



Osteosarcoma of the Talus: A Case Report and review of the literature

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Abstract

Osteosarcoma of the talus is extremely rare and only few cases have been reported in the literature. We present a case of a 33 years old male who presented with painful swelling of his left ankle joint. He underwent several radiological diagnostic modalities which showed osteolytic lesion in the posterior aspect of the left talus associated with new bone

formation projecting from the posterior-medial aspect of that bone. His chest X-Ray showed multiple rounded lung metastases some of them showed calcifications. Open biopsy was performed. The histopathology confirmed the diagnosis of osteoblastic osteosarcoma of the talus.

Keywords

Osteosarcoma, talus, bone tumor

Introduction

Osteosarcoma is the most common primary bone malignancy. In most cases, this tumor occurs in the metaphysis of long bones such as femur, tibia, or humerus ⁽¹⁾. The calcaneus and metatarsals are the most favorite sites of this tumor in the foot ⁽²⁾. Osteosarcoma of the talus is extremely rare and few cases have been reported in the literature. ⁽¹⁻³⁾ Its clinical findings are usually not typical, and can be easily mis-diagnosed, resulting in a delay of proper treatment⁽³⁾. We report here a rare case of primary osteosarcoma of the talus.

Case Report

A case of 33 years old male who presented to the orthopedic clinic because of increasing pain and swelling in his left ankle joint over a period of eight months. The patient's medical history was unremarkable. There was no apparent tumor mass. X-Ray of the right ankle joint was normal and he was treated conservatively.

Four months later, his physical examination showed tenderness and hard swelling on the posterior aspect of the left ankle. Plain X ray of the left ankle joint (Fig.1A) showed an ill-defined



Fig 1. (A)

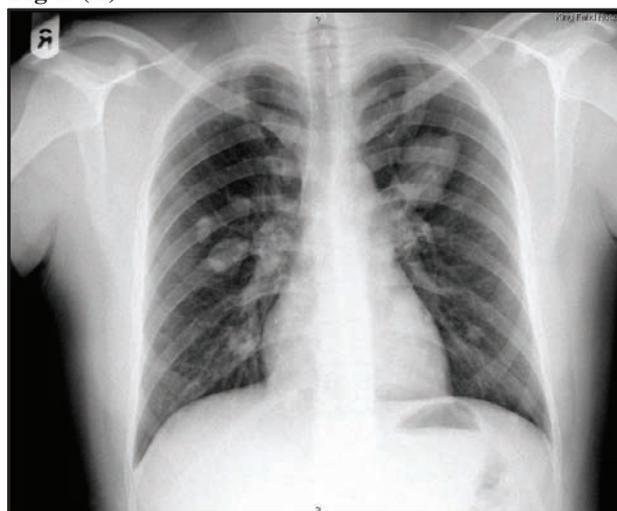


Fig 1. (B)

Fig 1. (A) X-Ray of the left ankle joint. AP&lateral views showing an ill-defined osteolytic lesion at the posterior-medial aspect of the talus with bony outgrowth (arrow). (B) CXR shows bilateral multiple lung metastases.

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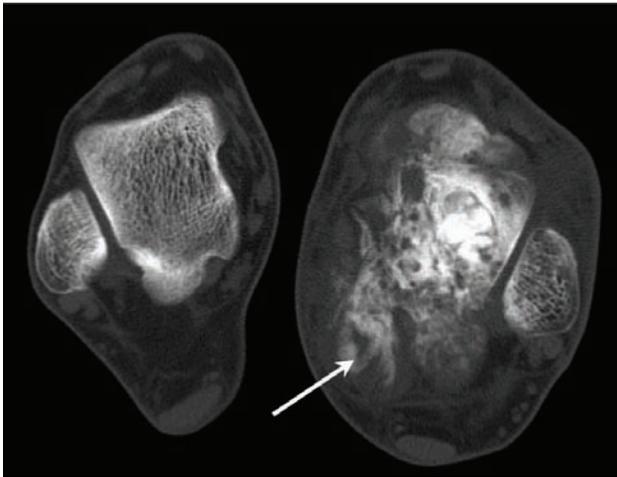


Fig 2. (A)



Fig 2. (B)

