



## Giant cell tumour of a phalanx in the foot : A case report

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Giant cell tumours are uncommon benign osseous neoplasias with an obscure origin. They mostly occur in the epiphyses of long bones after skeletal maturity. Phalangeal bones are a very rare primary site of involvement. The authors report a case of giant cell tumour involving a phalangeal bone in the foot and review the presentation, distinctive features and treatment of this tumour when occurring in this location.

A 28-year-old female patient was seen with an aggressive giant cell tumour of the first phalangeal bone of the third ray of her left foot. En bloc resection of the third ray was performed without bone grafting. The patient has now been free from disease for 12 years.

When giant cell tumour occurs in such a location, it appears to represent a distinct, more aggressive form of tumour. Because of the higher risks for local recurrence, treatment should be aggressive.

**Keywords :** giant cell tumour ; phalanx ; foot ; resection.

We present a case of a giant cell tumour of the first phalangeal bone of the third ray treated with en bloc resection.

### CASE REPORT

A 28-year-old female patient presented with a four-month history of increasing swelling and pain in the third toe of her left foot, without any history of trauma or infection.

Radiographs showed an expansile lytic lesion of the first phalangeal bone of the third ray with cortical destruction and soft tissue involvement (fig 1).

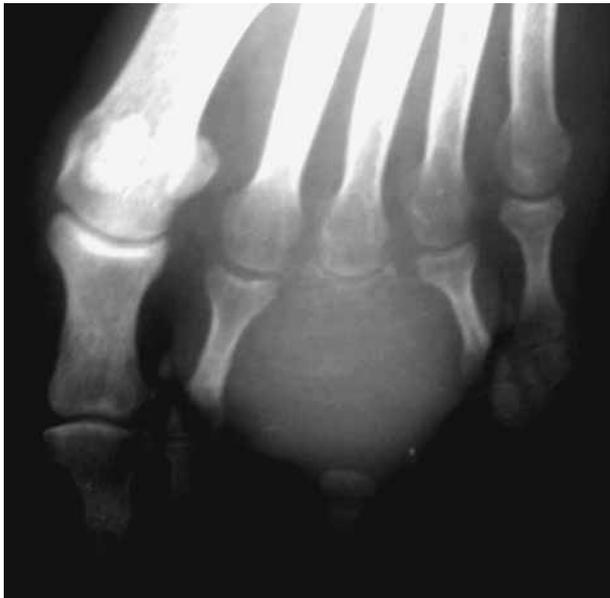
Chest radiographs and laboratory tests, including serum calcium and phosphorus levels, were normal.

Considering the fast clinical evolution and the aggressive radiographic aspect of the lesion, a

### INTRODUCTION

Giant cell tumour (GCT) is an uncommon benign osseous tumour usually seen at the end of a long bone after skeletal maturity (2). It is defined as a benign but locally aggressive neoplasm (1). The location in the foot skeleton represents less than 1.2% (9). In this location, it occurs more often in a younger female population and it appears to present a more aggressive behaviour than in other locations (3).

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**Fig. 1.** — Aggressive giant cell tumour of the first phalangeal bone of the third ray.

malignant tumour was suspected. The lesion was treated with en bloc resection of the third ray (fig 2). The histological findings were consistent with a grade III giant cell tumour.

The patient was followed for 12 years ; at last follow-up there were no symptoms or findings suggesting recurrence. The foot function was good.

### DISCUSSION

Most giant cell tumours occur in the third and fourth decades of life. Approximately 70% occur adjacent to the knee joint, and the distal radius is the second most common location (1). The foot is a rare site of this primary and secondary bone neoplasm, accounting for less than 1% of all tumours of the musculoskeletal system. Giant cell tumours comprise less than 5% of primary bone tumours (4). The majority of these tumours are seen at one epiphysis of long tubular bones, less than 2% arise in the small bones of the foot (12,17). O'Keete *et al* (13), report an incidence of 4%, and Biscaglia *et al* (4) report an incidence of 2.9%.

In the foot approximately 50% of giant cell tumours are seen in the talus (9,15). Our search of



**Fig. 2.** — Radiograph 12 years after en bloc resection of the third ray.

the available literature identify three other cases of giant cell tumour of a phalangeal bone of the foot (7,11).

Giant cell tumours in the foot are known to occur in a younger age group, more often in females and they tend to have a more aggressive behaviour both clinically and radiologically than in other locations (3,9,13,14).

They usually present with pain and swelling of the foot, symptoms are rapidly progressive and the diagnosis is frequently delayed as symptoms may initially be attributed to non-specific foot pathology (14).

In long tubular bones, radiologically, the differential diagnosis includes aneurysmal bone cyst, nonossifying fibroma and chondroblastoma (15). When giant cell tumours occur in long bones, conventional radiographs demonstrate a lytic lesion centred in the epiphysis but involving the metaphysis and extending at least in part to the adjacent

articular cortex, no periosteal reaction is appreciated unless a fracture is present. However, the radiographic features of giant cell tumours at sites other than long bones are non-specific and are not unlike other osteolytic processes (2,10).

Histologically, it is important to differentiate these tumours from other giant-cell containing lesions of the foot such as giant cell reparative granuloma, aneurysmal bone cyst and chondroblastoma (14). The histological diagnosis of giant cell tumours relies on the fact that the giant cell component has a uniform distribution in a mononuclear round-oval stromal cell background (8,9).

The standard treatment of giant cell tumour of bone has traditionally been intralesional excision by an aggressive curettage with or without grafting by packing the cavity of the excised tumour with morselised iliac cortical and cancellous bone or a diaphyseal segment of the fibula (6,14,17) or with acrylic cement reconstruction, which is considered to be a safe and effective procedure that provides adjuvant therapy and immediate stability for early rehabilitation (16). Intralesional excision however, leaves microscopic disease in the bone, which is a major factor for local recurrence, the reported incidence of local recurrence with this technique is as high as 40-60% (2,4,9,13). There has been a great deal of effort to optimise excision of tumourous tissue following curettage, by chemical (phenol, chlorpactin, ...) or physical means to decrease recurrence rate by inducing necrosis of any remaining neoplastic tissue (5). Preferred treatment options include aggressive curettage with cauterisation (10), or en bloc resection of the involved bone segment (3). We chose this last option for this patient because of the aggressive features of the lesion, which aroused suspicion for malignancy.

### CONCLUSION

Phalangeal bones of the foot are a very rare location of giant cell tumours. In the foot, giant cell tumour shows predominance in females and in younger patients and a more aggressive behaviour. The treatment of choice is aggressive curettage or en bloc resection because of the higher rate of local recurrence.

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