Prostate Sarcoma – A Diagnostic Challenge Initially Suspected as Prostatitis

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Case Report

Introduction

Prostatic sarcomas are rare and aggressive malignancies, often presenting with nonspecific symptoms that mimic benign urological conditions, potentially leading to diagnostic delays [1]. This case outlines the clinical course of a 42-year-old male with a prostatic sarcoma, emphasizing the importance of early imaging, histopathological assessment, and multidisciplinary oncological management.

Case Presentation

A 42-year-old male initially presented to the emergency department in **July 2022** with new-onset flank pain. He had been experiencing progressive lower abdominal pain, dysuria, weakened urinary stream, and intermittent discomfort in the rectal region for 3 months. He denied any macroscopic hematuria but reported increased urinary frequency and dysuria occurring multiple times especially at night.

An initial diagnostic imaging with low-dose CT scan of the abdomen and pelvis revealed an inhomogeneous intrapelvic mass partially involving the prostatic lodge, along with a 6 mm calculus in the distal left ureter **(Fig. 1A)** resulting in Grade I hydronephrosis **(Fig. 1B)**. A transrectal prostate biopsy was performed, which initially failed to confirm malignancy but demonstrated a partially necrotic, myxoid mesenchymal proliferation. Immunohistochemical analysis was initiated, and empirical antibiotic therapy was commenced under the provisional diagnosis of prostatitis. PSA levels remained within normal ranges.

Multiparametric MRI of the prostate revealed a T2-weighted hyperintense **(Fig. 2A & B)**, vivid contrast-enhancing lesion **(Fig. 1C)** with diffusion restriction **(Fig. 1D)** and infiltration of the urinary bladder including the left ureteral orifice, resulting in obstructive uropathy and hydronephrosis. In **July 2022**, bilateral ureteral stents were placed without complication, and the patient was temporarily discharged into outpatient care.

In **August 2022**, follow-up reports from the pathology department confirmed the diagnosis of infiltrative unstable, partially CD34 + sarcoma without further characterisation and classification.