Fig. 2: CT scan (bone window) of both ankle joints. (A) axial section and (B) coronal reformatted showing a destructive bony lesion involving the left talus with new bone formation and bony outgrowth projecting from the posterio-medial aspect of the left talus (arrow) and preserved adjacent joints.

osteolytic lesion in the posterior aspect of the talus associated with new bone formation and bony outgrowth projecting from the posterior-medial aspect of that bone. His chest X-Ray showed bilateral multiple lung metastases (Fig.1B). CT scan of the ankle joint confirmed the presence of an osteolytic bony lesion (Fig.2A&B) involving the talus with new bone formation and bony outgrowth projecting from the posterio-medial aspect of the talus with no periosteal reaction and no invasion of the adjacent joints. Chest CT scan showed bilateral multiple rounded lung metastases some of them showed calcifications

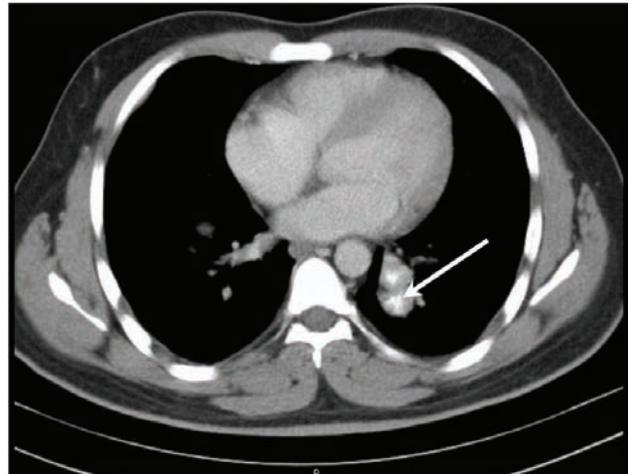


Fig 3. (A)

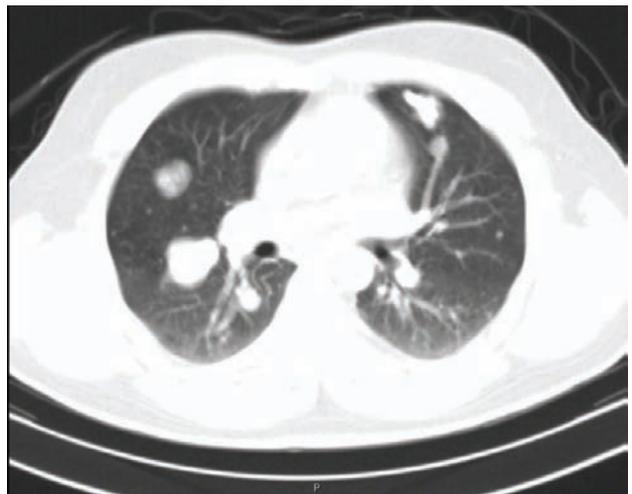


Fig 3. (B)

Fig. 3: CT scan of the chest soft tissue (A) and lung (B) windows showing bilateral multiple lung metastatic nodules with calcifications within the nodule (arrow).

(Fig. 3). His routine laboratory investigations were within normal except for an increased leukocytic count and an elevated alkaline phosphatase. Open biopsy was performed. Histopathology (Fig. 4A&B) showed a tumor composed of spindle cells arranged in interlacing fascicles with nuclear pleomorphism. There were areas of mitosis and necrosis. Extensive amounts of osteoid and calcified bone matrix. The immunostaining revealed immunoactivity for Vimentin. There was no reactivity for EMA, CK or CEA. The final diagnosis was consistent with osteoblastic osteosarcoma, moderately differentiated (grade II) involving the talus with multiple lung metastases. The patient was referred to a specialized oncology center for chemotherapy.

