



Solitary Metacarpal Osteochondroma; an Unusual Location

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Abstract

Although, osteochondroma is the most common bone tumor, metacarpal involvement is quite uncommon and usually accompanies multiple hereditary exostoses. Herein, we described a patient with solitary osteochondroma of the fourth metacarpal bone, and discussed the differential diagnosis of bony spurs that can be seen in hand.

Key Words: Solitary osteochondroma, metacarpal bone, Turret's lesion, Nora's lesion

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Introduction

Osteochondroma is the most common benign bone tumor that accounts for more than 30% of all benign bone tumors and 10-15% of all bone tumors [1]. Osteochondromas are usually presented as solitary, nonhereditary tumors. However, approximately 15% of all osteochondromas occur in multiple hereditary exostoses (MHE), a syndrome that is inherited in an autosomal dominant manner [1]. Solitary osteochondromas usually arise from the metaphysis of the long tubular bones. Most frequent site of involvement is the long bones of the lower and upper extremity, particularly the tibia, femur, and humerus [1]. Almost half of the osteochondromas occur around the knee, in either the distal femur or the proximal tibia. On the other hand, metacarpal involvement is rare[1,2].

Although, osteochondromas have typical roentgenographic findings, in case of metacarpal involvement a set of differential diagnosis which have similar radiographic appearance should also be considered. Herein, we described a patient with solitary metacarpal osteochondroma and discussed its differential diagnosis.

Case Report

A 21 year-old man was admitted to our outpatient clinic with the complaint of a painless tumoral lump in his left hand. The mass was present for over a ten years, however it was growing gradually. His family history and past medical history was unremarkable. He has also no previous traumatic history. On physical examination, there was a solid, fixed and painless tumoral mass between the fourth and fifth metacarpal bones which caused skin distension dorsally (Fig.1.a). 4th and 5th MCP joint ROM was in normal limits. Neurovascular examination of the hand was normal. Direct radiographic examination of the hand revealed an irregular shaped tumoral bone mass derived from the 4th metacarpal bone. The lesion had continuity of medullar cavity with the host metacarpal bone. It caused a minor bowing of the fourth metacarpal and a slight diastasis between fourth and fifth metacarpals (Fig.1.b). These radiographic findings were consistent with osteochondroma, however further detailed examination with CT and MRI was obtained in order to visualize the anatomy and soft tissue extension of the lesion. CT and MRI examination supported the provisional diagnosis of osteochondroma (Fig.2).

