EP005 Can high resolution micro-ultrasound detect extra-prostatic extension?

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Introduction & Objectives: High-resolution micro-ultrasound is a novel 29 MHz ultrasound modality enabling real-time targeted prostate biopsies. This increase in resolution allows visualization of tissue characteristics which can be correlated with clinically-significant indications. Micro-ultrasound technology has been shown to be more sensitive to detect prostate cancer than conventional ultrasound and a viable, cost-effective clinical alternative to MRI for guiding and targeting prostate biopsies.

Materials & Methods: Images were available for 16 subjects who underwent RP following 29MHz micro-ultrasound targeted biopsy. Micro-ultrasound images were reviewed in all subjects to predict extra-prostatic extension using the anterior/apical halo feature, as well as apparent thinning or breaks in posterior capsule. Radical proctectomy reports were used as reference standard.

Results: 15/32 prostate halves in 11/16 patients had extra-prostatic extension (EPE) based on histopathology analysis of the RP specimen. Overall sensitivity to detect EPE at the patient level was 91% (10/11 cases) with positive and negative predictive values of 91% (10/11) and 80% (4/5) respectively. Looking at the two sides of the prostate independently, sensitivity was 87% (13/15) and positive/negative predictive values were 87% (13/15) and 88% (15/17).

Conclusions: Micro-ultrasound imaging appears to be predictive for EPE, both at anterior and posterior aspects of the gland. EPE may be predicted on micro-ultrasound by a thick or irregular hypoechoic halo on the anterior and/or apical capsule which has not previously been described for conventional ultrasound. More clinical data is required to corroborate this finding and more detailed examination of pathology specimens will be required to better interpret its meaning.