

Prostate adenocarcinoma presenting as diffuse osteolytic metastases

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Abstract

Prostate cancer is one of the most common cancers that metastasize to the bone. bone metastasis is usually osteoblastic, and diffuse osteolytic lesion on presentation is unusual. Here, we are reporting MRI image of patient presented with diffuse osteolytic lesion and found to have metastatic prostate cancer.

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Abstract:

Prostate cancer is one of the most common cancers that metastasize to the bone. bone metastasis is usually osteoblastic, and diffuse osteolytic lesion on presentation is unusual. Here, we are reporting MRI image of patient presented with diffuse osteolytic lesion and found to have metastatic prostate cancer.

Key clinical message:

Prostate cancer can present as diffuse osteolytic bony lesions and clinician should keep in mind such differential when encountering such presentation.

Case presentation

A 44-year-old Asian male who is not known to have chronic diseases and presented with a 1-year history of dull aching backache. Initially, it was mild, relapsing-remitting in nature, but it has become more progressive lately. It is not related to movement and is present both day and night. It was not associated with stiffness, but the patient reported 8 kg unintentional weight loss during the last six months. The patient reported some leg weakness also during the last few days. He denied fever and sensory symptoms with no urinary or fecal incontinence. The patient is a nonsmoker and drinks alcohol on social occasions. He has no family history of cancer. The examination was unremarkable except for mild lower limb weakness due to pain in the back and lower limbs. Laboratory workups were shown a normal complete blood count and renal function test. His serum alkaline phosphatase was 153 U/l, and serum prostate-specific antigen was 633 ng/ml. MRI spine (image 1)revealed widespread multiple variable size osteolytic metastatic lesions in the cervical, dorsal, lumbar, and sacral vertebral bodies and a few appendicular sites showing T1 low, T2/STIR bright signal with postcontrast enhancement mainly at C5, C7, T2, T3, T6, T7, T9, T11, T12, and to, L4, S1, and S2 levels. Computed tomography of the abdomen and pelvis redemonstrated multiple spines and diffuse destructive lytic pelvic bony lesions. It showed large expansile soft tissue lesions with bony destruction involving bilateral sacroiliac joints, multiple enlarged iliac lymph nodes, and an enlarged non-homogenous prostate. PET scan

confirmed our findings. CT-guided right iliac Bone lesion biopsy was done, and histopathology showed metastatic adenocarcinoma of prostatic origin. IHC stains for NKX3.1 and AMACR showed that tumor cells are robust and diffusely positive and IHC stain for PSA is focally positive. The patient was diagnosed with metastatic prostate cancer, and we planned to start him on androgen deprivation therapy and bone modifying therapy.

Discussion

Prostate cancer is one of the most common cancers that manifest as bone metastasis. The nature of the bone lesion in prostate cancer is typically osteoblastic, but osteolytic bony metastasis as first presentation has been reported.^{1,2} it's not uncommon to see osteolytic lesion in prostate cancer as seen in one study by Cheville et al. which found that 16.4% of osseous prostatic cancer metastatic lesions were lytic but prostate cancer with first presentation of diffuse osteolytic lesion was not commonly reported.³ Although the pathophysiology of prostate cancer was thought to be osteoblastic; emerging evidence suggests that the development of prostate cancer bone metastases requires osteoclastic activity and osteoblastic activity. Prostate cancer cells produce a variety of pro-osteoblastic factors that promote bone mineralization. In addition to factors that enhance bone mineralization, prostate cancer cells produce factors like the receptor activator of NF κ B ligand (RANKL) that promote osteoclast activity.⁴ Indeed, Osteolysis has been implicated in tumor cell seeding and nourishment of tumor growth via the development of pro-tumorigenic changes in the microenvironment.⁵ clinicians and radiologists should keep in mind that prostate cancer can present with diffuse osteolytic lesions in a good proportion of patients and prostate cancer should be an important differential to be considered in such cases.

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CONSENT

Written informed consent was obtained from the patient for the publication of this case report

CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

AUTHOR CONTRIBUTIONS

Mohanad Faisal: Data collection, literature review, consent taking, and manuscript writing.

