Moderated Poster Session VI: Bladder and Penile Cancer
Friday, September 24, 3:00-4:30 p.m.

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Single or Multiple Positive Nodes at Lymphadenectomy have Similar Cancer-specific Survival in Patients Treatedf Penile Squamous Cell Carcinoma

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Background: Lymphadenectomy is important for staging and prognostication penile squamous cell carcinoma (PPSCC). The AJCC system stage IV includes any number or size of positive nodes, however it is unclear if the number of positive nodes may strongly affect the outcome of these patients. Therefore we examined the effect of the number of positives nodes in pT1-4 N1-3 M0 on cancer-specific survival after surgery for PPSCC.

Methods: We relied on a cohort of 330 patients with pT1-4 N1-3 M0 PPSCC identified in the 1996 to 2006 Surveillance, Epidemiology and End Results (SEER) database. Survival analyses relied on Kaplan-Meier plots and difference in survival rates were assessed using the log-rank test. Stratification was made according to the number of positive nodes (0 vs. 1 vs. 2 vs. 3 vs. >3). The same analysis was redone in the sub cohort of pT2.

Results: Of all patients, 129 (39.1%) were pT1, 133 (40.3%) pT2, 57 (17.3%) T3 and 11 (3.3%) T4 PPSCC. Nodal status was as follows: N0 162 (49.1%), N1 73 (22.1%), N2 50 (15.2), N3 45 (13.6%). Number of positive nodes range from 0 to 18 (median 1). In survival analysis, similar cancer-specific survival rates were recorded among patients with positives nodes, regardless the number of nodes (log-rank p>0.05, all). For example, at 1 years after surgery cancer-specific survival in pT1-4 patients with N0 vs. 1 node vs. 2 nodes vs. 3 nodes vs. >3 nodes were respectively, 97.4% vs. 81.3% vs. 81.6% vs. 78.0%. For pT2 lesions, at 1 year, survival rates were 98.6% vs. 77.1% vs. 80% vs. 77.4%.

Conclusions: Similar cancer-specific survival rates were recorded across all N+ patients. Moreover, the number of positive nodes did not seem to affect cancer-specific survival at any stage. Therefore, efforts should be made to make earlier diagnosis and deliver definitive therapy promptly.

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WITHDRAWN

P79
Radical Cystectomy for Clinically Muscle Invasive Bladder Cancer: Does Prior Superficial Disease Affect Clinical Outcomes?

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Objective: The objective of this study was to compare clinical and pathologic outcomes of radical cystectomy for muscle-invasive bladder cancer in relation to prior history of superficial transitional cell carcinoma.

Materials and Methods: Retrospective data collection from 2287 patients managed by radical cystectomy for transitional cell carcinoma of the bladder from the Canadian Bladder Cancer Network were analyzed. Patients with clinical stage T2 or more were included and divided into two groups: (1) patients with prior history of superficial transitional cell carcinoma of the bladder (356 patients), and (2) patients with clinical muscle-invasive cancer de novo (785 patients). Variables analyzed included patient age, gender, pathologic stage, adjuvant chemotherapy, tumour recurrence and survival.

Results: Both groups were nearly equal in the mean age and gender distribution, with mean age of 67.2 and 66.7 years, and 79.7% and 79.5% of patients being men in groups 1 and 2, respectively. The presence of preoperative hydronephrosis was 20.8% and 32.6% (P 0.0007) for groups 1 and 2, respectively. The incidence of higher pathological stage (T3 or T4) was 36.3% and 58% ($p < 0.0001$), positive lymph nodes was 20.1% and 28.8% (P 0.002) and lymphovascular invasion was 31.7% and 46.2% ($p = 0.0001$) for groups 1 and 2, respectively. The incidence of adjuvant chemotherapeutic treatment was 15.5% and 23.3% ($p = 0.002$) for groups 1 and 2, respectively. The overall survival (OS) and the disease specific survival (DSS) at 5 years was 62% and 70% for group 1 and 51% and 60% for group 2 respectively. At 10 years, 46% and 66% for group 1 and 35% and 49% for group 2, respectively (p [log-rank] = 0.0001 and 0.0002 respectively). In multivariate analysis, studying factors affecting OS, DSS and tumour recurrence, the presence of previous superficial bladder tumor was found to be associated with a significant reduced risk of mortality and tumor recurrence (Hazard ratio of 0.7 for all risks).

