

MP82-02: SURVIVAL IMPACT OF VARIANT HISTOLOGY DIAGNOSIS IN UPPER TRACT UROTHELIAL CARCINOMA

Andrew Tracey¹, Lucas Nogueira¹, Melissa Assel², Nathan Wong¹, Ricardo Alvim¹, Dean Bajorin³, Jonathan Coleman¹

¹ Urology Service, Department of Surgery, Memorial Sloan Kettering Cancer Center, New York, NY

² Department of Epidemiology and Biostatistics, Memorial Sloan Kettering Cancer Center, New York, NY

³ Genitourinary Oncology, Department of Medicine, Memorial Sloan Kettering Cancer Center, New York, NY

Introduction

- While the significance of variant histology (VH) is well-established in urothelial carcinoma of the bladder, less is known regarding its prognostic implications in upper tract urothelial carcinoma (UTUC).
- Unlike bladder cancer, VH UTUC is rarely diagnosed until the time of radical nephroureterectomy (RNU), presenting unique management challenges.
- We sought to evaluate the impact of variant histology diagnosis in RNU on patient survival outcomes at our institution.

Methods

- After excluding patients who underwent nephroureterectomy for non-urothelial primary or metastatic tumors and benign disease, we identified 705 unique patients for analysis.
- All patients had surgery at Memorial Sloan Kettering Cancer Center between January 1995 and December 2018.
- We tested the association between variant histology and cancer-specific and overall survival using separate multivariable Cox models after adjusting for pathological stage.

Characteristic ¹	Urothelial Carcinoma NOS, N = 658	Variant Histology, N = 47	p-value ²
Age	71 (64, 77)	70 (63, 78)	0.9
Surgical Approach			0.2
Laparoscopic	71 (11%)	1 (2.1%)	
Open	446 (68%)	35 (74%)	
Robotic	141 (21%)	11 (23%)	
Year of Surgery	2009 (2003, 2015)	2013 (2010, 2016)	0.003
Pathological T Stage			<0.001
pTa/CIS/pT1	365 (55%)	3 (6.4%)	
pT2	112 (17%)	11 (23%)	
pT3	168 (26%)	28 (60%)	
pT4	13 (2.0%)	5 (11%)	
Pathological N Stage			0.10
N0	170 (50%)	7 (30%)	
N1-3	84 (25%)	10 (43%)	
NX	85 (25%)	6 (26%)	
Unknown	319	24	
Lymph Node Dissection	474 (72%)	38 (81%)	0.3
Number of Nodes Removed	9 (4, 17)	13 (6, 18)	0.2
Unknown	184	9	

¹ Statistics presented: median (IQR); n (%)

² Statistical tests performed: Wilcoxon rank-sum test; Fisher's exact test; chi-square test of independence

Table 1. Patient and disease characteristics. Results are presented as median (quartiles) and frequency (%).

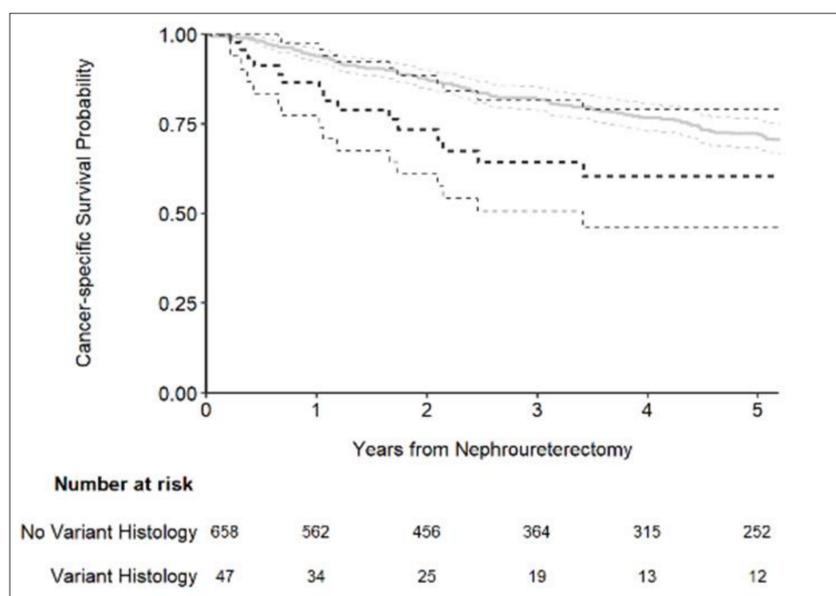


Figure 1. Kaplan-Meier plot for cancer-specific survival after nephroureterectomy, separately for patients with no variant histology (grey line) and those with any variant histology on pathology (black line).