Abdulrahman F. Al-Mashdali : Final manuscript review and editing.

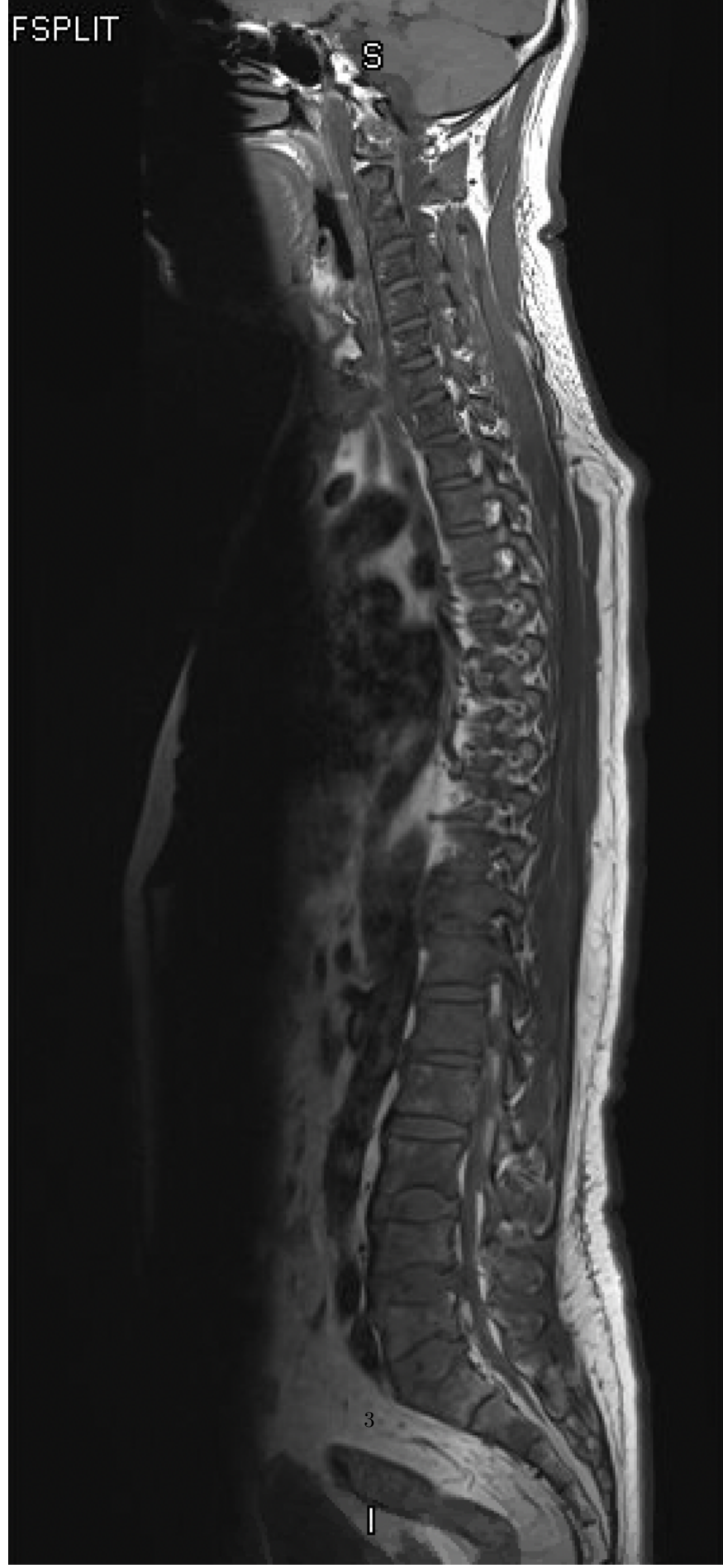
Noor Jasim: image editing, manuscript writing

Mohamed Salem Ismail Khalil: supervision, clinical follow up

All authors reviewed and approved the final version of the article.

