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Case Report

Radiologic presentation of chronic granulomatous prostatitis mimicking locally advanced prostate adenocarcinoma

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ABSTRACT

We present a case of nonspecific granulomatous prostatitis (GP), a clinical mimic of prostate adenocarcinoma. A 54-year-old man presented with lower urinary tract symptoms and raised prostate-specific antigen. Magnetic resonance imaging showed features consistent with prostate cancer, including low T2-signal intensity in the peripheral and transition zones with signs of extracapsular extension. Diffusion-weighted imaging showed high-signal intensity, with low apparent diffusion coefficient values, whereas dynamic contrast enhancement demonstrated a type 3 washout curve, similar to that found in prostate cancer. Transperineal sector-guided prostate biopsy confirmed nonspecific GP, and the patient was treated conservatively. We discuss and compare nonspecific, chronic GP as a radiologic mimic of prostate adenocarcinoma patient.

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Case report

A 54-year-old man with symptoms of bladder outflow obstruction managed with an alpha blocker, tamsulosin, for 2 months and a 5-alpha reductase inhibitor, finasteride, for 1 month presented to urology clinic with rising prostate-specific antigen (PSA) that was 8.0 ng/mL on referral. He had suffered a coliform urinary tract infection 2 months previously that was managed successfully with antibiotics. Digital rectal examination revealed asymmetric prostate enlargement with a prominent, firm, right prostate lobe. The primary differential diagnosis was prostate adenocarcinoma.

Multiparametric magnetic resonance imaging (mpMRI) was carried out using a 1.5 T system (Signa Excite, GE Healthcare, Little Chalfont, UK) and 8-channel phased array body coil. The MRI protocol included T2-weighted images (T2) in 3 planes, diffusion-weighted imaging (DWI), and dynamic contrast enhanced (DCE) images in the axial plane.

Axial T2 showed homogenous low signal intensity (SI) involving both the peripheral zone (PZ) and transition zone (TZ) and diffusely abutting the capsule (Fig. 1). In addition, evaluation of the right posterolateral PZ at the midland level showed focal obliteration of the capsular signal and infiltration of the periprostatic fat with thickening of the ipsilateral levator ani (Fig. 2). This gave a Prostate Imaging Reporting and

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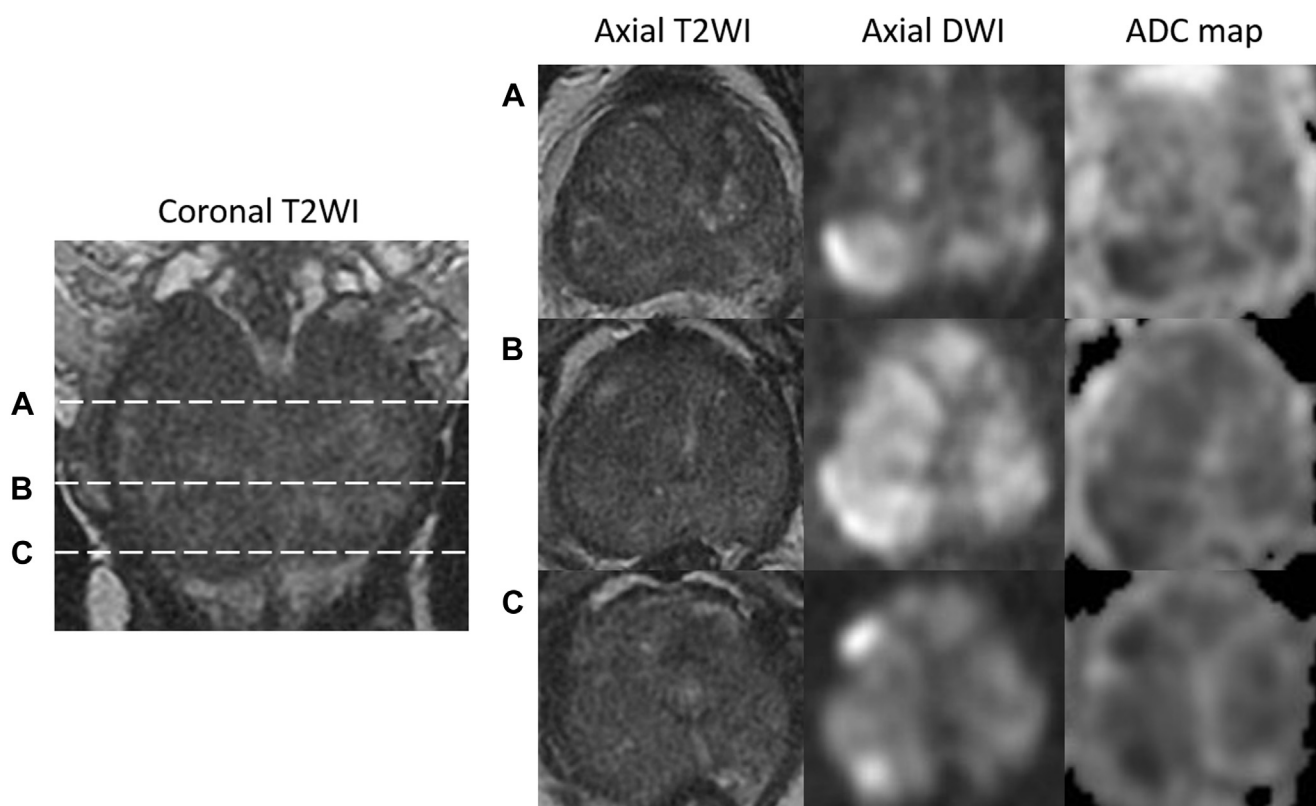