Conclusion: Our retrospective study suggests that patients with superficial transitional cell carcinoma of the bladder that progress to muscle-invasion and require radical cystectomy appear to have better pathologic and clinical outcome than patients presenting with clinical muscle-invasive disease de novo.

P80

Survival after Radical Cystectomy of Non-bilharzial Squamous Cell Carcinoma Vs. Urothelial Carcinoma: A North-American Population-based Study

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Introduction and Objectives: We sought to examine stage at radical cystectomy (RC), as well as cancer-specific mortality (CSM) rates in non-bilharzial squamous cell carcinoma (SCC) RC patients relative to patients with urothelial carcinoma (UC) RC of the urinary bladder within a large population-based cohort. We hypothesized that SCC histological subtype fares a worse survival than UC patients.

Material and Methods: Of 12311 RC cases, we identified 614 (5.0%) SCC versus 11697 (95.0%) UC individuals within 17 Surveillance, Epidemiology, and End Results (SEER) registries, between 1988 and 2006. Differences in the rates of CSM were assessed using the cumulative incidence plots that control for non-cancer related mortality. Univariable and multivariable competing-risks regression models addressed the effect of histological subtype at RC for prediction of CSM. Covariates consisted of age, gender, year of diagnosis, race, pathological T and N stages, as well as tumor grade.

Results: After accounting for other-cause mortality, the cumulative CSM rates at 5 years were 40.3 and 35.1% for SCC vs. UC patients ($p < 0.001$, Gray). For the same time point, the CSM rates in organ confined (OC) disease were 25.0 and 19.8% for SCC vs. UC patients ($p = 0.2$, Gray) and 46.3 and 49.3% respectively for the same groups of patients in non-organ confined (NOC) disease ($p = 0.8$, Gray). In multivariable competing-risks regression models, SCC was not associated with a statistically significantly higher rate of CSM than UC histological subtype ($p = 0.06$, Gray). Similarly, SCC was unassociated with a higher risk of CSM after stratification according to OC and NOC disease ($p = 0.2$ and $p = 0.1$, Gray).

Conclusions: SCC is rare, and more frequently associated with non-organ confined disease. After accounting for non-cancer related mortality, which was never previously done with Cox regression models, SCC was not statistically significantly related to a worse prognosis than UC subtypes.

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Induction of CTL -attracting Chemokines and Local Suppression of Treg-attracting Chemokines in Recurrent Bladder Cancer Requires the Combination of BCG with Interferon-a and Toll-like Receptor Ligands

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Background: Local infiltration with CD8+ effector T cells (CTLs) correlates with good prognosis in different forms of cancer. In contrast, tumor infiltration with Treg cells, predicts poor outcomes. In the current study, we determined the feasibility of selectively promoting CTL into bladder cancer, with concomitant local suppression of Treg-attracting chemokines.

Methods: Chemokine expression in untreated tumors and ex-vivo-cultured tumor explants from patients with bladder cancer was analyzed by RT-PCR (Taqman) and ELISA. The ability of CTLs and Tregs to migrate towards the differentially-treated tumors was tested in chemotaxis chambers.

Results: We observed that in the absence of activation bladder cancer explants produced only marginal levels of Teff-attracting chemokines. While BCG alone was an effective inducer of IL-8, a known inducer of neutrophil infiltration, it failed to induce local production of CXCR3 ligands (MIG and IP-10) or RANTES (CCR5 ligand), the chemokines able of attracting CTLs, TH1 and NK cells, the immune cells desirable in cancer settings. However, it's combination with IFNa and TLR3- or TLR4 ligands, such as poly-I:C or LPS allowed for strong elevation of the above chemoattractants.

