



Ewing's sarcoma of the calcaneus with metastases to the tibia and fibula

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Ewing's Sarcoma of the calcaneus has been infrequently reported in literature. Metastases to the adjoining tibia and fibula have been reported even more rarely. We report a patient who, at the time of presentation, showed gross destruction of the calcaneus and metastases to the ipsilateral tibia and fibula.

Keywords : Ewing's sarcoma ; calcaneus ; metastases.

INTRODUCTION

Ewing's Sarcoma (ES) is a primary malignant bone tumour mainly seen in the diaphysis of long bones and in the flat bones of young patients. The usual age group of presentation is the first and second decade. It is a highly anaplastic, round cell tumour, primarily arising in the intramedullary portion of bone and metastases are not uncommon (7). The prognosis is poor and the tumour commonly metastasizes to the lungs and to other bones. Treatment recommendations include chemotherapy with multiple agents and radiotherapy. Surgical resection improves local control of the disease. Operative treatment may be particularly applicable in the foot (6).

ES is of rare occurrence in small bones. We describe a patient who presented with gross swelling over the region of the calcaneus, with an osseous lesion which was diagnosed as Ewing sarcoma after biopsy. As the disease was advanced at presentation, with metastases to the ipsilateral

tibia and fibula, the patient was treated by above-knee amputation and chemotherapy.

CASE REPORT

A 20-year-old male presented with a one-year swelling in the region of his left calcaneus. It started with a small painful swelling in the region and went on to rapid increase in size, attaining its present size at the time of admission (fig 1). It was associated with continuous deep boring pain in the heel. He also complained of pain in the left leg. On examination, there was a huge swelling present all around the heel. Overlying skin was stretched and shiny, with visible dilated subcutaneous veins. Gross muscle wasting was present in the leg (fig 1).

Routine blood investigations revealed elevated ESR. Radiographs showed a washed out appearance in the heel region with no evidence of bony outline of the calcaneus (fig 2). Radiographs of the

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Fig. 1. — Gross swelling in the region of the calcaneus



Fig. 2. — Destruction of the calcaneus and lytic lesions in the tibia and fibula.

leg revealed areas of lytic destruction and thinning of the cortex in the tibia and fibula (fig 2 & 3). Fine needle aspiration cytology from the swelling was reported as Ewing's Sarcoma. CT scan study of the thorax did not reveal any chest metastases. The patient was taken up for surgery and above knee amputation was done. Histopathology from the specimen tissue confirmed the diagnosis to



Fig. 3. — Expansile lytic lesions in the ipsilateral tibia and fibula.

be Ewing's Sarcoma (fig 4). Post operatively the patient underwent chemotherapy. He returned to near normal life with the help of a below-knee prosthesis and at 2 years of follow-up he had no evidence of distant metastases.

DISCUSSION

Ewing's Sarcoma was first clearly described by Ewing in 1921 (4). ES is a primary malignant bone lesion usually seen in the diaphysis of long bones and in the flat bones of young patients, in the age group of 5 to 20 years. Metastases may occur to lungs and to other bones. In long bones, the tumour is seen as areas of lytic destruction in the diaphysis. Periosteal reaction is usually evident. The child

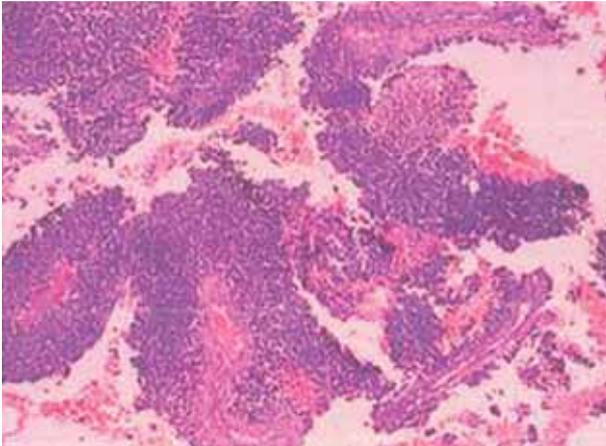


Fig. 4. — Histopathology photomicrograph

may be acutely ill at this stage in the form of fever, pain and tender swelling. The periosteal reaction can be lamellated, parallel, spiculated, perpendicular or mixed. There may be multiple layers of subperiosteal reactive new bone, which produces a characteristic “onionpeel” appearance. In the early stages of the disease, the disease needs to be differentiated from osteomyelitis, since both may produce periosteal reaction with bone destruction.

Ewing’s sarcoma may involve the small bones of hands and feet and even the os calcis (5), though this is rare. Dahlin *et al* reported 165 cases of ES, among these only four cases occurred in the feet (2). Reinus *et al* in the Intergroup Ewing’s Sarcoma Study (IESS) reported 12 cases of Ewing’s sarcoma (ES) involving bones of hands and feet out of a total of 377 patients (9). Tumours in the bones of the feet were much more common than those in the hands. The radiographic features in the hand and foot involvement are generally those of classic ES : permeation, soft-tissue mass, and, often, associated sclerotic reaction. However, with the exception of sclerosis, features suggesting bone reaction and slow tumour growth in these patients were distinctly uncommon compared with Ewing’s sarcoma in general (9). The lack of lamellated or spiculated periosteal reaction and the absence of cortical thickening are more commonly seen in ES of the hands and feet than in other locations (3). CT or MRI will optimally delineate the osseous and soft

tissue extent of the tumour, which is often much greater than may be appreciated on conventional radiographs (8).

Shirley *et al* (10) reviewed 10 patients with ES of the foot : five in the calcaneus, one in the talus, two in the metatarsals and two in the phalanges. With the exception of those patients with lesions in the calcaneus, the prognosis for disease free survival was excellent (10). The location of the lesion is important, since in the reported cases in the literature and in the IESS series, lesions of the calcaneum fared poorly (9,10).

Adkins *et al* in their study of 16 patients with ES of the foot (1) reported that seven patients had metastatic disease at the time of diagnosis and only one of these survived till 5 years. No patient with pulmonary metastases at presentation survived in the study (1).

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