

Virchow's Node Metastasis Due to Prostate Malignancy: A Rare Case

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Abstract

A carcinoma of the prostate gland is one of the commonest malignancies found in men contributing to significant morbidity and mortality because of its varied presentation. Known to mainly disseminate through the local, lymphatic, and hematogenous route, it can rarely metastasize to the supradiaphragmatic regions such as supraclavicular lymph node. We report one such rare case of adenocarcinoma of the prostate gland with Virchow's node as the only initial sign of presentation, which was diagnosed after a detailed examination and advanced imaging modalities.

Keywords: Adenocarcinoma, prostate malignancy, Virchow node

INTRODUCTION

Prostate cancer is one of the most common noncutaneous malignancies and the leading cause of death in men globally. It is well known to metastasize to the local regional lymph nodes with rare metastasis to supradiaphragmatic regions. Many cancers may eventually disseminate to the Virchow's node such as cancers of the lungs, esophagus, stomach, pancreas, ovaries, colon, and rectum.^[1] In spite of the uncommon presentation, metastasis from genitourinary tract should be considered in the differential diagnosis of head and neck neoplasms.^[2] Here, we present one rare case in which the diagnosis of a metastatic prostate adenocarcinoma was made on radionuclear imaging substantiated by histopathology.

CASE PRESENTATION

A 75-year-old man presented to the emergency department with the complaint of pain and swelling of his left lower limb following a fall in the pit 15 days back. There was no hematoma or bruise at the site of injury. He had no history of fever, night sweats, weight loss, dyspnea, weakness, bluish discoloration, redness, pallor, or coldness of his affected lower limb. There was no history of prolonged bed rest, recent immobilization, or long travel. His bowel and bladder functions were normal. He had a medical history

of diabetes and hypertension, which were controlled on regular oral medication.

At presentation, he had a pulse rate of 82 beats per minute, blood pressure of 130/82 mmHg, respiratory rate of 16 breaths per minute, and oral temperature of 99°F. On general physical examination, a left supraclavicular lymph node of 3 × 3 cm was felt that was round to oval in shape, fixed, nonmobile, nontender, and had an irregular surface. Small inguinal lymph nodes were also palpable bilaterally. Cardiovascular, respiratory, and abdominal system examination was unremarkable. The left lower limb examination revealed swelling extending up to the thigh with an increased warmth, mild redness, and tenderness with nonappreciable pulses due to edema. The right lower limb examination was normal except for mild pedal edema. His baseline blood investigations revealed hemoglobin of 11.6 g%, total leukocyte count of $9.33 \times 10^9/L$, and platelet count of $200 \times 10^9/L$. Serum electrolytes, liver function tests, and coagulogram

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were within normal limits. Renal function tests were mildly deranged (urea: 50mg/dL, creatinine: 1.9mg/dL, S. calcium: 8.4mg/dL, S. phosphorus: 3.5mg/dL). Urinalysis was normal. His hepatitis B, C, and human immunodeficiency virus serologies were negative. Chest x-ray was normal. Doppler ultrasonography of the left lower limb demonstrated a deep vein thrombosis (DVT) in common femoral, saphenofemoral, great saphenous, and popliteal vein. Ultrasound neck showed an enlarged well-defined lymph node in the left supraclavicular fossa with a size of $2.1 \times 4.5 \times 4.0$ with a marked internal vascularity. Ultrasound abdomen, urinary bladder, and prostate were suggestive of normal liver and bilateral

kidneys with enlarged prostate measuring 48cc (grade II prostatomegaly) with a median lobe bulging into urinary bladder base. Further investigations showed raised serum prostate-specific antigen levels (PSA; 185ng/mL). Tumor markers for gastrointestinal malignancy (alpha-feto protein, CA 19.9, CA 125) were in normal range. Fine-needle aspiration from the left supraclavicular lymph node showed metastatic carcinoma of unknown origin, possibly neuroendocrine tumor. Meanwhile, positron emission tomography of the whole body showed prostatomegaly with metabolically active nodular lesion in the apex of prostate gland with active lymph nodes and sclerotic skeletal lesions [Figure 1]. Subsequently, an

