy. Despite a trend towards lower relapse risk when adjuvant chemotherapy is given, no difference in survival was seen but higher chemotherapy burden was entertained. Thus, AC for patients with PS II NSGCT may constitute over-treatment.

Acknowledgements: Financial support was provided by the Dell'Elce Family Testis Cancer Research Fund.

POD 4.2

Preoperative factors that predict upstaging in non-muscle-invasive bladder cancer patients undergoing radical cystectomy: Results from a multi-institutional Canadian cohort

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Introduction: Outcomes associated with managing non-muscle-invasive bladder cancer (NMIBC) can be heterogeneous. Pathologic upstaging in the radical cystectomy (RC) specimen is identified in 30–50% of patients with clinical NMIBC. Our objective was to determine the predictive factors for upstaging among patients with clinical stage Ta or T1 tumors treated with cystectomy.

Methods: Using the Canadian Bladder Cancer information system (CBCis), we selected 341 patients with clinical stage <cT2N0M0 who underwent RC. This prospective database includes 7152 patients collected since 2015 from 14 Canadian centers in six provinces. Detailed information regarding the clinical stage, timelines, and results of RC was provided. Using descriptive and multivariable logistic regression, we determined the factors associated with upstaging to muscle-invasive-bladder cancer. Candidate variables included previous treatments, time from diagnosis to RC, histopathological features of the transurethral resected bladder tumor (TURBT), and other patient characteristics.

Results: Upstaging at the time of RC was observed in 139 patients (41%). Of those who were upstaged, 62 (44.6%), 54 (38.9%), and 23 (16.6%) were found to have pT2, pT3, and pT4, respectively. Those who were upstaged had significantly higher rates in the TURBT specimen of concomitant CIS, lymphovascular invasion (LVI), and T1 tumor. Variant histology was associated with an increased risk of upstaging. The number of tumors was not different between groups; however, the upstaged group had significantly larger tumors. Soft-tissue positive margin rates on final pathology were substantially higher for the upstaged group. Post-RC complications were similar between groups (major complication rate: no upstaging, 8.4% vs. upstaging, 7.9%, $p=0.25$) and reflected values seen in the literature.

Conclusions: Using a contemporary cohort, we found that 41% of patients who underwent RC with clinical stage <cT2N0M0 were upstaged on final pathology. Tumor factors that may predict upstaging include CIS, LVI, tumor size, cT1, and variant histology.

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POD 4.3

Experience of the virtual Canadian Testicular Cancer Second Opinion Group

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Introduction: Testicular cancer (TC) is the most frequent solid neoplasia worldwide in male patients 15–35 years, with an estimated 1100 men diagnosed annually in Canada. Despite the good prognosis, the complexity of the cases increases in the metastatic stages, and the implementation of evidence into the practice is more difficult and could potentially impact the long-term oncological outcomes. Implementing scientific evidence into clinical practice requires an active translational

process; a considerable number of studies emphasize the often-inadequate translation of evidence-based guidelines into clinical practice. Second-opinion groups have shown their utility in improving the implementation of evidence-based treatments. Our main objective is to analyze the utility of a second opinion group in changing decision-making in patients with TC in Canada.

Methods: This is a retrospective analysis of 132 cases from the virtual Canadian Testicular Cancer Second Opinion Group. The discussion of cases was carried out anonymously on the Google groups platform, in which physicians from nine different provinces and different centers throughout Canada participate, including oncologists, uro-oncologists, and radiotherapists. Collected data include patients' demographic, histological, and treatment data. From the medical standpoint, the number of answers, type of question, measured concordance between first and second opinions, and finally change in treatments after the discussion was collected. The information was analyzed retrospectively from June 17, 2014, to July 1, 2022.

Results: We included 132 cases of patients with testicular tumors and extragonadal primary germ cell tumors (GCT) in Canada. The most common histology was GCT in 94% (124/132). Among these, non-seminomas represented 72.7% (96/124). The most common clinical stage was metastatic in 94.7%. The mean of second opinions (SO) per case was 4.7, 81% of seekers got responses from at least three different centers, and 56.8% of questions received a response from at least two different specialties. The average waiting time for the total of SO was less than one day. The questions come from academic centers in 81% of the cases; the most common seeker physicians were the oncologists, with 86.4% of the questions. The most frequent questions were related to chemotherapy in 49%, the sequence of treatment in 31%, and related surgery in 28%. Comparing the first and second opinions, we found 24% of overtreatment and 26% of undertreatment, with a surprising 52% potentially changing decision-making. We did not find statistically significant predictors in the multivariable analysis with binary logistic regression assessing for changing decision-making.

