Rare primary prostate cancer presenting with testicular and hip pain.

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A 61-year-old male was referred to the urology department of the University College London Hospitals (London, UK) after experiencing left testicular and hip pain in June 2022. Prior to the referral, his local general practitioner had prescribed antibiotics for suspected epididymo-orchitis. Symptoms improved and the patient was reassured. One month later, his pain relapsed and hip osteoarthritis was suspected. X-ray examinations were unremarkable, but upon further evaluation, a pelvic MRI demonstrated a prostatic tumour with apparent rectal wall invasion. Prostate Serum Antigen (PSA) level at the time was 0.32ng/mL (normal range: PSA < 0.4 ng/mL).

A transperineal prostate biopsy was performed which showed fragmented cores of skeletal muscle with hyperchromatic spindle cells arranged in short fascicles. Scattered mitotic figures were seen but no necrosis. The specimen was immunoreactive for EMA, Bcl-2 and CD99. There was a weak GATA3 expression. Calponin, STAT6, smooth muscle actin, desmin, DOG1, S100, CD34, AE1/3, NKX3.1 MNF116, SOX and Cam5.2 were all negative. RT-PCR detected an SS18-SSX1 fusion transcript and the absence of SS18-SSX2.

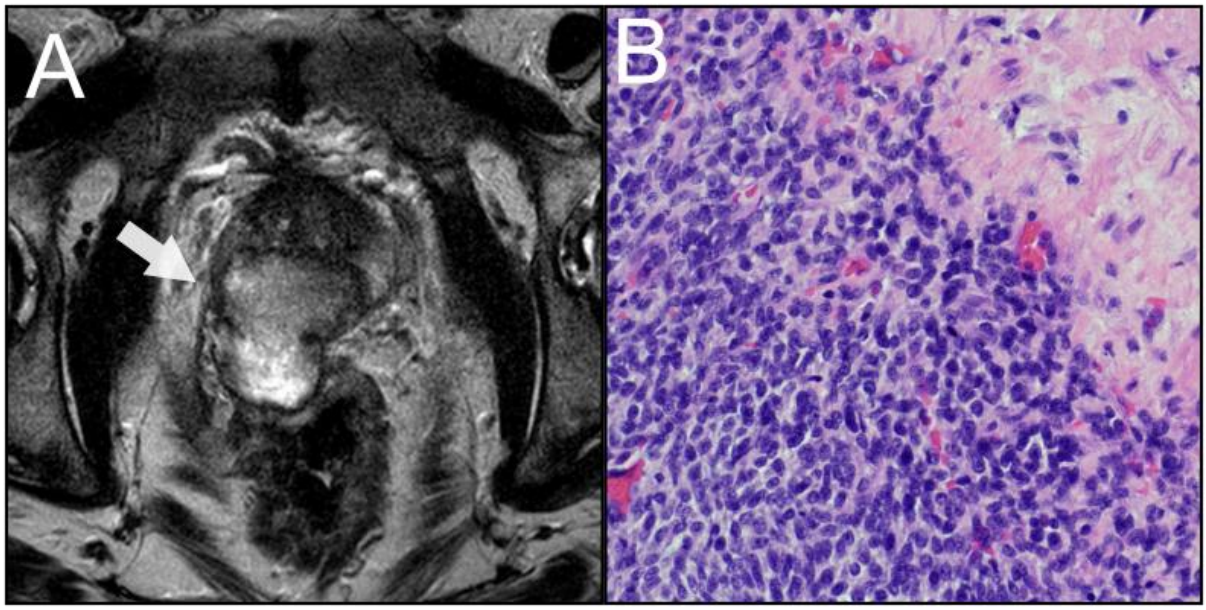

Figure. Axial T2-weighted MRI scan of the pelvis and histology of the tumour under Haemoxylin and Eosin (H&E) stain

(A) Axial T2-weighted MRI scan showing a prostatic tumour extending into the rectal cuff (arrow)
(B) Histology of the tumour with H&E stain showing monophasic spindle cells, hyperchromatic ovoid nuclei, scanty cytoplasm and inconspicuous nucleoli.

Thoracic computerised tomography and fluorodeoxyglucose-positron emission tomography (FDG-PET) scans showed no evidence of metastatic disease. The case was discussed in a multidisciplinary treatment meeting where surgical resection followed by adjuvant external beam radiotherapy (ART) treatment was deemed the best strategy based on the histological tumour variant. In September 2022 the patient underwent a robotic-assisted radical prostatectomy with rectal cuff excision, as a joint case between urology and colorectal surgeons. Final resection analysis confirmed biopsy findings. Lymphovascular, periprostatic fat and rectal serosa invasion were reported with a 1mm circumferential positive margin. The patient recovered well and was mobilising 1 mile per day from day 7. At 8 weeks of follow-up, the patient is using 1 incontinence pad per day and is now undergoing ART, 50.4 Grays in 28 fractions over 5 and half weeks. Postoperative MRI showed no evidence of residual disease or metastasis.

Rare aggressive tumour subtypes, which do not increase PSA levels, are difficult to diagnose and treat, as they usually present late. On the other hand, with the increasing use of modern imaging tools for various indications, we are seeing such incidental findings more frequently. Therefore, personalised treatments and multispecialty collaboration can yield improved functional and oncological results.

Contributors

MA contributed to literature search and writing (original draft) of the report. RA and TA contributed to supervision, literature search and writing (review & editing) of the report. AH provided pathology expertise, obtained the images, reviewed and edited the report. GS is the urologist in charge of the patient, provided clinical information, and images, reviewed and edited the report. DM is the colorectal surgeon in charge of the patient and provided clinical

information, reviewed and edited the report. Written informed consent from the patient to publication was obtained.

Declaration of interests
The authors declare no conflicts of interest in relation to the publication of this work.

Q) What is the most likely rare histological subtype of the tumour in this prostate cancer patient?

A. Small cell carcinoma

B. Ductal cell carcinoma

C. Squamous cell carcinoma

D. Synovial sarcoma

Response: D