

Multiparametric magnetic resonance imaging and ultrasound fusion biopsy detects prostate cancer in patients with prior negative TRUS biopsies

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Background: Patients with negative TRUS biopsies but have elevated PSA and a high clinical suspicion for prostate cancer create a diagnostic dilemma. The ability of multiparametric MRI and ultrasound (MRI/US) fusion biopsy to detect distinct lesions within the prostate may make it an effective tool in this challenging group of patients.

Methods: A review was performed on all patients undergoing MRI/US fusion biopsy from March 2007 to November 2011. All patients with one or more previous negative biopsies prior to presentation at our institution were included. Patients underwent 3 Tesla MRI of the prostate with endorectal coil and had a standard 12 core TRUS biopsy + targeted MRI/US fusion biopsy of concerning lesions.

Results: One hundred ninety-five patients had previous negative biopsies. Median age was 62 years (37–80), median number of previous biopsies was 2 (1–9), and median PSA was 9.13 ng/mL (0.3–103). Of the 195 pts, 73 (37%) were found to have cancer using both modalities at our institution. MRI/US fusion biopsy detected cancer in 59 pts (81%).

High grade cancer (Gleason 8 and above) was found in 21 of the 195 pts (11%). All 21 patients (100%) were detected on MRI/US fusion biopsy while TRUS biopsy missed 12 of these high grade cancers (55%).

Conclusions: Multiparametric MRI in conjunction with MR/US fusion biopsy platform is a novel diagnostic tool for detecting prostate cancer and may be ideally suited for patients with negative TRUS biopsies in the face of a persistent clinical suspicion for cancer.