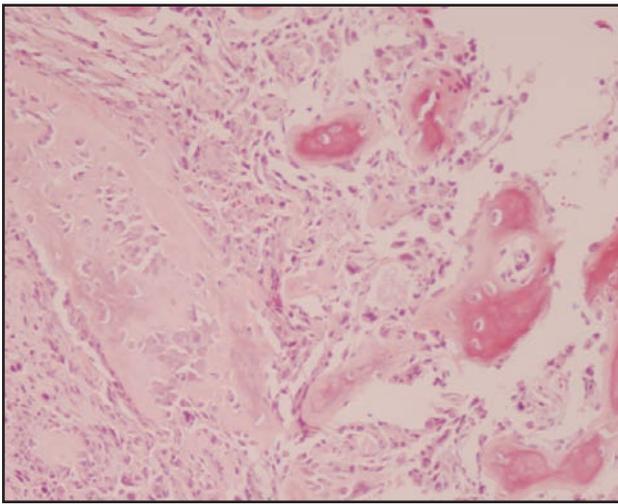


Fig 4. (A)

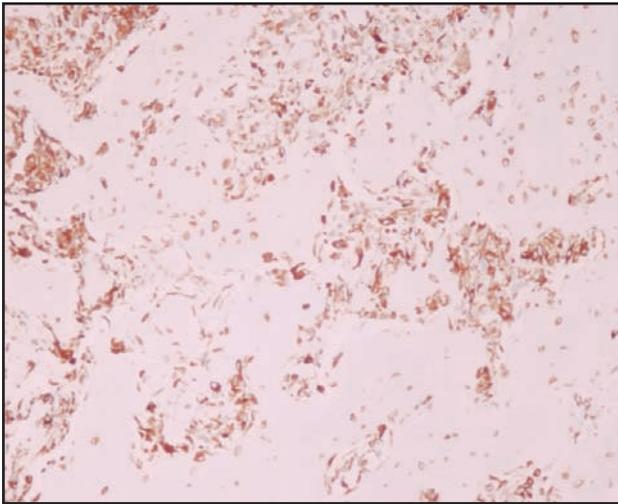


Fig 4. (B)

Fig. 4: Histopathology with H & E staining (A) showing tumor composed of spindle cells with pleomorphism, mitosis, extensive amounts of osteoid and calcified bone matrix. (B) Immunostaining showed immunoreactivity to Vimentin.

Discussion

The reported incidence of osteosarcoma of the foot is very low (1%)⁽²⁾. The calcaneus and metatarsals are favorite sites of this tumor in the foot. However, osteosarcoma of the talus is extremely rare and few cases only have been reported in the literature.^(1,4) The talus is essentially a rare site of primary bone tumor. According to the literature review, bone tumors originating in the talus were

osteochondroma, chondroblastoma, giant cell tumor, osteoblastoma, aneurysmal bone cyst, Ewing's sarcoma, angiosarcoma, solitary myeloma and metastatic tumor. Amini and Colavecchi⁽⁵⁾ reported the first case of osteosarcoma involving the talus in 1980.

In our patient and the case reported by Amini and Colavecchi⁽⁵⁾, the radiographic findings of ill defined bone destruction together with new bone formation suggested the osteogenic malignant nature of the lesion. Based on these findings, the radiological diagnosis at first presentation for the current patient was osteosarcoma rather than the other bone tumors more commonly affecting the talus. The rarity of osteosarcoma affecting the tarsal bones may lead physicians to misdiagnose or delay proper treatment. In addition, osteosarcoma of the talus shows no typical periosteal reactions such as Codman's triangle and spicules that is present in osteosarcoma of long bones.

The radiological investigations including plain X-ray and CT scan can be useful tools in regard to site, size, extend, degree of bone destruction and degree of invasion by the bony tumor. In osteosarcoma, plain films were the primary radiologic tool for the investigation. Bony changes may show lytic or sclerotic osteoid bone matrix in the lesion⁽⁶⁾. CT scan was able to show new bone formation in the soft-tissue mass which was not seen on plain films⁽⁶⁾. An important feature on CT scans is the spatial distribution of areas of mineralization, which is greatest at the center of the lesion and least at the periphery. The main value of the radionuclide bone scans is to detect metastatic or multifocal bone disease⁽⁶⁾. About 34% of patients with osteosarcoma have metastasis at time of presentation⁽⁷⁾. The lungs should be followed at regular intervals with plain chest radiographs and CT scans for early detection of lung metastasis. The prognosis remains poor and unfortunately the 5 years survival is around 15% with a median of 12 months⁽⁷⁾.

References

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