Fig. 1 – Coronal T2WI and corresponding axial T2WI DWI (b-value 1,400) and ADC maps at the levels of the prostatic base (A), midgland (B), and apex (C), demonstrating diffuse low T2 SI in the PZ and TZ and multifocal areas of high SI on the DWI and low SI on the ADC maps. This results in a PI-RADS v2 score of 5 for both T2WI and DWI [1].

Data System (PI-RADS) v2 score for T2WI of 5 [1]. PI-RADS scoring is summarized in Table 1.

High 1400 b-value DWI revealed high SI throughout the PZ and TZ with multifocal areas of particularly hyperintense SI and corresponding reduced apparent diffusion coefficient (ADC) values, ranging from 584 to $635 \times 10^{-6} \text{ mm}^2/\text{sec}$ (Fig. 3). This resulted in a PI-RADS v2 score for DWI of 5 [1]. DCE color-coded k_{trans} images (Fig. 4) showed a type 3 washout curve and asymmetric focal enhancement, scored as “positive” on PI-RADS v2.

As magnetic resonance spectroscopic imaging was not performed, the overall PI-RADS v2 score for the probability of

there being a clinically significant cancer was 5, that is, very high. Thus, a convincing radiologic diagnosis of prostate cancer was made based on the MR images, and the patient was given a provisional stage of T3a N0 disease.

A 42-core, systematic, sector-guided transperineal prostate biopsy, with additional cognitive targeting of the suspicious lesions was performed, as previously described [2,3]. Histologic analysis reported diffuse, nonspecific granulomatous prostatitis (GP). The patient was managed conservatively and discharged from urological care. His lower urinary tract symptoms were well managed on medical therapy.

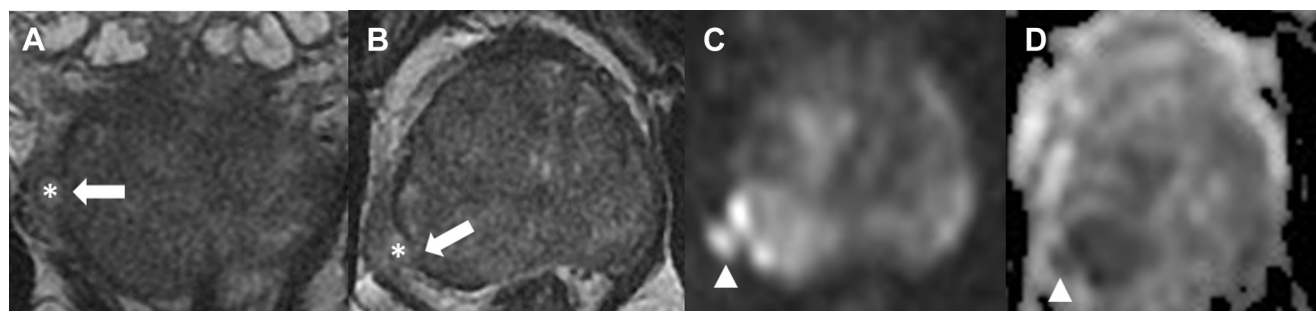


Fig. 2 – T2WI coronal (A) and axial (B) images showing focal defect in the right posterolateral PZ at the midgland level (white arrows). Abnormal T2 SI (asterisk) extends into the periprostatic fat and demonstrates restricted water diffusion (arrowheads) in the Diffusion Weighted Image (C) and Apparent Diffusion Coefficient map (D). The adjacent levator ani muscle is thickened and of abnormal SI.

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