Conclusions: Our data indicate the possibility to correct the BCG-induced pattern of inflammatory chemokines in bladder cancer lesions, using a modified BCG-based intravesical therapy. Our upcoming clinical trials will determine whether such tumor-selective chemokine modulation can enhance the local production of the desirable chemokines in situ and may enhance antitumor effectiveness of BCG-based treatments, by directing the desirable types of immune cells (CTLs, as well as CXCR3- and CCR5-bearing Th1 and NK cells) to tumors and limiting local Treg attraction. Supported by 1PO CA132714

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Defining Morbidity of Robot-assisted Radical Cystectomy Using a Standardized Reporting Methodology

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Background: Adverse event reporting is highly variable and nonstandardized in the urological literature. We sought to better characterize complications and identify risk factors for complications in patients after robot-assisted radical cystectomy (RARC) using a standardized reporting methodology.

Methods: Utilizing a prospectively maintained, single institution database, we identified and retrospectively reviewed 156 consecutive patients who underwent RARC with at least 90 days of follow up. All complications were analyzed and graded according to the Modified Clavien system and were also defined and stratified by organ system. Univariate and multivariate logistic regression models were used to define predictors of complications. Cox proportional hazard modeling and Kaplan-Meier survival analysis were used to correlate complication grade and overall mortality.

Results: Median age was 90 years (IQR 61-76), and median BMI was 28 (IQR 25-32). Overall, sixty-five percent (102/156) of patients experienced a postoperative complication at a median followup of 9 months. Fifty-two percent (81/156) of patients experienced a complication within 90 days of surgery. Overall, the highest grade of complication was grade 1 in 30 (19%), grade 2 in 34 (22%), and grade 3-5 in 38 patients (24%). Twenty-one percent (33/156) of patients required hospital readmission within 90 days of surgery. Gastrointestinal, infectious, and genitourinary complications were most common (31%, 25%, and 13%, respectively). An association was found between BMI and likelihood of having a grade 3-5 complication on univariate and multivariate analysis. When patients were stratified by highest Clavien grade, no difference was found in overall survival (Cox HR 0.98, 95% CI 0.64-1.50).

Conclusions: When reported using strict guidelines, surgical morbidity after RARC is significant, but the majority of complications are low grade. The highest complication grade, however, did not impact overall mortality. Stringent reporting of complications after RARC is essential to appropriately counsel patients, assess quality surgical care, and allow meaningful comparisons between open radical cystectomy series and institutions.

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Personalized Management of Upper Urinary Tract Urothelial Carcinoma: The Effect of Age on Cancer-specific Mortality

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Introduction and Objectives: The prognostic significance of advanced age on cancer-specific mortality (CSM) after nephroureterectomy (NU) for invasive upper urinary tract urothelial cancer (UTUC) is controversial. We assessed the effect of advanced age on CSM after NU in a large population-based cohort.

Material and Methods: We relied on 2824 patients, who were treated with NU for UTUC in 9 Surveillance, Epidemiology, and End Results

registries, between 1988 and 2004. Using the most significant cut-off values, age was stratified into three strata: ≤59 years vs. 60 to 79 years vs. ≥80 years. Differences in the rates of CSM were assessed using cumulative incidence plots that account for other-cause mortality. Univariable and multivariable competing-risks regression models were used to assess the effect of age on CSM.
Results: The 5-year cumulative CSM rates were respectively 14.8, 19.6, and 23.6% for patients ≤59 years of age, 60 to 79 years of age, and ≥80 years of age (Gray, $p < 0.01$). After accounting for other-cause mortality, the 5-year OCM rates for the same age groups were respectively 14.7, 28,4, and 47.5% (Gray, $p \leq 0.001$). Advanced age reached independent predictor status of CSM in competing-risks regression analyses ($p \leq 0.045$).
Conclusions: Advanced age was found to be an independent predictor of CSM after NU, even after controlling for the potentially confounding effect of other-cause mortality. In consequence, the deleterious effect of advanced age that may be related to postponed surgery should be considered in clinical decision-making.