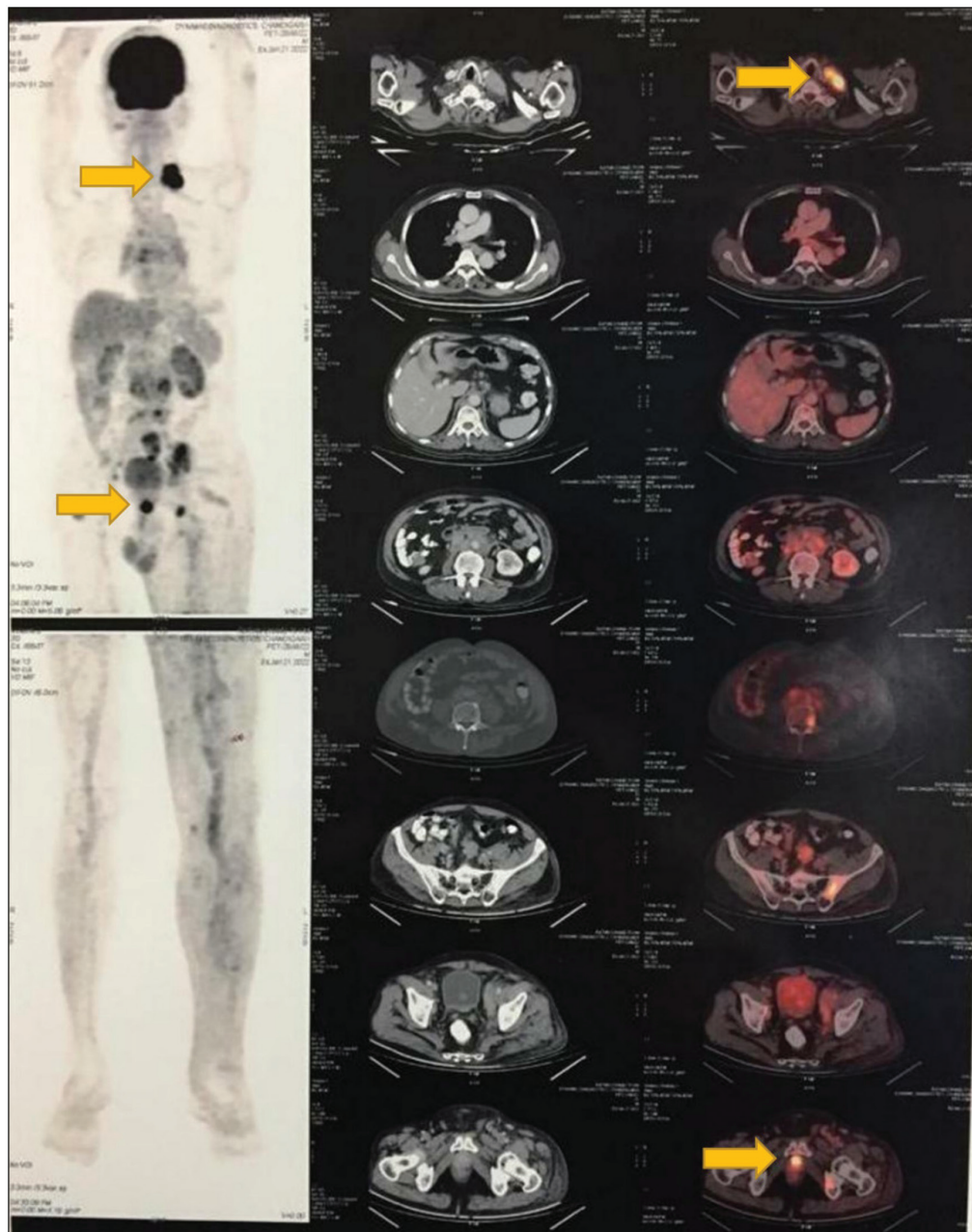


Figure 1: Positron emission tomography of the whole body showing prostatomegaly with metabolically active nodular lesion in the apex of prostate gland and active supraclavicular and other lymph nodes and sclerotic skeletal lesions

