

Fever of unknown origin, a rare presentation of metastatic prostate cancer: Case report

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ABSTRACT

Metastatic prostate cancer can have an initial presentation with fever and systemic inflammatory response syndrome. Accurate diagnosis allows to differentiate this type of cancer from infectious conditions and to start early treatment. We report one case, in which the patient presented to the emergency department with lower urinary tract symptoms, fever and consumptive syndrome. Acute prostatitis was initially suspected, but subsequently prostate adenocarcinoma was diagnosed.

This case enables us to consider the possibility of prostate adenocarcinoma as the diagnose in patients with fever of unknown origin, and the role of procalcitonin to rule out the presence of infection.

Introduction

The widespread application of prostate-specific antigen (PSA) test from the 90's has helped in the diagnosis prostate adenocarcinoma at an earlier stage. There are a few reports which suggest that patients with a high tumor burden may initially present with systemic inflammatory response syndrome (SIRS) and fever.

To differentiate SIRS and prostate infection from an underlying prostate cancer, it is important to study this rare presentation (only seven such cases have been reported till 2013).¹ The advanced stage at presentation in these patients strongly advocates the programs of early diagnosis of prostate cancer.

Case presentation

Case 1: A 59-year-old white male was admitted by the geriatrics department of the hospital with post-prandial abdominal pain, fever that progressed over the last one month, and weight loss over 10% in the last 6 months before presentation, only mild lower urinary tract symptoms with IPSS of 8. He had no prior history of prostate cancer screening. His father died of prostate cancer at age 65. Clinical and laboratory investigations were performed and suggested only mild anemia

(hemoglobin concentration 11 mg/dL) and an elevated C-reactive protein (CRP) level (>90 mg/dL). A computed tomography (CT) scan of the abdomen and pelvis suggested osteoblastic lesions in the lumbar vertebrae (L4-L5), ribs (Fig. 1), pelvis (Fig. 2), and femur. Due to the predominant bone lesions, total PSA was measured, which was markedly increased (270 mg/mL). Therefore, a multi-parametric magnetic resonance imaging of the prostate was done and showed a Prostate Imaging Reporting and Data System (PI-RADS) 5 tumor on both sides of the prostate, extending up to the bladder. Fever was brought under control with non-steroidal anti-inflammatory drugs (NSAIDs). Procalcitonin was measured before the prostate biopsy to rule out a febrile illness associated with acute prostatitis. The biopsy showed Gleason score 10 (5 + 5) prostate adenocarcinoma in 12/12 fragments (Fig. 3) due to advanced metastatic disease. We initiated monthly hormonal blockade and chemotherapy with docetaxel with control of fever and other symptoms. Despite the control of the symptoms, patient evolved to metastatic prostate cancer resistant to hormonal therapy just two months after the last cycle of chemotherapy.

Discussion

In any patient presenting with fever and LUTS, a potential urinary

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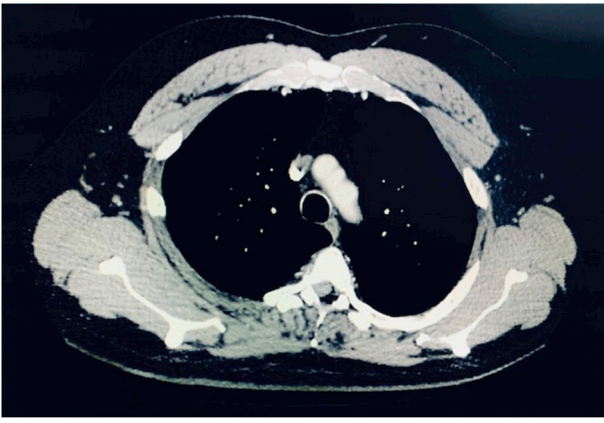


Fig. 1. CT scan of torax showing osteoblastic lesions affecting the ribs.



Fig. 2. CT scan of the pelvis suggested osteoblastic lesions in the sacrum, and the pelvic bone.

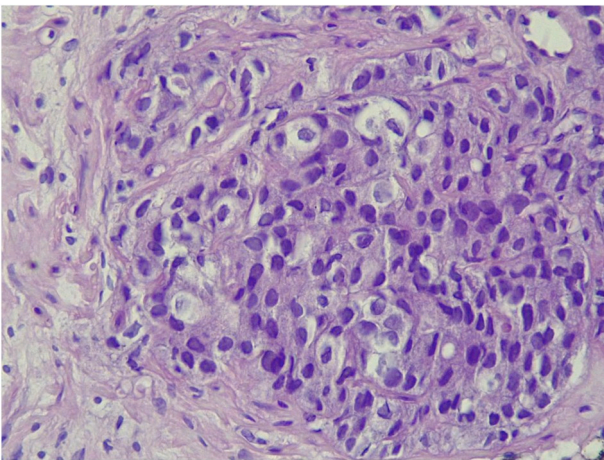


Fig. 3. Solid nests of neoplastic cells characterizing Gleason 5 pattern.

tract infection (acute prostatitis) should be ruled out. Identification and distinction between an infectious and a malignant etiology is important, since long-term antibiotic therapy is required for prostatitis and this can delay the histological diagnosis of prostate adenocarcinoma.

Conversely, in case of a paraneoplastic syndrome associated with prostate cancer, a biopsy with histological diagnosis is essential for clinical management.

To differentiate between the two diagnoses, we used clinical data, such as the level of PSA elevation, which was elevated in acute prostatitis in both patients. Gamé et al.² reported a mean maximum PSA elevation during an acute prostatitis episode of 20.08 ± 19.35 ng/mL, while Ahn et al.³ reported a mean PSA elevation of 16.8 (ranging 6.3–31.8 ng/mL) for acute prostatitis-associated sepsis. The use of urine culture to diagnose acute prostatitis can be disappointing, given the low range of positivity (30–66%).³ Per-rectal examination can help detect prostate cancer with high tumor burden and diffuse induration. In acute prostatitis, prostate examination is normal, though it can sometimes be swollen or tender. Specifically in this report, the use of CT scan helped to highlight the presence of diffuse osteoblastic metastatic disease in the axial skeleton.

Even with several indications of a paraneoplastic syndrome, we ruled out coexisting infection by measuring procalcitonin before transrectal prostate biopsy. Procalcitonin is a precursor of the hormone calcitonin and is undetectable in the bloodstream during normal physiological conditions in healthy individuals. In bacterial infections, there is a high concentration of procalcitonin in the bloodstream.⁴ In this case, we used this test to reliably rule out an underlying infection before doing prostate biopsy, which otherwise would have been catastrophic. In our experience, procalcitonin within normal limits can reliably rule out an infection.

Inflammatory cytokines play an important role in the progression and prognosis of prostate cancer. Mauri et al.⁵ report an association of high serum levels of IL-6 -a pyrogenic molecule-with advanced stages of prostate cancer which explains its possible association with fever. NSAIDs help control fever temporarily and this was observed in our patient as well.⁵

The high tumor burden associated with an aggressive pathology in such patient requires urgent systemic treatment. In our case report, we initiated hormonal blockade and chemotherapy with docetaxel, as per the CHARTED protocol.

Conclusion

In patients with fever and urinary symptoms, the possibility of an advanced prostate malignancy with SIRS, though rare, should be considered, more so in those with an elevated PSA level. Procalcitonin measurement before a prostate biopsy in patients with SIRS helps rule out potential infection and helps reach a definitive diagnosis earlier.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.eucr.2020.101126>.

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