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FIRST METATARSAL CHONDROBLASTOMA

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ABSTRACT
The author reports a case of first metatarsal chondroblastoma arising in the right first metatarsal bone in a 44-year-old female presented to our clinic at King Hussein Medical Center (KHMC) during June 2014. The patient was complaining of a 4 months long intolerable and progressive right foot pain associated with swelling over the dorsal and medial aspect of the forefoot. As accurate diagnosis is crucial in such case, investigations that included x-rays and magnetic resonance imaging (MRI) demonstrated an expansile and lytic lesion involving first metatarsal bone associated with intraosseous septations and sclerosis. The distal chondral and subchondral parts remained unaffected leading to the differential diagnosis of aggressive benign bone tumor which laid down the plan of an incisional biopsy to be reported histopathologically as a case of chondroblastoma after which excision of the entire metatarsal bone was performed and reconstructed with an autogenous fibula graft and K-wires fixation. In subsequent follow-ups satisfactory osteo-integration was being demonstrated upon radiological follow up leading to the removal of the K-wires after 10 weeks followed by the gradual return of the patient to her daily life routine.

KEYWORDS: Chondroblastoma, first metatarsal.

INTRODUCTION

Chondroblastomas are considered to be of near rarity tumors with altering radio-clinical and histopathological symptoms, signs and features. Their rarity poses challenges in both diagnosis and clinical process and application. This entity represents a classification of rare tumors that is known to produce either osteoid or woven bone.[1-3]

Clinical and Radiological Findings: A 44-year-old female presented to our clinic during June 2014 complaining of pain of 4 months duration associated with swelling over the dorso-medial aspect of the right forefoot. Without any neurovascular involvement diagnostic methods primarily imaging results showed expansile lytic lesion of the whole first metatarsal associated with intraosseous septations and areas of rim sclerosis.[4-5] (Fig 1, Fig 2)

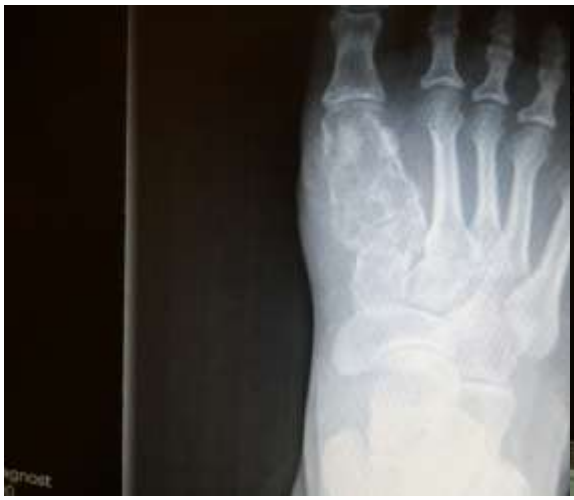

Fig 1

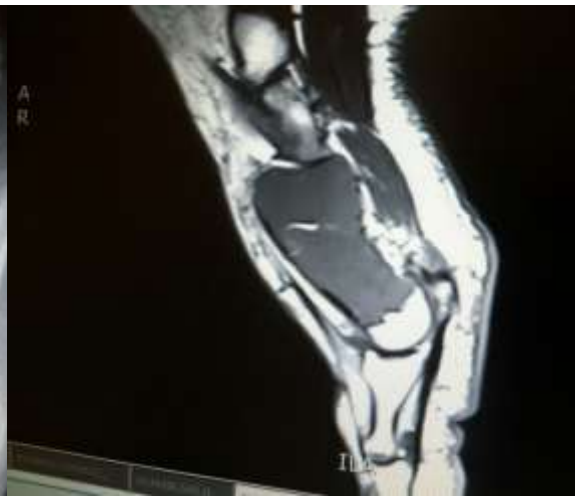

Fig 2

The distal chondral and subchondral parts of the metatarsal continued to be disease free. These findings were going with aneurysmal bone cyst or giant cell tumor.[6-7-8] Magnetic resonance imaging (MRI)

demonstrated contrast enhancement cortical thinning and peri-osseous edema(Fig3). An open biopsy was carried out to be reported histopathologically as chondroblastoma after which first metatarsal complete resection was performed and reconstructed with a autogenous fibular graft (7 cm) (Fig 4, Fig 5) to be implanted between the first cuneiform and the proximal phalanx after shaving part of the articular surface of both bones for bone to bone impaction at both ends then followed by K-wires fixation. On histopathology the resected bone demonstrated same features of the previous open biopsy. Neither neurovascular nor surgical complications were noticed postoperatively. After 7 months x-rays showed satisfactory bone graft osteo-integration at both ends of the graft and the patient was able to return to her daily life activities free of pain and satisfied with the results.[8-9-10]