P84
The Perioperative Mortality is Significantly Higher in Septuagenarian and Octogenarian Patients Treated with Radical Cystectomy for Urothelial Carcinoma of the Bladder

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Purpose: Data from tertiary care centers suggest that the perioperative mortality (POM) after radical cystectomy (RC) is not different in septuagenarian or octogenarian patients, compared to younger individuals. Conversely, population-based data state otherwise. We revisited this topic in a large contemporary population-based cohort.
Materials and Methods: Between 1988 and 2006, 12722 radical cystectomies were performed for urothelial carcinoma of the urinary bladder (UCUB) in 17 Surveillance, Epidemiology and End Results (SEER) registries. Of those 4480 were aged 70-79 and 1439 were 80 years and older. Univariable and multivariable logistic regression models tested 90-day mortality (90dM) after radical cystectomy. Covariates consisted of gender, race, year of surgery, SEER registry, histological grade and stage.
Results: Of all 12722 patients, 4480 (35.2%) were septuagenarian and 1439 (11.3%) were octogenarian. The overall 90dM rate was 4% for the entire population, 2% for patients aged 69 years or younger, 5.4% for septuagenarian patients and 9.2% for octogenarian patients. In multivariable logistic regression analyses, septuagenarian (OR= 2.80; <0.001) and octogenarian (OR= 5.02; <0.001) age increased the risk of 90dM after RC.
Conclusions: In this population-based analysis, POM was between 3 and 5-fold higher in respectively septuagenarian and octogenarian patients which is higher in tertiary care centers. This information needs to be included in informed consent considerations, specifically if RC will not be performed at a tertiary care center.

P85
Factors Affecting Wait Times for Transurethral Bladder Cancer Surgery

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Background: Surgical waiting times have been shown to affect quality of life and clinical outcomes of patients with urological cancer. Prolonged wait times can raise anxiety and lower daily functioning in patients diagnosed with cancer. There is data to suggest that delay in cystectomy after diagnosis of invasive cancer is associated with worse prognosis. It is intuitive that delay in diagnosis of invasive bladder cancer must similarly affect prognosis. Elucidating the factors that affect surgical waiting times may potentially have an impact on patient quality of life, morbidity, and mortality. We sought to examine the factors that influence surgical waiting times for transurethral resection of bladder tumor (TURBT), and compare them with other published literature.
Methods: We performed a retrospective review of the last 272 consecutive TURBTs in our institution. Specifically, we examined dates of referral, initial urological consultation, decision for surgery, and TURBT, as well as patient age, gender, establishment to practice, ASA score, and specific surgeon. The study was approved by our institutional review board.
Results: The median times for new patients from primary care referral to initial urological consultation, from initial urologic consultation to TURBT, from decision for surgery to TURBT, and from primary care referral to TURBT were 15, 28, 19 and 43 days, respectively. For all patients, the median time from decision for surgery to TURBT was 22 days. The statistically significant risk factors for increased wait times were age <50, later year of surgery, and specific surgeon. ASA score ≥3 approached significance ($p = 0.06$). Gender and established patient versus new patient were not associated with longer wait times.
Conclusions: Factors that adversely affected waiting times in our institution were younger age, earlier year of surgery, and specific surgeon. Waiting times for TURBT in our institution were shorter than those in other published literature. To our knowledge, this is the first data from the United States health care system which examines waiting times associated with the initial diagnosis and treatment of bladder cancer.

P86
Neoadjuvant Chemotherapy as a Predictor of Cost, Readmission and Length of Stay in Radical Cystectomy Patients

