Impact of intraoperative frozen section by location: Does it really predict significant positive surgical margins after robot-assisted laparoscopic prostatectomy?

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Objective

- To identify significant PSM-related factors predictive of BCR
- To confirm intraoperative frozen section can predict significant PSM

Materials & Methods

• 271 prostate cancer patients with RALP (2008~2016)



Results Factors associated with BCR-free survival

-	Total cohort								PSM cohort						
	Univariate				Ν	fultivariate m	odel 11		Multivariate model 2 ²						
-	HR	95%	CI	р	HR	95%	CI	р	HR	95%	CI	р			
PSM vs NSM	3.310	1.900	5.740	< 0.0001	2.681	1.474	4.878	0.0012							
Gleason pattern of PSM (vs															
NSM)															
Gleason pattern <4	1.440	0.660	3.140	0.3640	1.212	0.522	2.813	0.6551	1.000			(reference)			
Gleason pattern ≥4	6.670	3.670	12.100	< 0.0001	4.434	2.347	8.380	<0.0001	4.386	1.938	9.928	0.0004			
Length of PSM (vs NSM)															
<8 mm	2.310	1.110	4.840	0.0260	2.497	1.156	5.394	0.0198	1.000			(reference)			
≥8 mm	4.160	2.230	8.090	< 0.0001	2.804	1.441	5.456	0.0024	1.236	0.536	2.854	0.6191			
Number of PSMs (vs NSM)															
1	2.670	1.390	5.140	0.0030	2.448	1.240	4.828	0.0098	1.000			(reference)			
≥2	4.250	2.230	8.090	<0.0001	3.056	1.471	6.347	0.0027	1.147	0.445	2.955	0.7767			
Location of PSM (vs NSM)															
Apex	3.660	1.990	6.730	< 0.0001	3.861	1.919	7.768	0.0002	1.000			(reference)			
Base	5.210	2.370	11.420	< 0.0001	1.826	0.742	4.491	0.1898	1.294	0.272	6.160	0.7464			
Anterior	3.120	1.500	6.480	0.0020	2.727	1.162	6.400	0.0212	0.765	0.131	4.467	0.7663			
Posterolateral	3.560	1.800	7.040	< 0.0001	2.691	1.300	5.570	0.0076	0.908	0.158	5.219	0.9143			

Factors predicting PSMs including Gleason pattern ≥4 at each location

	Apex				Base						Anterior			
	OR	95%	CI	р	(DR	95%	CI	р	OR	95%	CI	р	
Initial PSA (continuous)														
Membranous urethra length on MRI (continuous)	0.79	0.63	0.99	0.0376					NA	0.84	0.65	1.05	0.1516	
Prostate volume (continuous)														
Clinical Gleason score (≥9 vs ≤8)														
Positive core percent (continuous)														
Maximal tumor percent of positive core (continuous)	1.02	1.00	1.04	0.0834		1.05	1.02	1.10	0.0023					
Extracapsular extension of each site on MRI (yes vs no)	4.58	1.24	17.32	0.0226						6.26	1.42	25.33	0.0106	
Seminal vesicle invasion on MRI (yes vs no)				NA									NA	
Positive frozen section of peri-urethra tissue (yes vs no)	17.85	5.40	73.25	< 0.0001					NA				NA	
Positive frozen section of bladder neck (yes vs no)				NA									NA	
Positive frozen section of dorsal vein site (yes vs no)				NA					NA					

Conclusions

- PSM with Gleason pattern ≥4 was significantly predictive of BCR
- Positive frozen sections of peri-urethral tissue were an independent predictor of significant PSM
- Intraoperative frozen sections of peri-urethral tissue may help to predict significant PSM