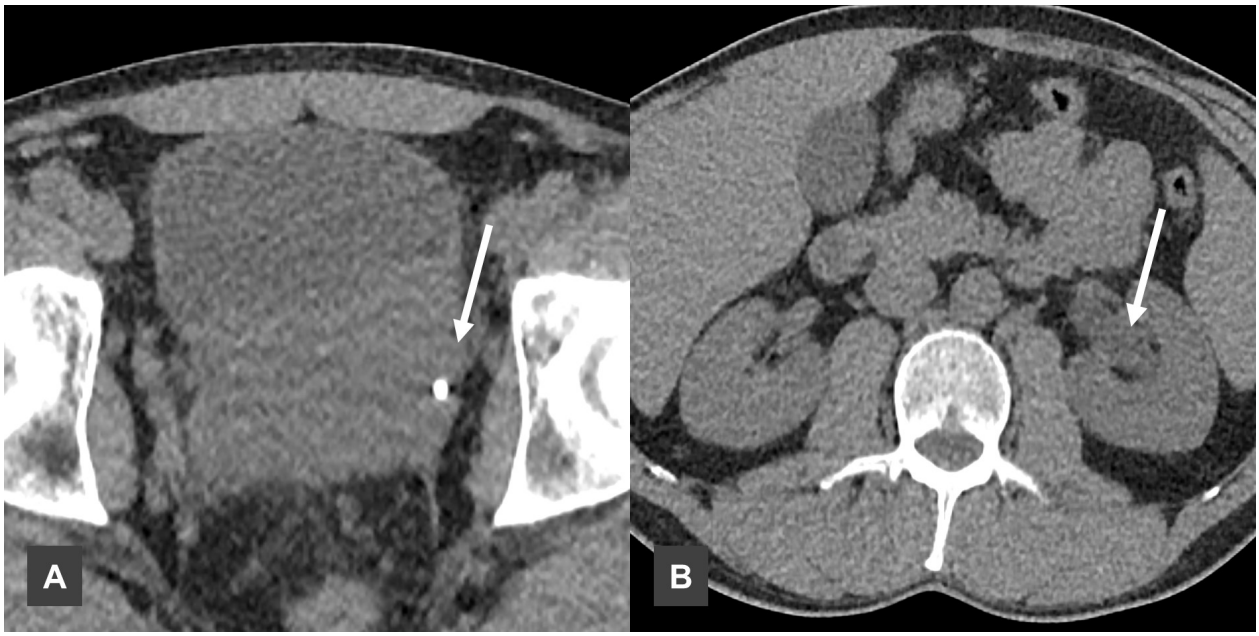

Figure 1: *A native CT scan of the abdomen for the detection of kidney stones shows an extensive tumor mass in the prostatic fossa, as well as a radiopaque lesion in the distal left prevesical ureter (arrow, A). Due to blockage of the left ureter, grade I hydronephrosis of the left kidney was detected (arrow, B).*

In the same month, the patient was referred for extended oncological evaluation, including staging imaging with CT and liver MRI, which confirmed the presence of hepatic metastases resulting in a pT3 pN0 M1, Stadium IV.

On **August 12, 2022**, a central venous port was implanted, and systemic chemotherapy was initiated with doxorubicin on day 1 and ifosfamide from day 1 to day 5 [4, 5]. Restaging in **October 2022** demonstrated a partial therapeutic response, with regression of both the primary pelvic mass and hepatic lesions.
Given the favorable interim response, the multidisciplinary tumor board recommended surgical management. The patient subsequently underwent an en-bloc pelvic exenteration in **December 2022**, including resection of the rectum, urinary bladder, and prostate, along with urinary diversion via an ileal conduit and bilateral Mono-J ureteral stent placement. Initial postoperative recovery was uneventful.

During routine follow-up in **February 2023**, imaging confirmed tumor progression, showing local recurrence, pelvic wall infiltration, involvement of the lateral limb of the right adrenal gland, worsening hepatic metastases, and the emergence of new pulmonary metastases. The patient was started on palliative chemotherapy with gemcitabine and docetaxel [6]. However, follow-up imaging in **April 2023** demonstrated further tumor progression, prompting a change in systemic therapy to pazopanib.

On **May 20, 2023**, the patient presented with a scrotal abscess, suspected to be secondary to intrapelvic tumor progression with associated small bowel perforation.

Management included surgical drainage of the abscess, CT-guided placement of a drainage system and initiation of intravenous antibiotic therapy with meropenem. Despite these interventions, the patient's clinical status continued to decline. Unfortunately the patient passed away on **June 1, 2023**.