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Background: There is evidence that receiving neoadjuvant chemotherapy (NAC) prior to radical cystectomy (RC) results in improved survival over surgery alone in patients with stage ≥T2 bladder cancer (BC). NAC may be underutilized, however, due to reported concerns of increased perioperative adverse events (ADEs). Little data exist on whether NAC affects post-operative hospitalization cost, length of stay (LOS), or readmission rates.
Methods: Retrospective billing record and medical chart review of 150 consecutive patients who underwent RC from 1/2006 to 12/2008 was conducted to assess association between receipt of NAC and initial post-surgical LOS, American Society of Anesthesiologists (ASA) score, clinical stage, intraoperative parameters and patient demographics. Administrative data (ICD-9 codes) were used to assess the number of perioperative ADEs as well as calculate Risk of Mortality (ROM) and Severity of Illness (SOI) scores using the 3M APR^{TM}-DRG Classification Software. To adjust for outliers, adjusted LOS was calculated as the mean of LOS values excluding the top 10%. Association between the above variables and NAC use was examined using Student t-test. Pearson's chi-squared test was used to explore the association between NAC receipt and 90-day readmission status. Fisher's exact test was used to analyze the clinical stage difference between recipents and non-recipents of NAC.
Results: A statistically significant difference was seen in mean operative time, number of ADEs but not age, mean ASA, clinical stage, ROM or SOI scores, estimated blood loss (EBL), median or adjusted LOS, or total post-surgical hospitalization cost between recipents and non-recipents of NAC. No significant difference in readmission rate (30.23% vs. 25.00%, $p = 0.63$) was seen between these groups (Table 1) (Table 2).
Conclusions: In this series, neoadjuvant chemotherapy predicts increased operative time and number of post-operative complications but has no significant impact on the readmission rate, duration or cost of initial hospitalization in patients undergoing RC.

Table 1. P86. Comparison of demographic and perioperative variables between recipients and non-recipients of NAC

	No NAC			NAC			
Variable	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	***P*-value**
Age	129	70.26	9.09	20	66.65	13.39	0.13
ASA	102	2.59	0.64	17	2.57	0.71	0.11
EBL (mL)	123	1381.7	2027.05	19	2071.05	3574.26	0.21
Op Time (min)	111	460.24	104.58	17	512.53	93.89	0.02*
Median LOS	127	8	–	20	11	–	–
Adj LOS	115	9	3.91	18	10.9	4.49	0.05
Mean # ADEs	129	2.57	3.86	20	4.45	3.65	0.02*
ROM	129	2.09	0.87	20	1.95	0.89	0.27
SOI	129	2.9	0.56	20	2.9	0.55	0.41
Total Cost ($)	129	$48,469.00	36,198.00	20	48,850.00	17,146.00	0.94

Table 2. P86. Comparison of clinical stage between recipients and non-recipients of NAC

	No NAC		NAC		
Clinical Stage	**N**	**%**	**N**	**%**	***P*-value**
% Stage ≤cT2	103	79.8	15	75.0	0.15
% Stage ≥cT3	7	5.4	3	15.0	

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Continent vs. Incontinent Urinary Diversion after Radical Cystectomy for Urothelial Carcinoma of the Bladder: Comparison of Utilization and Complication Rates

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Introduction: Recent literature indicates that continent urinary diversion (CD) is offered to a minority of patients after radical cystectomy (RC). An elevated rate of peri-operative complications may represent an explanation for this observation. We examined the rates of immediate inpatient complications for CD vs. incontinent urinary diversion (ID).

Methods: Between 2003 and 2008, 2719 RC were performed in the state of Florida. The type of diversion and complications were recorded within the Florida Inpatient Database. Statistical analyses assessed the overall and specific complication rates in patients with CD and ID after RC. Covariates consisted of age, gender, race, hospital volume (HV) and surgical volume (SV), as well as Charlson Comorbidity Index.

Results: Between 2003 and 2008, the rate of complication after RC ranged from 9.2 to 10.5%. The overall complication rate after CD was 29.5% vs. 39.2% for ID ($p < 0.02$). In univariable models, younger age (OR: 1.02 [95% CI=1.01-1.03]; $p < 0.001$); female gender (OR: 0.78 [95% CI=0.63-0.96; $p = 0.02$) and CD (OR: 0.65 [95% CI=0.49-0.86]; $p = 0.003$) were significant predictors of lower overall complication rates. In multivariable analyses, younger age (OR: 1.02 [95% CI=0.66-1.22]; $p < 0.001$), female gender (OR: 0.72 [95% CI=0.58-0.89]; $p = 0.003$); higher HV (OR: 1.93 [95% CI=1.49-2.52] $p < 0.001$) and higher SV (OR:1.71 [95% CI=1.25-2.31]; $p < 0.001$) remained independent predictors of lower complication rates. However, after adjustment for covariates, the type of diversion failed to predict any type of complications.