Figure 1a. No limitation of motion in metacarpophalangeal joints

Figure 1b. Initial X-ray

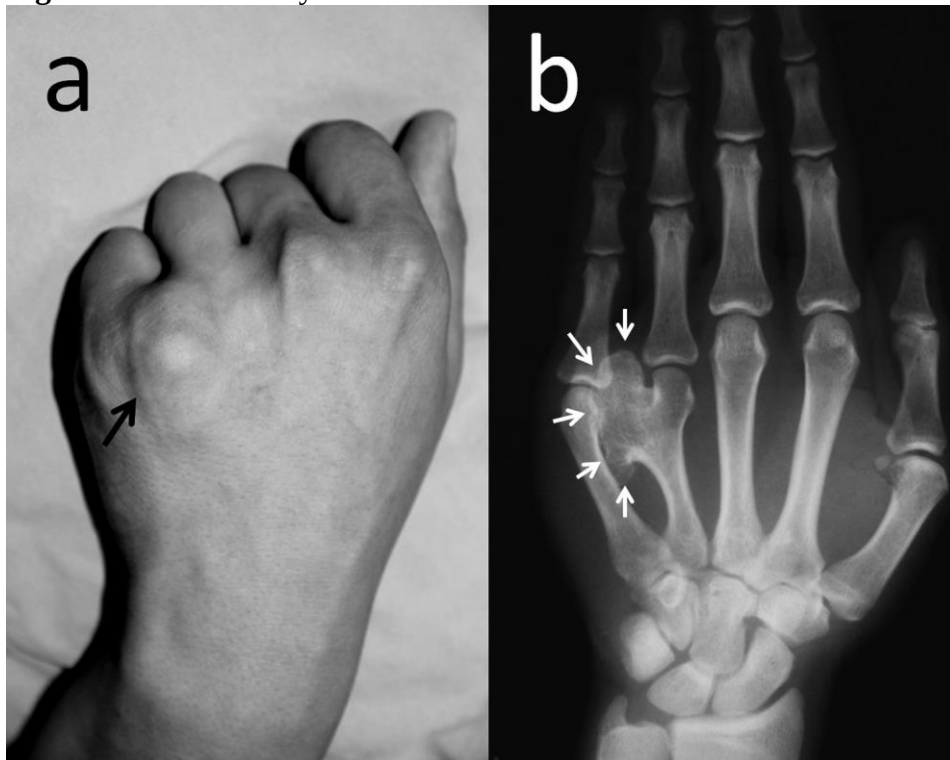
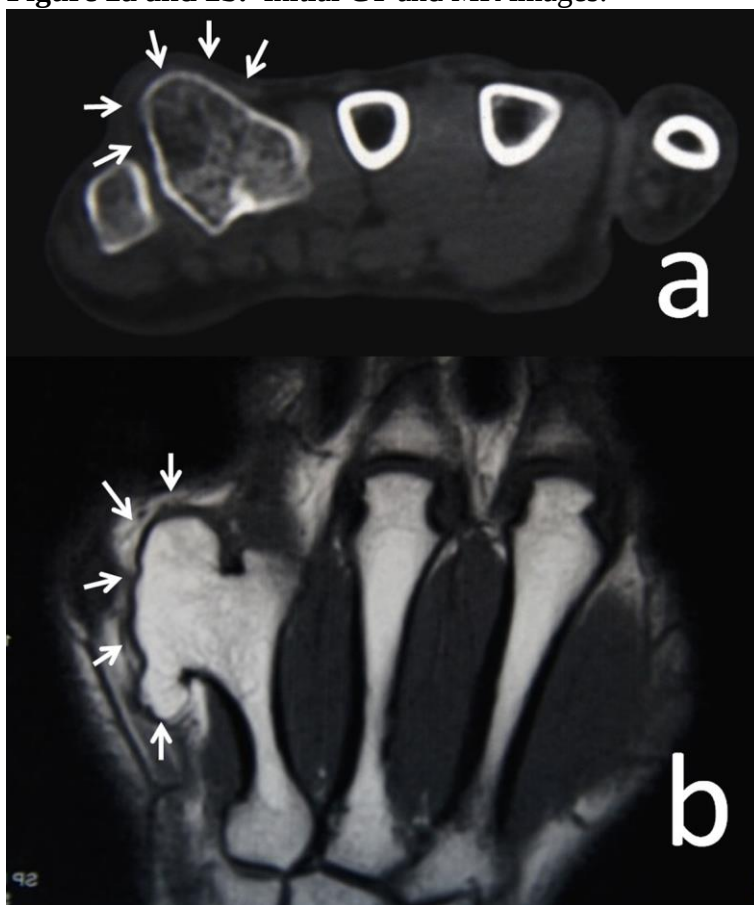