DATA AVAILABILITY STATEMENT

Available upon request





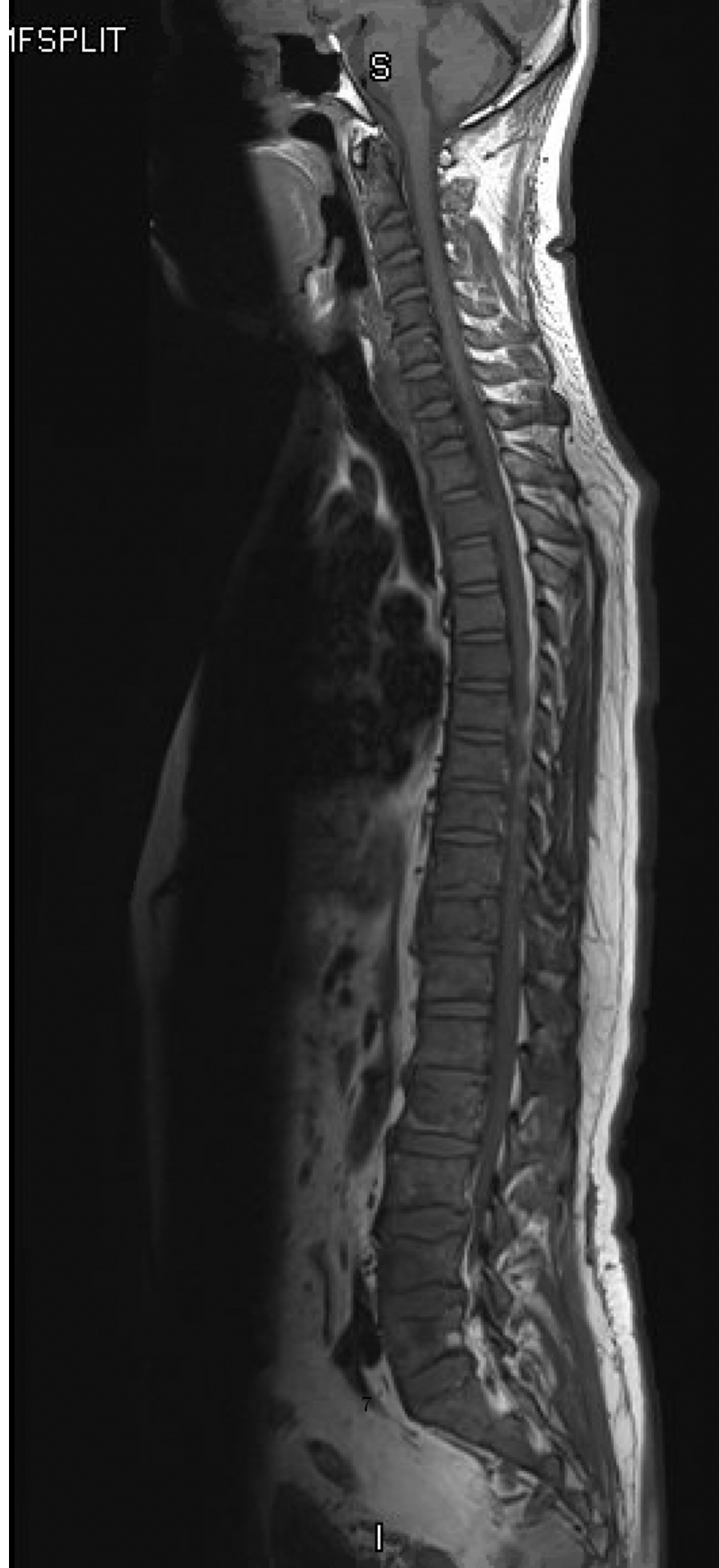


Image 1 : MRI of the spine showing widespread multiple variable size osteolytic metastatic lesions in the cervical, dorsal, lumbar, and sacral vertebral bodies and a few appendicular sites showing T1 low, T2/STIR bright signal with postcontrast enhancement mainly at C5, C7, T2, T3, T6, T7, T9, T11, T12, and to, L4, S1, and S2 levels.

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