Conclusions: CD does not predispose to higher rates of complications. In consequence, CD should be encouraged whenever not medically contraindicated.

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The Rates of Metastatic Bladder Cancer are Increasing Over Time: A Population-Based Analysis

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Introduction and Objectives: To assess the rate of metastatic bladder cancer at diagnosis in a population-based tumor registry.

Methods: Between 1988 and 2006, 29381 patients were identified within 17 Surveillance, Epidemiology and End Results (SEER) registries with diagnosis of bladder cancer of all stages. We examined the rates of metastatic bladder cancer at diagnosis throughout the entire study period. Multivariable logistic regression models examined the impact of year of surgery on metastatic bladder cancer diagnosis after adjusting for patient age, gender and race.

Results: The overall rate of metastatic bladder cancer was 7.1% and it increased from 6.3 to 8.4% over the study period (relative increase: 1.3%, $\chi 2$ trend: $p < 0.001$). The increase in metastatic bladder cancer rates was more pronounced in females (relative increase: 6.5%; from 1.4 to 9.1%, $\chi 2$ trend: $p = 0.4$) than in males (relative increase: 1.5%; from 5.2 to 7.6%, $\chi 2$ trend: $p < 0.001$) and in octogenarians (relative increase: 1.2%; from 8.4 to 9.8%, $\chi 2$ trend: $p = 0.7$) than in younger patients (relative increase: 1.1%; from 7.9 to 8.7%, $\chi 2$ trend: $p = 0.003$) and in Caucasians (relative increase: 1.4%; from 6.0 to 8.3%, $\chi 2$ trend: $p < 0.001$) than in other race categories (relative increase: 1.0%; from 8.8 to 8.9%, 2 trend: $p = 0.8$). Statistically significant differences in metastatic bladder cancer rates existed in various SEER registries. For example, the increase in metastatic rates was the highest in the Los Angeles and Utah registries (relative increase: 2.1%, from 6.1 to 12.6%,

$\chi 2$ trend: $p < 0.001$ and relative increase: 2.4%, from 3.8 to 9.1%, $\chi 2$ trend: $p = 0.01$). In multivariable logistic regression models age, gender and race represented independent predictors of metastatic bladder cancer diagnosis ($p \leq 0.04$). Finally, more contemporary year remained the foremost predictor of higher rate of metastatic bladder cancer at initial diagnosis ($p < 0.001$).
Conclusion: The increase in metastatic bladder cancer rate is worrisome. Delay at presentation as well as a delay in referrals may be the underlying cause behind these increasing rates. Although the increase in trends is marginal, it represents a cause for concern, which indicates that primary care physicians and patients should be better sensitized to the importance of expedited referrals and self diagnosis.

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Specificity of Urinary Cytology in the Detection and Surveillance of Bladder Cancer: A Contemporary Analysis and Comparison with Other Urine Markers
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Background: Urothelial carcinoma of the bladder is a common malignancy and a major cause of morbidity and mortality. Urinary cytology is the most widely used non-invasive test for its detection and surveillance. We aimed to re-evaluate the specificity of urine cytology during a contemporary period at our institution in comparison to other urinary biomarkers.
Materials and Methods: Data from 1,114 consecutive patients corresponding to 3,251 specimens (2,979 cytologic and 272 histologic specimens) between January 2006 and July 2006 were retrieved. Subsequent cytologic and surgical specimen reports up to 2008 were examined with a minimum two year follow-up period. Collected parameters included date of collection, reason for urinary evaluation, type of specimen (voided, washing or catherized) and tumor grade. Atypical diagnosis was considered negative.
Results: On cytological examination, 71% of specimens were benign, 23% atypical and 6% suspicious or positive for urothelial carcinoma. The reason for collection was surveillance in 61% and new symptoms in 28%. Depending on tumor grade, sensitivity results ranged from 10% for low-grade tumors to 51% for high-grade ones. Importantly, specificity of urine cytology ranged from 83% to 88% (depending on type of urine collection and type of clinical presentation), similar to other reported results from other urinary markers (40-90%).
Conclusion: Our institution's experience with regards to the sensitivity and specificity of urine cytology is lower than reported historically. Whether this is a consequence of heterogeneous study designs and parameters is open to debate. These findings need to be validated in a larger cohort of patients across several institutions to definitively evaluate whether there remains an advantage for urine cytology over the other urinary marker assays.