Conclusions: A second opinion group could be a very valuable and inexpensive tool to improve the implementation of evidence into practice in patients with complex testicular cancers, with an important percentage of potential changes in treatment even in academic cancer centers.

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POD 4.4

Global variation in early recurrence after transurethral resection of bladder tumor in the RESECT study

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Introduction: Transurethral resection of bladder tumor (TURBT) surgery is the first and most important step in the management of non-muscle-invasive bladder cancer (NMIBC). Our goal was to determine if there is significant variation in early recurrence (first-check cystoscopy) after TURBT between sites taking part in the RESECT study (NCT05154084) after accounting for tumor characteristics.

Methods: RESECT is an international, multicenter, observational study. A mixed-effects logistic regression model with tumor size, tumor number, tumor grade, tumor stage as fixed effects, and site as a random effect was fitted. Cases with first, presumed NMIBC undergoing TURBT were included. Cases were excluded if first-check followup had not been completed. Sites were excluded if they did not have at least 10 cases with first-check followup. Local and/or national approvals or ethical exemptions were obtained before starting the study at participating sites.

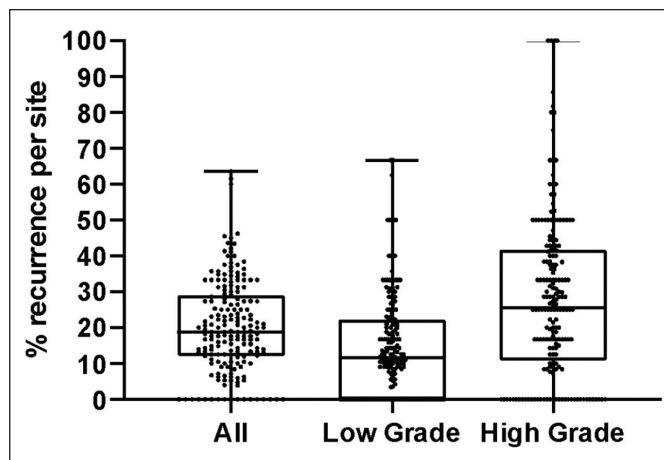
Results: After exclusions, 186 sites (UK: 80; Europe: 59; North America: 18; Asia: 17; Africa 7; South America: 3; Oceania: 2), contributing a total of 4597 cases (average 25 cases), were included. The median recurrence rate per site was 12% (IQR 0–22) for low-grade tumors and 27% (IQR 13–42) for high-grade tumors (Figure 1). After controlling for tumor size, number, stage, and grade (all significantly and independently associated with early recurrence) (Table 1), there was significant residual variation attributable to site (p<0.0001, intra-class correlation 0.1). Adjustment for sites improved the regression model from an area under the receiver operating characteristic curve of 0.66 to 0.74.

Conclusions: There is significant variation in the early recurrence rate of NMIBC after TURBT surgery between sites that could not be explained by currently understood tumor features. This may be related to site-specific surgical techniques or perioperative practice. Further investigation is warranted to understand the influence of these factors.

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POD 4.4. Table 1. Mixed effects logistic regression for early recurrence after first TURBT for NMIBC

Tumor feature	OR	p	95% CI
Diameter(cm)			
<1	1.00		
1-3	1.63	<0.001	1.29–2.08
3-7	2.55	<0.001	1.94–3.33
>7	2.42	0.003	1.34–4.38
Number			
1	1.00		
2-3	1.49	<0.001	1.24–1.81
>3	1.92	<0.001	1.56–2.36
Stage			
Ta	1.00		
Tis	2.00	0.015	1.15–3.50
T1	1.90	<0.001	1.57–2.30
Grade			
Low	1.00		
High	1.44	<0.001	1.19–1.73
Constant	0.07	<0.001	0.06–0.09
Random intercept - site	0.36	<0.001	0.23–0.57



POD 4.4. Figure 1. Early recurrence rate was measured for each participating site, stratified by tumor grade. Median recurrence per site was 12% (IQR 0–22) for low-grade tumors and 27% (IQR 13–42) for high-grade tumors.

POD 4.5

The impact of robotic surgery access on the management of patients with clinical stage I renal masses at Canadian academic centers

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Introduction: Robotic surgery is a minimally invasive technique used in the treatment of clinical stage I renal tumors. We aimed to determine if robotic access was associated with initial choice of management for patients with a clinical stage I renal mass.