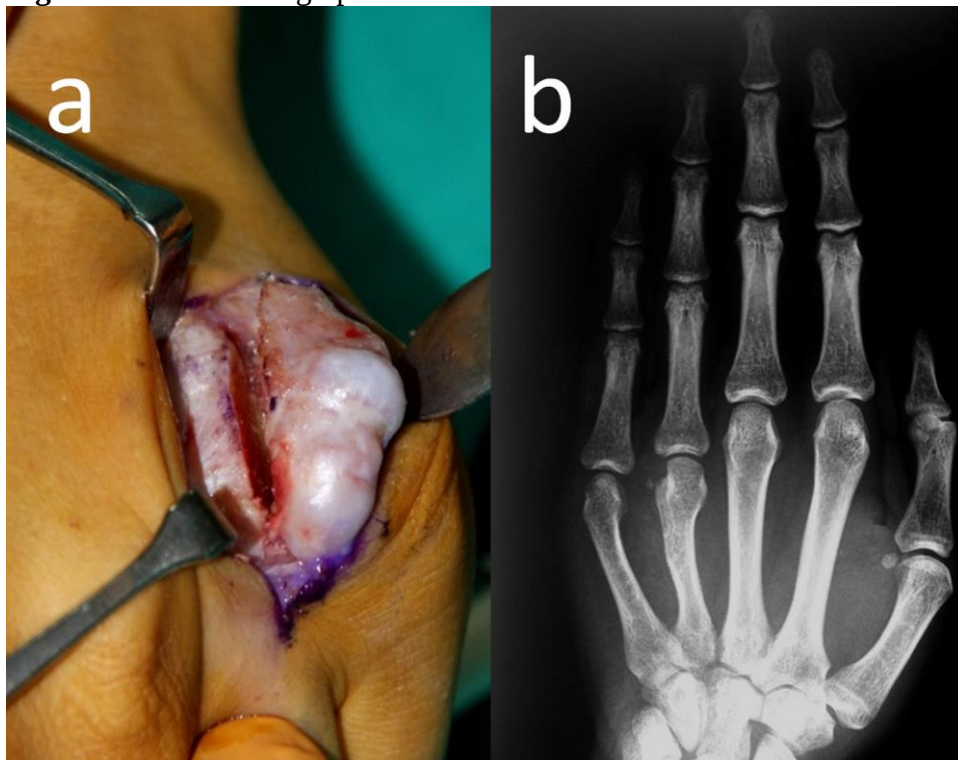
Figure 2a and 2b. Initial CT and MR images.



Under regional anesthesia and tourniquet use, a 4 cm skin incision over the lesion was performed. A large (34mm X 12mm), white colored and round shaped tumoral bone was excised (Fig.3.a). The diagnosis of osteochondroma was confirmed by the pathologic evaluation. At the final follow-up one year after the excision, the patient was asymptomatic. There was no limitation of motion or no neurovascular deficit. Final radiographic control showed no recurrence (Fig.3.b).

Figure 3a. Excision of the mass

Figure 3b Final radiograph



Discussion

The differential diagnosis of a solitary metacarpal osteochondroma includes four important pathologies; namely Turret's lesion, Nora's lesion, Floride reactive periostitis and peripheral chondrosarcoma.

Turret's lesion is an extracortical projection overlying the dorsum of proximal or middle phalanges and rarely metacarpus. It is associated with extensor trauma and subperiosteal hematoma formation, which later on matures on ossifies. As the lesion enlarges, the patient complains pain and a palpable mass, which may cause disruption in the extensor mechanism,

resulting in the loss of finger flexion. Radiographically, the Turret's lesion appears as a well-delimited bone mass arising from the cortex of the underlying bone, but with no communication with the medullary canal similar to osteochondroma[1,2].

Nora's lesion (bizarre parosteal osteochondromatous proliferation) is a benign exostotic projection from the surface of tubular bones, mostly of the hands or feet and was first described by Nora et al. in 1983 [3]. It is presented as a slowly growing painless mass with a trauma history of 30%[2]. Many authors believe that, trauma is the cause of Nora's lesion because the ossification is irregular, like formation of callus [4]. In Nora's lesion the host bone is structurally normal and there is no continuity with the medullary cavity of the host bone, also they are not to be located in the metaphyseal region. It appears as a well-defined bony mass on plain radiographs. It is important to differentiate Nora's lesion because of high recurrence rate after excision [2-5].

Florid reactive periostitis, is a benign reactive lesion usually involving the bones of the hands and feet. It can be differentiated from osteochondroma by roentgenograms and a histopathologic examination. An aggressive periosteal reaction in radiographs is typical [2].

Finally, peripheral chondrosarcoma should be considered in the differential diagnosis. Bone destruction, irregular margins and soft tissue invasion is the major radiographic findings.

Conclusion

Solitary osteochondromas of the hand are very rare lesions. It was mostly mentioned to be in association with hereditary multiple osteochondromas. So because the treatment regimens and survey may change; differential diagnosis of HMO, Turret, Nora lesion and floride reactive periostitis is essential for such solitary osteochondroma patients. Total excision of the mass is mostly enough for relief of symptoms of solitary osteochondroma unless malign transformation is present.

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