P90
Prostatic Stromal Invasion, a Unique Entity in Patients Treated with Radical Cystectomy for Transitional Cell Carcinoma of the Bladder
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Background: The prognostic significance of prostatic stromal invasion in patients with muscle invasive bladder cancer is not fully known. We tested the effect of prostatic stromal invasion on cancer specific mortality (CSM) after radical cystectomy in a large population based cohort
Methods: Our analysis relied on 7938 patients with transitional cell carcinoma (TCC) treated with radical cystectomy within 17 Surveillance, Epidemiology, and End Results (SEER) registries between 1988 till 2006. Univariable and multivariable models tested for the effect of pathologic tumor stage on CSM rates. Covariates consisted of age, gender, race and SEER region.
Results: Overall, 3538 patients had pT2bN0M0 tumors, 3538 had pT3N0M0, 2249 had pT4aN0M0 and 307 had pT4bN0M0. In Kaplan Meier analyses the 5 year survival was 66.7%, 45.6%, 41.6% and 18% for respective pT2bN0M0, pT3N0M0, pT4aN0M0, pT4bN0M0. (overall log rank $p < 0.001$). In a multivariable Cox regression analysis adjusted for age, gender, race and SEER region, the hazard rate of pT3N0M0, pT4aN0M0, pT4bN0M0 patients were respectively 1.96, 2.27, 4.65 relative to pT2bN0M0 patients.
Conclusions: This data indicates that patients with pT4aN0M0 TCC have significantly worse prognosis than either pT2bN0M0 or pT3N0M0 patients. Conversely patients with pT4aN0M0 TCC have significantly better survival pT4bN0M0 disease. In consequence pT4a represents a specific entity.

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Indocyanine Green (ICG): A Novel Approach to Pelvic Lymph Node Identification in Radical Cystectomy Specimens
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Background: Lymph node (LN) count has prognostic implications in bladder cancer patients who are treated with radical cystectomy. Carnoy solution and palpation may not identify all LNs, leading to additional effort and expense for report completion. Indocyanine green (ICG), a nontoxic dye with near infrared fluorescence properties, is transferred through lymphatics, allowing for identification of LNs. We investigated the ability of intravesically injected ICG to identify pelvic LNs.
Methods: We assessed 5 patients for near infrared fluorescence LN imaging using ICG intravesical injection. 0.5 to 1 mL of ICG (2.5 mg/mL) was injected at the tumor base or resection margins. LN dissection was performed within 2-4 hours. The SPY imaging system (Novadaq, Bonita Springs, FL, USA) was used to detect ICG fluorescence in pelvic LN specimens. The specimens were placed in Carnoy solution overnight and were then analyzed for additional nodes. The remaining tissue was entirely submitted. Tissue was grouped as ICG LN, Carnoy LN and residual LN.
Results: In 5 patients we identified 114 LNs, ranging from 4-36 per patient. We identified 16 (14%) of LNs with ICG, 38 (33%) with Carnoy, and 60 (53%) with submission of residual tissue. One LN contained metastatic disease and was identified with ICG (Fig. 1).
Conclusions: ICG near infrared fluorescence can identify LNs. Many ICG LNs were <1 mm in size and might have been missed with other techniques. This simple, nontoxic imaging may prove advantageous for LN identification in pelvic LN dissection specimens. Additional investigation is needed to assess this method's sensitivity, specificity and predictive values.

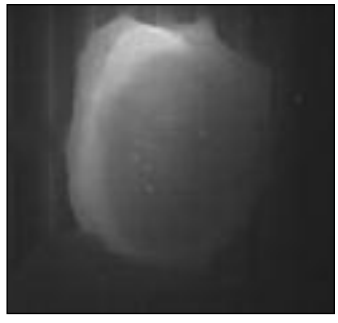

Fig. 1. P91.