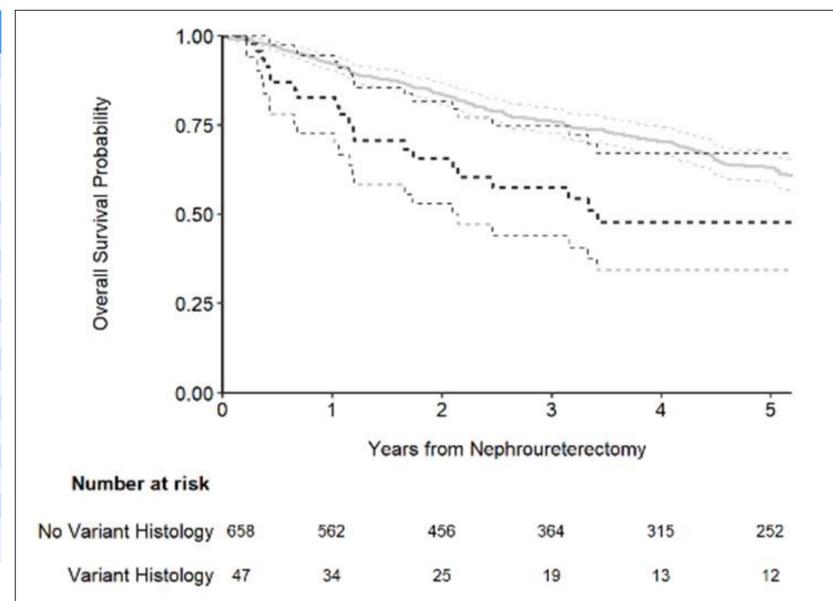


Figure 2. Kaplan-Meier plot for overall survival after nephroureterectomy, separately for patients with no variant histology (grey line) and those with any variant histology on pathology (black line).

Characteristic	Cancer-Specific Survival			Overall Survival		
	HR ¹	95% CI ¹	p-value	HR ¹	95% CI ¹	p-value
Pathological Variant Histology	1.07	0.65, 1.79	0.8	1.20	0.79, 1.84	0.4
Pathological T Stage						
pTa/CIS/pT1	-	-	-	-	-	-
pT2	2.39	1.55, 3.69	<0.001	1.36	1.01, 1.84	0.043
pT3	4.90	3.41, 7.05	<0.001	2.28	1.77, 2.95	<0.001
pT4	10.2	5.25, 19.9	<0.001	3.97	2.19, 7.21	<0.001

¹HR = Hazard Ratio, CI = Confidence Interval

Table 2. Multivariable Cox proportional hazards regression models testing the association between variant histology on pathology and recurrence-free survival, cancer-specific survival, and overall survival.

Funding Source

This work was supported by the Sidney Kimmel Center for Prostate and Urologic Cancers and by National Institutes of Health/National Cancer Institute Cancer Center Support Grant P30 CA008748.

Results

- Forty-seven (6.7%) patients had VH on RNU pathology.
- VH tended to be found in patients treated in more recent years (p=0.003), reflective of evolving pathologic recognition.
- While patients with VH were more likely to receive neoadjuvant chemotherapy (38% vs 15%; p<0.001), they were also more likely to have a higher T stage on final pathology (p<0.001).
- Overall, three hundred and thirty-nine (48%) patients experienced disease progression after the initial surgical treatment, and 182 (25.8%) patients died of UTUC.
- The presence of VH was associated with significantly worse cancer-specific (HR 1.96; 95% CI 1.19, 3.24; p=0.008) and overall survival (HR 1.74; 95% CI 1.15, 2.63; p=0.008).
- Importantly, after adjusting for pathological T stage, VH was not significantly associated with cancer-specific (HR 1.07; 95% CI 0.65, 1.79; p=0.8) or overall survival (HR 1.20; 95% CI 0.79, 1.84; p=0.4), indicating the strong associated influence of pathologic stage on survival in these high-risk patients.

Conclusion

The inferior cancer-specific and overall survival in patients with variant histology UTUC can be explained by the higher tumor stage on nephroureterectomy. We cannot exclude the possibility that variant histology is associated with up to a moderate survival benefit or harm; larger studies could provide a more precise estimate of risk.