Methods: Patients with a clinical stage I renal mass managed with surgery, tumor ablation, or active surveillance were identified from the national Canadian Kidney Cancer information system (CKCis) cohort. Sites were classified by year and access to robotic surgery. Associations between robotic access and initial management were determined using logistic regression. Univariable and multivariable analyses were performed, adjusting for size and stage, and presented as relative risks (RR or adjusted RR [aRR]) and 95% confidence intervals (CI).

Results: Of 4160 patients, use of partial nephrectomy was higher at sites with robotic access: 1376 (57.3%) compared to sites without robotic access 941 (53.6%) (RR 1.07, 95% CI 1.01–1.13, $p=0.02$ and aRR 1.03, 95% CI 0.97–1.09, $p=0.35$). In the subgroup treated with surgery, the proportion of partial nephrectomy was significantly higher in robotic sites (77.3% for robotic sites vs. 65.9% for non-robotic sites; RR 1.17, 95% CI 1.12–1.23, $p<0.0001$ and aRR 1.12, 95% CI 1.08–1.17, $p<0.0001$). Among partial nephrectomy patients, those treated at robotic sites used a minimally invasive approach more than patients treated at non-robotic sites (61.4% vs. 50.9%, RR 1.21, 95% CI 1.12–1.30, $p<0.0001$). There was no significant difference in the proportion of patients treated with active surveillance between robotic (405, 16.9%) and non-robotic (258, 14.7%) sites (RR 1.15, 95% CI 0.99–1.32 and aRR 0.97, 95% CI 0.84–1.12).

Conclusions: Access to robotic renal surgery was associated with increased use of partial nephrectomy and minimally invasive partial nephrectomy in the management of cT1 renal masses. The proportion of patients initially managed with active surveillance was not associated with robotic access.

POD 4.6

Radiographic predictors of muscle-invasive upper tract urothelial cancer: A Canadian cohort

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Introduction: Upper tract urothelial cancer (UTUC) is a rare and aggressive malignancy accounting for only 5% of all urothelial cancers. The association between diagnostic imaging findings and pathological findings at radical surgery is not well-established. The ability to accurately predict disease stage would aid in better selecting patients that are suitable for radical nephroureterectomy or a minimally invasive approach. Our objective was to analyze the preoperative radiological features associated with high-grade disease, lymphovascular invasion (LVI), and higher-stage disease ($\geq pT2$) at final pathology.

Methods: All patients diagnosed with UTUC from February 1, 2012, to December 31, 2018, who underwent nephroureterectomy or segmental ureterectomy were identified. Pathology reports were obtained from the Manitoba provincial pathology database. Preoperative patients', radiologic characteristics, and pathological findings were recorded. Descriptive analysis was performed. Univariate logistic regression model was used to assess relationship between radiological findings and pathological outcomes of interest.

Results: A total of 113 pathology reports of patients with UTUC were obtained. Average age at time of diagnosis was 69.3 ± 11.1 years. Patients were generally male, making up 59.8% of the cohort. Almost half (49.1%) of the tumors were located in the renal pelvis and 50.9% in the ureter. For laterality, 58 (51.8%) were on the right and one (0.9%) was bilateral. On univariate analysis, grade of tumor (14.292, 95% CI 4.008–50.955, $p<0.001$) and presence of severe hydronephrosis (3.071, 95% CI 0.949–9.925, $p=0.061$) were each independently associated with locally invasive disease ($\geq pT2$), although only grade reached significance. The presence of hydronephrosis and pelvic tumor location was not associated with locally invasive disease. For predictors of grade, severity of hydronephrosis (5.001, 95% CI 0.540–46.274, $p=0.156$), presence of hydronephrosis (2.012, 95% CI 0.721–5.618, $p=0.182$), and pelvic tumor location (1.979, 95% CI 0.690–4.066, $p=0.254$) ($p=0.156$) were associated with high-grade disease, although none of these factors reached statistical significance. For predictors of LVI, no radiological findings were found to be associated.

Conclusions: Presence of severe hydronephrosis and tumor grade were shown to independently predict presence of invasive UTUC, defined as tumor stage $\geq pT2$. Presence of hydronephrosis and tumor location did not correlate significantly to presence of high-grade disease or LVI. Overall radiological findings remain a poor predictor of disease grade and stage in UTUC.