

García Rojo E.¹, Sopeña Sutil R.², García Gómez B.², Justo Quintas J.¹, Brime Menendez R.¹, Saenz Calzada D.³, Feltes Ochoa J.A.¹, Espinales Castro G.M.², Romero Otero J.¹

¹Hm Sanchinarro, Dept. of Urology, Madrid, Spain, ²Hm Monteprincipe, Dept. of Urology, Madrid, Spain, ³Hm Puerta del Sur, Dept. of Urology, Madrid, Spain

Introduction & Objectives: Multiparametric magnetic resonance imaging (MRI) represents the gold standard for the diagnosis of prostate cancer (PCa). The search for alternative diagnostic techniques is still ongoing. Microultrasound (MUS) is a high-frequency imaging system that provides increased resolution and has the ability to identify suspicious lesions in the prostate and biopsy them in real-time. The objective of this study is to compare the diagnostic accuracy between MUS using the ExactVu system and MRI-guided biopsy with the Koelis system.

Materials & Methods: A total of 50 consecutive patients with at least one Prostate Imaging Reporting and Data System (PIRADS) ≥ 3 lesion according to MRI were prospectively enrolled. All patients received MUS before prostate biopsy using the ExactVu system; the Prostate Risk Identification using MUS (PRI-MUS) protocol was used to identify targets. The urologists were blinded to MRI results until after the MUS targeting was completed. All patients received both targeted (based on either MUS or MRI findings) and randomized biopsies.

Results: Mean age (standard deviation) 68.75. Mean previous PSA 7.96 (6.65). Digital rectal examination was suspicious in 7 (14%) patients. Using the microultrasound system a mean of 1.61 (0.71) lesions were detected with a mean size of 63.42 (35.55) mm. A mean of 3.38 (0.81) cylinders were taken from each lesion. Nine (9.4%) PRI-MUS 3 lesions are detected, 52 (54.2%) PRI-MUS 4 and 16 (16.7) PRI-MUS 5. There is anatomical concordance of the lesions found between both technologies in 74% of the cases. Regarding pathology (ISUP), we found concordance in 75.5% of the cases. In 21 patients (42%) the results were negative in both techniques. Twenty-four (48%) patients were diagnosed with prostate cancer by MUS (15 ISUP-1, 4 ISUP-2, 2 ISUP-3, 2 ISUP-4 and 1 ISUP-5), and 28 patients by Koelis (17 ISUP-1, 4 ISUP-2, 3 ISUP-3, 3 ISUP-4 and 1 ISUP-5). 5 patients not diagnosed of PCa by MUS were diagnosed by Koelis, all of them ISUP-1. 1 patient is diagnosed by MUS of an ISUP-1 PCa, being the result of Koelis negative and 1 patient with ISUP-4 in the MUS biopsies showed an ISUP-1 result in the biopsy by Koelis.

Conclusions: Microultrasound is a promising imaging modality for targeted prostate biopsies. Our results suggest that a MUS-based biopsy strategy may be capable of diagnosing the great majority of cancers, while missing only few patients.