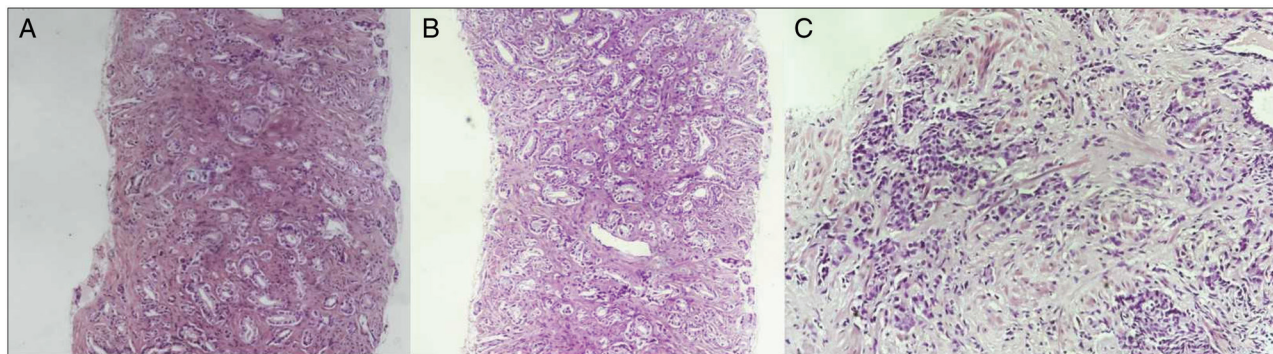


Figure 2: Histological examination from prostatic biopsy shows (a) tumor cells arranged in a glandular pattern in the fibrous stroma (200×), (b) tumor cells showing the discrete glands showing pattern 3 (200×), (c) tumor cells arranged in fused glands and cords showing pattern 4 (200×)

ultrasound-guided transrectal biopsy from the prostate showed adenocarcinoma with Gleason score of 7 and Gleason group grade of 5 [Figure 2]. The patient was started on low-molecular-weight heparin and oral anticoagulant for DVT along with the conservative management of his symptoms. Improvement was noticed during his hospital stay in terms of his swelling and pain. He was treated with androgen deprivation therapy (ADT) (leuporelin) and is on follow-up in the radiooncology department.

DISCUSSION

Prostate cancer is one of the commonest cancers among men contributing significantly to overall cancer burden globally. Lower urinary tract symptoms are common presenting features of prostatic malignancy. Among the neck lymph nodes, infraclavicular lymph node is the most common site for distant metastasis from malignancies such as genitourinary cancers with Virchow's node being rarely involved.^[3] Prostate cancer metastasizing to Virchow's node is seen in men but with a frequency of 0.5%.^[3] Park *et al.* and Abusultan reported rare cases of adenocarcinoma of the prostate gland in patients who presented with the left supraclavicular node.^[4,5]

The early diagnosis of adenocarcinoma of the prostate is mainly on the constellation of features seen on biopsy and can be further divided into acinar or ductal form, respectively. Immunohistochemical staining may further act as an adjunct in reaching the final diagnosis. Prostate neuroendocrine tumor can develop *de novo*; however, it is commonly seen in patients diagnosed as prostate cancer with androgen deprivation or neuroendocrine differentiation in adenocarcinoma of the prostate.^[6] Kumar *et al.*^[7] and Sleiman *et al.*^[8] had reported cases of prostate neuroendocrine tumor with PSA within the normal limit, which were in contradiction to our case. Neuroendocrine tumors differ from adenocarcinoma of the prostate by the absence of PSA secretion, resistance to hormone therapy, and tendency to metastasize early along with rapid progression. Newer genomic technologies such as genome sequencing and genotyping array can help in diagnosing even the rare entities such as small-cell prostate cancer.^[9]

The treatment mainly depends on the anatomical and histological severity of the disease along with serum PSA level. The various treatment modalities of prostate cancer include the ADT or using combined therapies such as docetaxel, abiraterone, apalutamide along with ADT. Because prostate cancer can lead to severe deterioration of the quality of life, such patients should be helped with systemic therapy that aims to palliate the pelvic symptoms such as pelvic pain, hematuria, and lower urinary tract and rectal symptoms.

CONCLUSION

Although a rare presentation of the prostate cancer, any elderly male patient presenting with supraclavicular lymph node should be evaluated for adenocarcinoma prostate of the undetermined origin, even in the absence of symptoms. With the advanced treatment modalities available, it is important for clinicians to have a high index of suspicion in order to diagnose this condition at the earliest and institute therapy to have a favorable outcome, thus preventing the morbidity and mortality related to this malignancy.

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Conflicts of interest

There are no conflicts of interest.

Authors' contributions

TR and VK: case presentation, data collection, investigations, and writing of the original draft; JK: literature review, writing of the original draft including discussion, conclusion, and formatting; MG: intellectual content, literature search, and final editing of the article and review.

Ethical consideration

The study was conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki. It was carried out with patients verbal and analytical approval before sample was taken. The study

protocol and the subject information and consent form were reviewed and approved by a local ethics committee.

Patient declaration of consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initial will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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