PRP® Diagnostic Imaging

IMAGING INSIGHTS
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Thank you to Dr John Makeham from PRP North West for contributing this issue.

ONCOLOGY - PROSTATE MRI

CLINICAL HISTORY

61-year-old male patient with raised PSA levels (4.2 mmol/L), referred for prostate MRI.

IMAGING FINDINGS

Multiparametric MRI (MP-MRI) demonstrated two foci of prostate carcinoma. The largest lesion was in the right mid-gland and base peripheral zone (**Figure 1**). A further lesion was located in the anterior mid-gland (**Figure 2**). Both lesions were T2 hypointense, had restricted diffusion on DWI and ADC, and had increased vascularity.

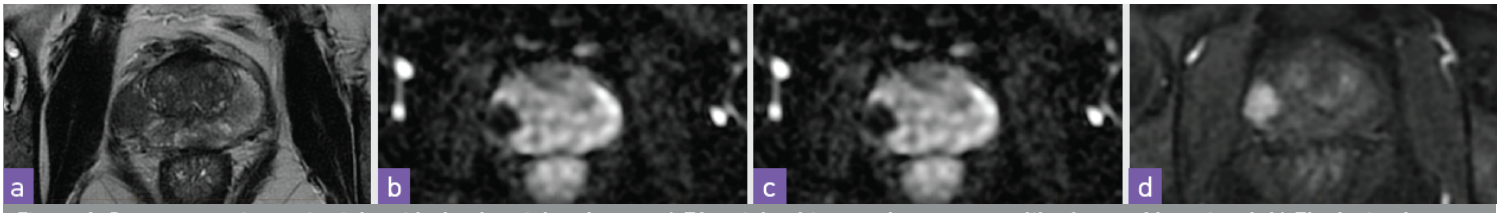

Figure 1: Prostate carcinoma in right mid-gland peripheral zone: a) T2 weighted image shows a mass-like focus of low signal; b) The lesion has increased ellularity with restricted diffusion; c) Restricted diffusion confirmed with decreased ADC; d) The lesion is hypervascular, with early focal enhancement on dynamic post contrast imaging.

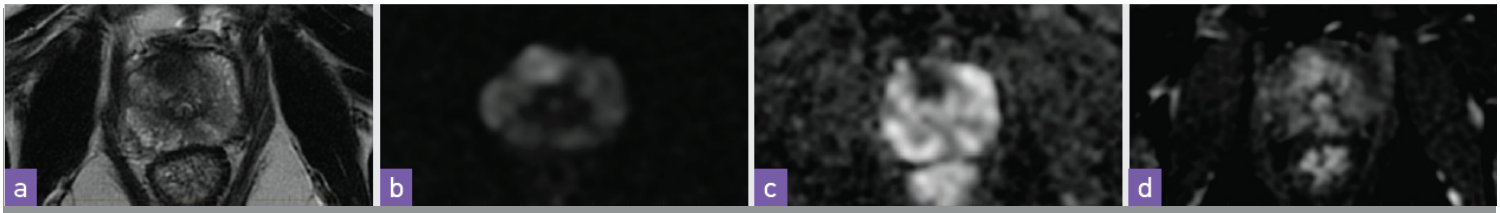

Figure 2: Prostate Carcinoma in the anterior gland shows a lesion suspicious for prostate carcinoma, with similar findings to the lesion in Figure 1: a) T2; b) DWI; c) ADC; d) Dynamic post contrast

DISCUSSION

MP-MRI:

- Has a negative predictive value (NPV) of approximately 90%[1]
- Can guide targeted biopsy of suspicious lesions, reducing false negative biopsies
- Can localise and guide targeted biopsy in anterior gland lesions, which have a higher incidence of false negative biopsy with non-targeted systematic biopsy (e.g. lesion in **Figure 2**)
- Assess for interval change of lesions in an active surveillance cohort with low grade prostate cancer
- If negative, can reduce the requirement for TRUS biopsy in low-risk patients by up to 51%[2]

Urologists routinely refer patients for MP-MRI prostate prior to TRUS biopsy to target lesions and reduce false negative results. Patients can also be referred for MP-MRI prior to urological consultation. However, urological assessment is still required in patients with suspicious PSA or DRE due to the up to 10% of patients with clinically significant prostate cancer but negative MP-MRI.

References:

1. Sathianathen NJ et al. Eur Urol 2020;78:402–14. 2. Pokorny MR et al. Eur Urol 2014;66:22–9

ADC, apparent diffusion coefficient; DRE, digital rectal examination; DWI, diffusion-weighted imaging; MRI, magnetic resonance imaging; PSA, prostate-specific antigen; TRUS, transrectal ultrasound.