



Diffuse Osteosclerosis in Metastatic Prostatic Cancer: The Plain Radiographic Findings and a Case Report

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ABSTRACT

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Prostatic cancers commonly metastasize to bone, leading to either osteoblastic or osteolytic lesions. In cases of osteoblastic deposits; diffuse osteosclerosis may sometimes occur. Patients with diffuse osteosclerosis may have very high bone mineral density (BMD), which can be detected by bone density scans.

This is a 65-year-old man with a diagnosis of prostatic cancer referred from a peripheral facility for chest and pelvic radiographs. The patient had complaints of severe pains involving almost all the bones in his body, this started from lower back and the pelvic bones with subsequent inability to move the limbs especially the left. The plain radiographs showed diffuse osteosclerosis to involve all the demonstrated bones with associated subtrochanteric fracture of the left femur. The patient's total and free prostate specific antigen (PSA) were very high, the prostatic biopsy confirmed adenocarcinoma.

We present a case of diffuse osteosclerosis in a confirmed case of prostatic cancer due to its peculiar presentation and to review the literature.

KEYWORDS:

Diffuse osteosclerosis,
Prostatic cancer, Metastasis,
Bones.

INTRODUCTION

Prostate cancer is the second most common cancer in men and the fifth most common cancer worldwide. Prostate cancer frequently metastasizes to bones and often appears osteosclerotic and common in African-American men¹⁻³.

Prostate cancer can also metastasize to other body organs and tissues; these may also contribute significantly to the morbidity associated with advanced cases of prostatic cancer^{1, 4, 5}.

Fractures are increased among patients with prostate cancer, more especially among those on androgen deprivation therapy, only few data available in patients with localized disease⁶. Bone involvement in metastatic prostate cancer is about 88% and commonly seen in blacks⁷.

Prostatic malignancy may also be a cause of a high bone mineral density (BMD), even in the absence of typical localized findings on imaging (plain radiographs)⁸.

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In prostatic malignancy, the bones frequently involved are the vertebrae, sternum, pelvic bones, ribs and femurs, and predominantly osteosclerotic in radiographic appearance. This appearance may be due to pathologic activation of osteoblast or osteoclast and the predominance often influenced by the specific interaction of the tumor with the bone environment⁹⁻¹¹.

CASE REPORT

This is a 65-year-old man with a diagnosis of prostatic cancer referred from a peripheral facility for chest and pelvic radiographs. The patient had complaints of severe pains involving almost all the bones in his body, this started from lower back and the pelvic bones with subsequent inability to move the limbs especially the left. The plain radiographs showed diffuse osteosclerosis to involve all the demonstrated bones with associated subtrochanteric fracture of the left femur (Figures 1&2). The patient's total and free prostate specific antigen (PSA) were very high, the prostatic biopsy confirmed adenocarcinoma.

The patient presented with difficulty in micturition, frequent urination, occasional split stream urination, feeling of

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incomplete bladder emptying, painful ejaculation and blood in urine.

The patient had prostatectomy previously, with recurrence and metastasis he's currently on chemotherapy.

We present a case of diffuse osteosclerosis in a confirmed case of prostatic cancer due to its peculiar presentation and to review the literature.

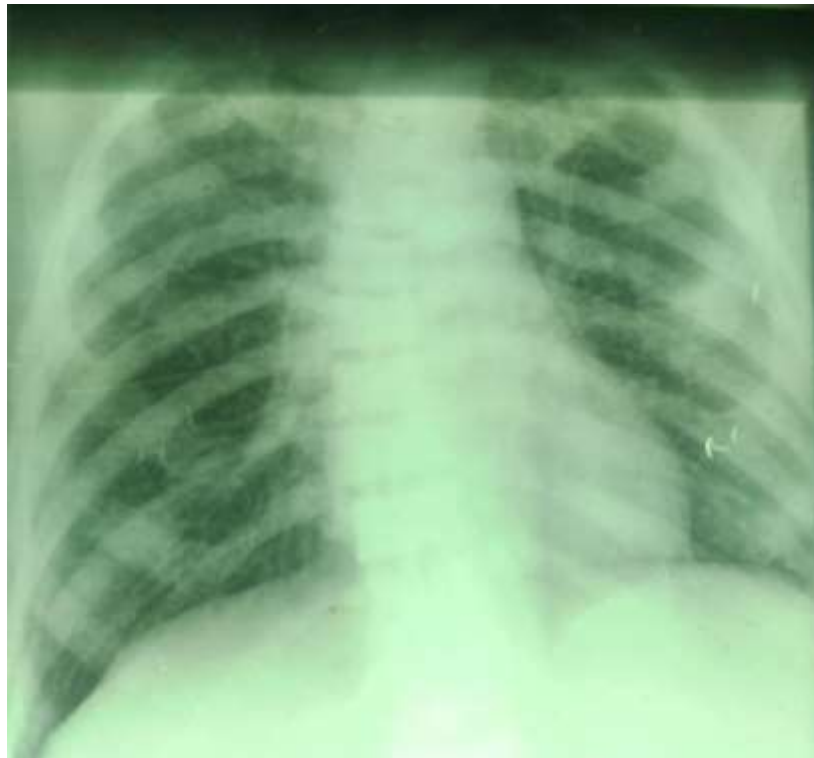


Figure 1: A plain chest radiograph demonstrating osteosclerosis involving all the depicted bones, gentle scoliosis is also demonstrated. The lung fields show streaky opacities with cystic lung changes bilaterally most likely from chronic bronchitis. No pulmonary nodules demonstrated. No obvious fracture seen to involve the bony thorax demonstrated.



Figure 2: Plain radiograph of the pelvis showing the lower lumbar spine and proximal femur bilaterally. The demonstrated bones show diffuse osteosclerosis with a subtrochanteric fracture of the left femoral neck.

DISCUSSION

Prostate cancer frequently metastasizes to bones and often appears osteosclerotic and common in African-American men¹⁻³. The case under review is of African descent, and has diffuse osteosclerosis involving all the demonstrated bones, thereby conforming to these literatures.

Prostate cancer can also metastasize to other body organs and tissues; these may also contribute significantly to the morbidity associated with advanced cases of prostatic cancer^{1, 4, 5}. The patient under review had no confirmed metastases to other organs as at the time of this report.

Prostatic malignancy may also be a cause of a high bone mineral density (BMD), even in the absence of typical localized findings on imaging (plain radiographs)⁸. Though the BMD was not calculated in the index case, it's suspected to be high due to associated diffuse osteosclerosis demonstrated on the available plain radiographs, thereby conforming to this literature.

Fractures are increased among patients with prostate cancer, more especially among those on androgen deprivation therapy, only few data available in patients with localized disease⁶. Bone involvement in metastatic prostate cancer is about 88% and commonly seen in blacks⁷. The case under review is a confirmed case of prostatic cancer, and of African descent, with generalized bone osteosclerotic metastasis and associated femoral fracture but not on any androgen deprivation therapy as at the time of this report.

In prostatic malignancy, the bones frequently involved are the vertebrae, sternum, pelvic bones, ribs and femurs, and predominantly osteosclerotic in radiographic appearance⁹⁻¹¹. The index case had osteoblastic metastasis to the aforementioned bones, thereby conforming to these literatures.

CONCLUSION

Diffuse osteosclerosis is a form of advanced disease in patients with prostatic cancer, this should be suspected with increase in pains and debility in this group of patients, and can be demonstrated following plain radiographs that are readily available and affordable in our environment.

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