INTRODUCTION

mpMRI has gained importance in its role as a diagnostic tool for detection of prostate cancer (PCa), however it is limited by cost ineffectiveness, procedural complexity, learning curve and indeterminate results. High resolution micro-ultrasound is a new, promising alternative for real time guidance of targeted prostate biopsies. Micro-ultrasound operates at 29 MHz, resulting in resolution down to 70 microns, allowing for better diagnostic capabilities in addition to its affordability and ease of use.

OBJECTIVE

This study reports the first three months after introducing high resolution micro-ultrasound into our prostate biopsy clinic.

METHODS:

- 78 patients with suspicion of PCa (abnormal DRE or elevated PSA) were imaged using ExactVu (Exact Imaging) micro-ultrasound system.
- PRI-MUS™ (prostate risk identification using micro-ultrasound protocol) was used to locate targets (PRI-MUS ≥ 3).
- The overall presence of clinically significant PCa (csPCa; GS ≥ 7) was assessed.

RESULTS:

- Total of 792 biopsy samples taken for 78 patients.
- The micro-ultrasound detected lesions in 66 patients (PRI-MUS 3, 4, 5 in respectively 9, 31, and 26 patients) (88%).
- Biopsy identified 22/23 patients with Gleason Sum ≥ 7 with at least 1 positive target, contributing to a sensitivity of 96% (Table 1, Figure 4).
- Biopsy also revealed 11/12 patients without micro-ultrasound targets were benign.
- Retrospectively, the 1 false negative patient revealed a PRI-MUS 4 lesion missed on initial exam.

CONCLUSIONS:

- Micro-ultrasound sensitivity and NPV in detecting csPCa was 96% and 92% respectively, while specificity was 20% (possibility attributed to learning curve).
- Micro-ultrasound appears to be a valuable tool to identify and target csPCa in patients with suspected PCa.
- Micro-ultrasound also appears to be capable of reliably excluding the presence of csPCa in the great majority of patients.

REFERENCES