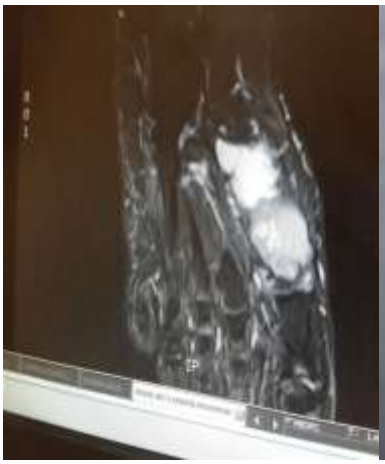

Fig 3

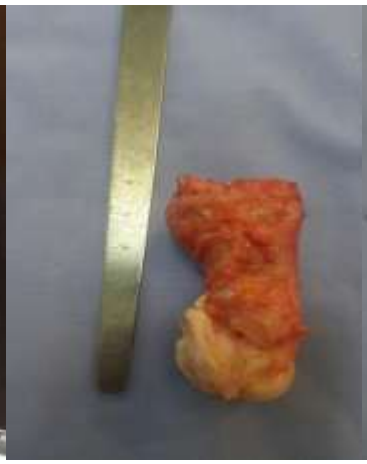

Fig 4

Fig 5

DISCUSSION

Chondroblastoma is a benign rare tumor of bone accounting for around 1% of all bone tumors most commonly treated by surgical curettage or bone resection and bone grafting. Some studies show excellent results with low complication rates after surgical curettage or resection and grafting.

Some theories explaining the origin of chondroblastoma one of which showed calcium containing, subcellular articles resembling those observed in Chondrocytes which led to the conclusion that these tumors are chondrogenic.

Chondroblastoma conventionally occur in the ends of long bones as the distal femur and proximal tibia followed by proximal humerus making our case (first metatarsal chondroblastoma) worthwhile reporting. It is worth mentioning that such lesions are painful and activity limiting and that the male/female ration is 2/1 in most studies.[11]

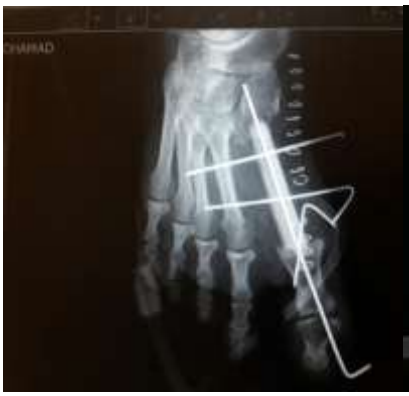

Fig 6

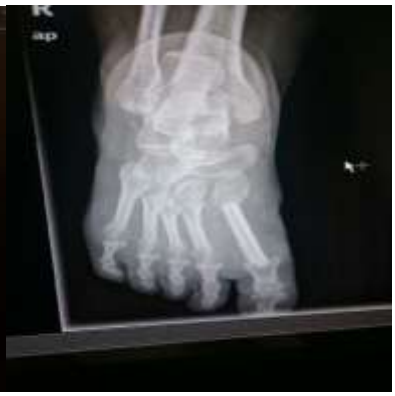

Fig 7

CONCLUSION

We conclude that first metatarsal chondroblastoma is an extremely rare aggressive benign bone tumor that is known to cause a disabling pain especially when aggressively involving the entire first metatarsal bone and that resection of the first metatarsal bone in such cases followed by reconstruction with autogenous fibular graft and K-wires fixationand gave our patient a satisfactory good result.[12] (Fig 6, Fig 7)

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