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Case report

Subtrochanteric femoral fracture: an unusual first manifestation of prostate carcinoma. A case report

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Abstract

Background: Prostate cancer is a prevalent malignancy, particularly among older males, characterized by slow growth. Late presentation is common due to its peripheral zone origin. Lower urinary tract symptoms (LUTS), back pain, and anemia are frequently associated with prostate carcinoma. Pathologic fractures resulting from prostate carcinoma are relatively rare due to its blastic nature, and it is even more unusual for a fracture to be the initial presentation. **Case Report**: We present the case of a 75-year-old male who experienced a pathological fracture in the left subtrochanteric region of the femur as the first manifestation of prostate cancer. This case highlights the need for a multidisciplinary team approach in managing such cases. **Conclusion:** The occurrence of a subtrochanteric femur fracture as the initial presentation of prostate cancer is a rare phenomenon. This case underscores the importance of considering prostate cancer as a possible underlying cause of atypical fractures and emphasizes the need for a multidisciplinary approach to ensure optimal patient care and management.

Keywords: *Femoral Fracture, Prostate Carcinoma, Subtrochanteric*,

Introduction

The femur is the most common long bone to be affected by metastasis. [1] Proximal femur is involved in about 50% of cases. Even in the proximal femur, the head and neck of femur are involved in about 50%, and the intertrochanteric region and subtrochanteric area make up the remaining 20% and 30% respectively.[1]

Prostate cancer (CaP) is the most frequently diagnosed malignancy in men.[2] The skeleton is a common site of metastases in prostate cancer, indeed, more than 90% of patients with metastatic castration-resistant prostate cancer (CRPC) have evidence of bone metastases.[3] Patients with prostate cancer usually present with LUTS, pathological femoral fracture as the first clinical manifestation is very rare because of the characteristic osteoblastic deposition.[4]

We report a 75-year-old man with a subtrochanteric fracture of the left hip as his first symptom of prostate carcinoma and briefly described how we managed him.

Case report

A 75-year-old man was brought to the orthopaedic outpatient clinic in a wheelchair with complaints of pain in the left hip with an inability to bear weight on the limb following a give while he turned in his sleep.

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He was well until two weeks before presentation when he started feeling slight pain in the left hip. No prior history of trauma or fall, no history of fever or night sweats, and no history of ingestion of unprescribed drugs. No LUTS.

Examination revealed an ill-looking man in painful distress and pallor. Examination of other systems was not contributory; digital rectal examination revealed a firm, slightly enlarged prostate with some nodularity and obliteration of the median groove and lateral sulci. A plain pelvic radiograph showed a subtrochanteric fracture of the left proximal femur with lytic destruction of the medial cortex (fig. 1).

Pelvic ultrasound showed an enlarged prostate with a volume of 53.39 ml with a regular outline and heterogenous echo pattern and spikes of calcification within it. Serum prostate-specific antigen (PSA) was 100 ng/ml. We did a prostate biopsy which showed adenocarcinoma Gleason grade 5, score 5+4. An ultrasound-guided biopsy of the fractured site showed metastatic deposits.

The patient required a multidisciplinary approach with orthopaedic surgeons and a urologist; he had cemented bipolar long stem hemiarthroplasty (fig. 2 and 3) for the subtrochanteric fracture, and bilateral total orchidectomy. Histology of the removed head, neck, and trochanter showed tumour deposits. The patient did well post-operatively and was ambulating on parallel bars after ten days and was discharged home on a Zimmer frame. During a month's follow-up, prostate-specific antigen dropped to 60 ng/ml with satisfactory improvement in the patient's general condition. At three months postoperatively, it further dropped to 4ng/ml and had

Fig. 1: X-ray of the pelvis showing subtrochanteric left femur fracture. Lytic lesion destroying medial cortex (blue arrowhead)

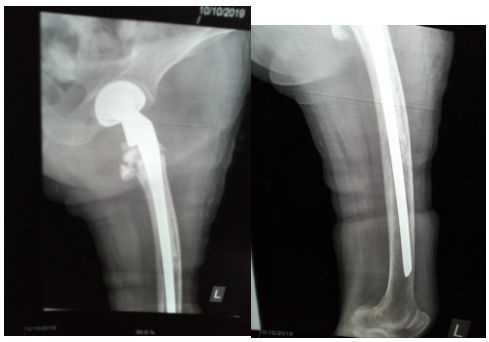

Fig. 2 and 3. Showing plain radiograph of long stem cemented bipolar hemiarthroplastyFig. 2 and 3. Showing plain radiograph

Discussion

The proximal femur is one of the most common areas for pathological fractures to occur. [5] Metastatic bone disease is associated with poor survival and has a detrimental effect on quality of life. [4] Even though prostate cancer is considered localized, there is a high predilection for skeletal metastasis of approximately 90%. [4] Metastatic diseases due to carcinoma of the prostate are characterized by both osteoblastic and osteoclastic activities, but they have more blastic than lytic activity and thus dense bone formation is mostly the net results. Such patients are prone more to bone pain rather than pathological fractures.[4] The index patient had minimal symptoms of bone pain but did not seek medical attention until he sustained a subtrochanteric femoral fracture.

In clinical practice, androgen deprivation therapy (ADT) is recommended as the initial treatment for metastatic disease. However, almost all patients eventually develop castration-resistant prostate cancer (CRPC) and thus chemotherapy becomes the first line of therapy. [5,6] Thereafter, a combination hormonal therapyGnRH agonist with an anti-androgen, is usually preferred over monotherapy.[7] In the index patient ADT in the form of orchidectomy was done. This case was managed in a team approach by orthopaedic surgeon and urologist.

The orthopaedic treatment of pathologic fracture may greatly differ from normal fracture and depends on the general condition of the patient and the pattern and location of the fracture. Arthroplasty/endoprosthetic replacement procedures have a more reliable outcome in dealing with proximal femoral pathological fractures, as it does not rely on bone healing which is necessary following treatment with internal fixation.[8] Proximal femoral replacement surgery can be performed as a hemiarthroplasty or total hip

arthroplasty (THA). Hemiarthroplasty has been favoured due to satisfactory function, favourable expectancy, cost, suitability for patients, and a lower risk of dislocation than THA.[9,10]

Selek, *et al*.[11] advocate that, endoprosthetic reconstruction may be the optimal choice for metastatic lesions of the proximal femur. The goals of this procedure are independent of bone healing and include increased functional capacity, pain relief, and provision of stable reconstruction. The patient can walk and bear weight on the bone, returning to daily activities early in the postoperative period, whereas patients treated by osteosynthesis with or without cement generally do not obtain satisfactory results.

Conclusions

The treatment of patients with impending or actual pathological fractures of the proximal femur due to CaP requires multidisciplinary teamwork. Treatment highly depends on the fracture risk in relation to expected survival. Hemiarthroplastic replacement in metastatic disease of subtrochanteric femoral fracture results in restoration of function and diminution of pain. Although the patient's survival outlook may not change, good quality of life is enhanced significantly.

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