



Transperineal MRI-US Fusion Prostate Biopsy Under Local Anaesthesia in Office Setting UCH Experience

George CH Wong, Cedric LF Lee, Aiden KY Ko, Viola HM Lam, Chloe HT Yu, Wilson WC Lam, Alan TO Yu, HS So
Division of Urology, Department of Surgery, United Christian Hospital

Objective

- review the patient characteristics, the cancer detection rate and the complications of transperineal MRI-US fusion prostate biopsy

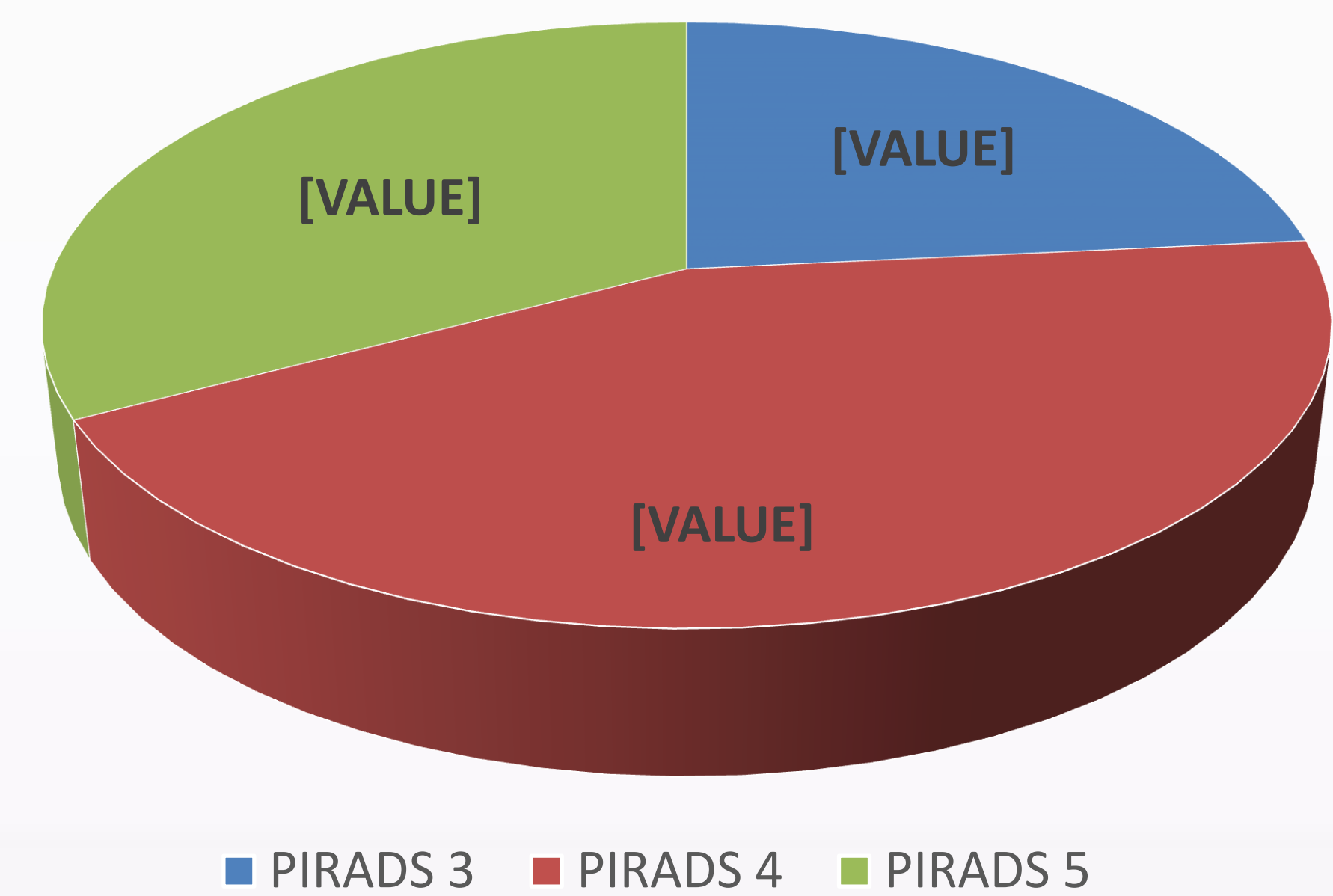
Patient and Method

- 64 patients with PIRADS 3-5 lesion identified on MRI who had undergone MRI-US fusion prostate biopsy
- Biopsy scheme included a target biopsy of 2-5 cores per target and a 12-core template systematic biopsy.
- Clinical factors including age, PSA, PSA density, prostate volume, total number of cores taken, index target diameter, 30-day readmission rate were analysed.
- The complication rate of acute urinary retention, haematuria and sepsis within 30 days were documented. In our study, the clinically significant prostate cancer is defined as ISUP grade 2 or above.
- Statistical analysis was performed using the Mann Whitney U test, independent T test for continuous variables and Chi-square test for categorical variables. All tests were 2-sided with statistical significance set at p < 0.05. All statistical analyses were performed with SPSS Statistics 29.0

Patient Demographics

Clinical Parameters	Mean (Standard Deviation)
Age	69.53 (6.409)
PSA	14.091 (13.4264)
Prostate Size (ml)	61.91 (27.586)
PSA Density (ng/ml)	0.2637 (0.20831)
Number of Target	1.61 (0.828)
Operation Time (mins)	34.86 (8.425)
Previous Biopsy (%)	
- Yes	- 64
- No	- 36

Distribution of Highest PIRADS Lesion



Result

Cancer Detection by Clinical and Radiological Characteristics

Parameter	All Cancer	P value	csCancer	P value
PIRADS		0.320		0.053
- 3	40%		15.4%	
- 4	50%		42.9%	
- 5	57.5%		47.6%	
PSA (ng/ml)	Mean 14.1 (SD13.4)	0.063		0.013
PSA density > 0.15ng/ml	61%	0.059	52.5%	0.041
Number of Target	Mean 1.6 (SD 0.8)	0.418		0.049
Total Number of Target Core	Mean 5.4 (SD 2.5)	0.598		0.049
Total Number of Core	Mean 17.4 (SD 2.6)	0.037		0.452
Index Diameter of Lesion		0.545		0.876
- > 1cm	52.0%		38.0%	
- < 1cm	42.9%		35.7%	
Prior Biopsy		0.117		0.031
- Yes	41.5 %		26.8 %	
- No	65.2 %		56.5 %	

Complication by Patient Characteristics

Clinical Parameter	Number	P value
Total number of Complication	8 (12.5%)	
- AROU (%)	6 (9.4%)	NA
- Hematuria (%)	5 (7.8%)	
- Sepsis (%)	1 (1.6%)	
Age		
Mean (SD)	66.5 (5.127)	0.154
Number of Cores		
Mean (SD)	18.75 (2.605)	0.105

Age and number of cores taken show no statistically significant correlation with the complication

Conclusion

- Transperineal MRI-US fusion prostate biopsy under local anaesthesia is feasible in an office setting, with a low complication rate. Our reported cancer detection rate was compatible with the literature.
- By omitting systematic biopsy, around 8% significant cancer will be missed, while avoiding detecting any insignificant cancer.
- PSA density > 0.15ng/ml has a statistically significant association with clinically significant cancer. -MRI-US fusion prostate biopsy is a good strategy for suspicious patients with previous negative prostate biopsy.

<http://www.hkua.org/>