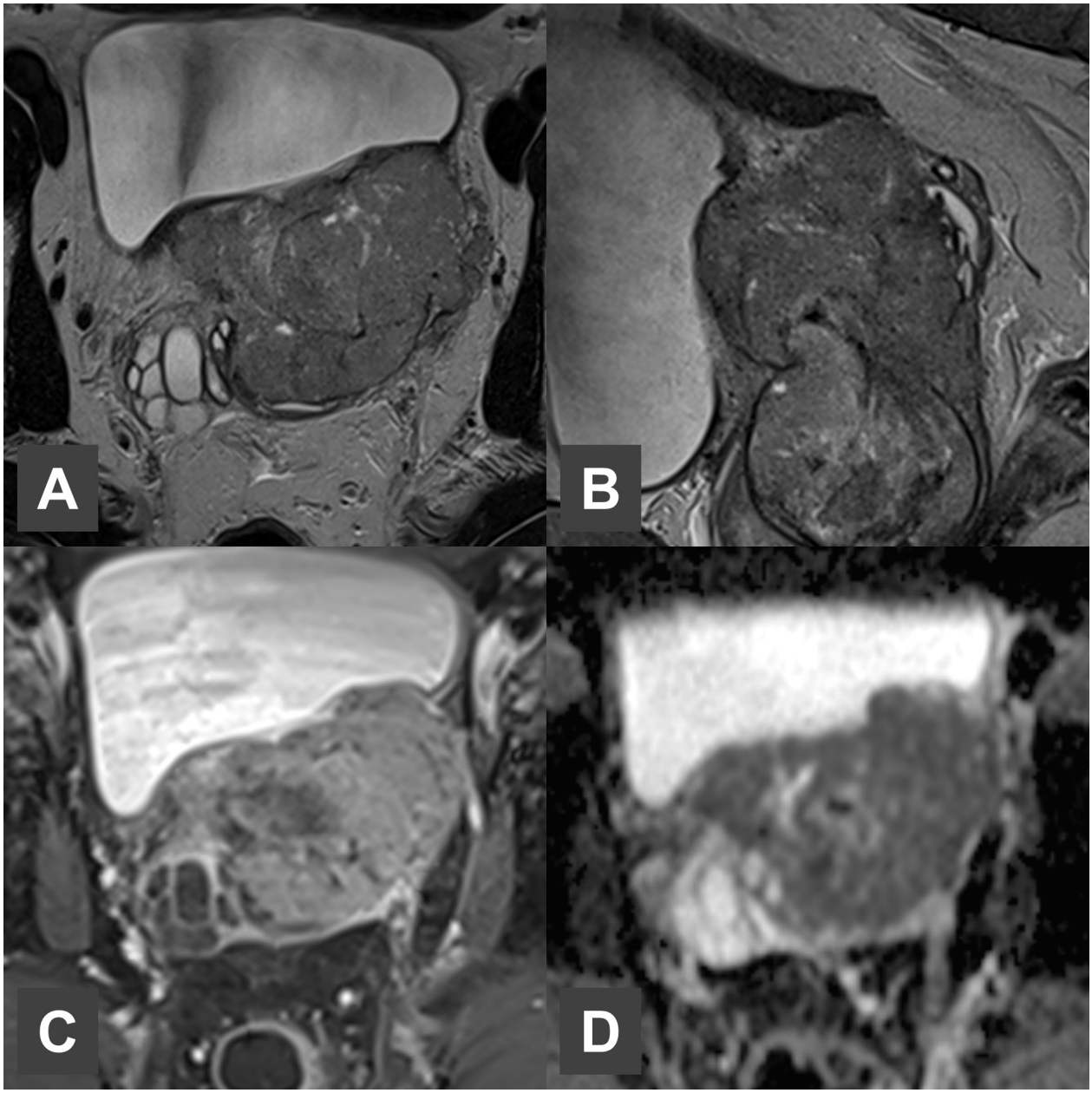

Figure 2: *Extensive solid mass of the prostate (A, T2w axial) with growth extending beyond the capsule (B, T2w sagittal). The mass shows a strong contrast enhancement and infiltrates the seminal vesicles (C). Diffusion-weighted imaging reveals a clear diffusion restriction (D, ADC map).*

Discussion

This case illustrates the complex clinical trajectory of rare primary prostate sarcoma, initially misdiagnosed due to overlapping features with benign urological conditions. Prostate sarcomas present a diagnostic and therapeutic challenge due to their rarity and nonspecific presentation [1, 2, 3]. In this case, early use of diagnostic imaging and histopathological biopsy was crucial for establishing an accurate diagnosis. Timely oncological referral and coordinated multidisciplinary care were instrumental in initiating an appropriate treatment plan. The patient received systemic chemotherapy followed by radical surgical resection, resulting in an initial favorable clinical response. However, despite comprehensive treatment, the disease demonstrated aggressive behavior, with rapid progression and early metastasis. As reflected in the literature, the overall prognosis for prostate sarcomas remains poor [7], even with multimodal therapy.

Conclusion

This case underscores the importance of maintaining a high index of suspicion in patients with atypical or refractory urological symptoms. It also highlights the critical role of a multidisciplinary approach, encompassing urology, oncology, radiology, and pathology, in managing such rare malignancies. Ultimately, the case emphasizes the ongoing need for novel and more effective systemic therapies to improve outcomes.

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Declarations

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