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A solitary osteochondroma of middle phalanx of the hand in an adult: A case report and differential diagnosis

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Abstract
Introduction: Solitary osteochondroma of phalanx of the hand in an adult are extremely rare and have different presentations depending on the site of origin. Most adult solitary tumour arises either from the distal phalanx or in the carpal bones. Importance of the lesion lies in its various differential diagnoses. We present a rare case report of solitary osteochondroma of the middle phalanx left index finger in an adult. Management and differential diagnosis is discussed.
Presentation of Case: 32 year old male presented with osteochondroma arising from dorsal ulnar side of middle phalanx left index finger with limitations of movements at PIP and DIP joint. Patient achieved full finger movements after excision and no recurrence at 18 month follow-up.
Conclusion: Solitary osteochondroma of the middle phalanx in an adult is a rare osteocartilaginous lesion. In view of a varied differential diagnosis and a high rate of local recurrence, an early identification and a wide excision is essential.

Keywords: Solitary, osteochondroma, adult, hand

Introduction
Osteochondroma is the most common benign tumour of bone commonly seen in children and young adults, arising in the metaphyseal region of a long bone, though it is occasionally seen affecting flat bones. It affects the small bones, of the hand and feet in approximately 10% of cases and the growth ceases with fusion of the adjacent growth plate [1]. Osteochondroma of the hand are rare and are usually seen in children as part of the multiple exostoses syndromes such as hereditary multiple exostoses [2] and Muenke Syndrome [3]. Solitary osteochondroma of the hand which develop in adulthood are extremely unusual and have different presentations depending on the site of origin. For unknown reasons, most adult solitary tumours arise either from the distal phalanx or in the carpal bones. Distal phalanx tumours almost always arise subungually and cause nail deformity [4].
We present a rare case of osteochondroma of the middle phalanx index finger developing in an adult. No similar cases were found in the literature.

Presentation of Case
A 32-year-old male presented to our outpatient department with slowly progressive swelling on the dorsal and ulnar aspect of middle phalanx of the left index finger associated with mild pain. Swelling was present for the past 5 month but pain was emerged recently. Pain was related to active extreme movements. There was no history of trauma, or other swellings in the body. On physical examination a discrete, non-mobile, hard mass measuring 1.5x1.5 cm was fixed to the underlying bone on doral and ulnar aspects of middle phalnx with normal overlying skin. There was restriction of the terminal movements of proximal interphalangeal joint (Fig. 1A). Neurovascular examination was normal. Radiology showed a well circumscribed bone-like mass around the dorsoulnar side of the middle phalanx of the index finger on the right hand. There was neither breach in the cortex nor medullary involvement (Fig. 1B). Enbloc resection and decortications were done to prevent recurrence under regional anaesthesia (Fig. 1C).

Gross specimen (Fig. 1D) showed the surface of the lesion covered by a cartilage cap with osteoid tissue in the interior continuous with the cortical bone. Histopathological examination of specimen revealed cartilage capped tumour underlying layers of hyaline cartilage show enchondral ossification into mature trabecular bone lined by osteoblasts (Fig. 1E). The postoperative course was uneventful. There was no evidence of recurrence. Range of motion improved with adequate grip at 18 months follow up. X-rays showed the residual tumor at the base of the middle phalanx (Fig. 1F, G). Diagnosis of osteochondroma was based on the clinical examination, preoperative imaging findings which were later confirmed by histopathological examination.

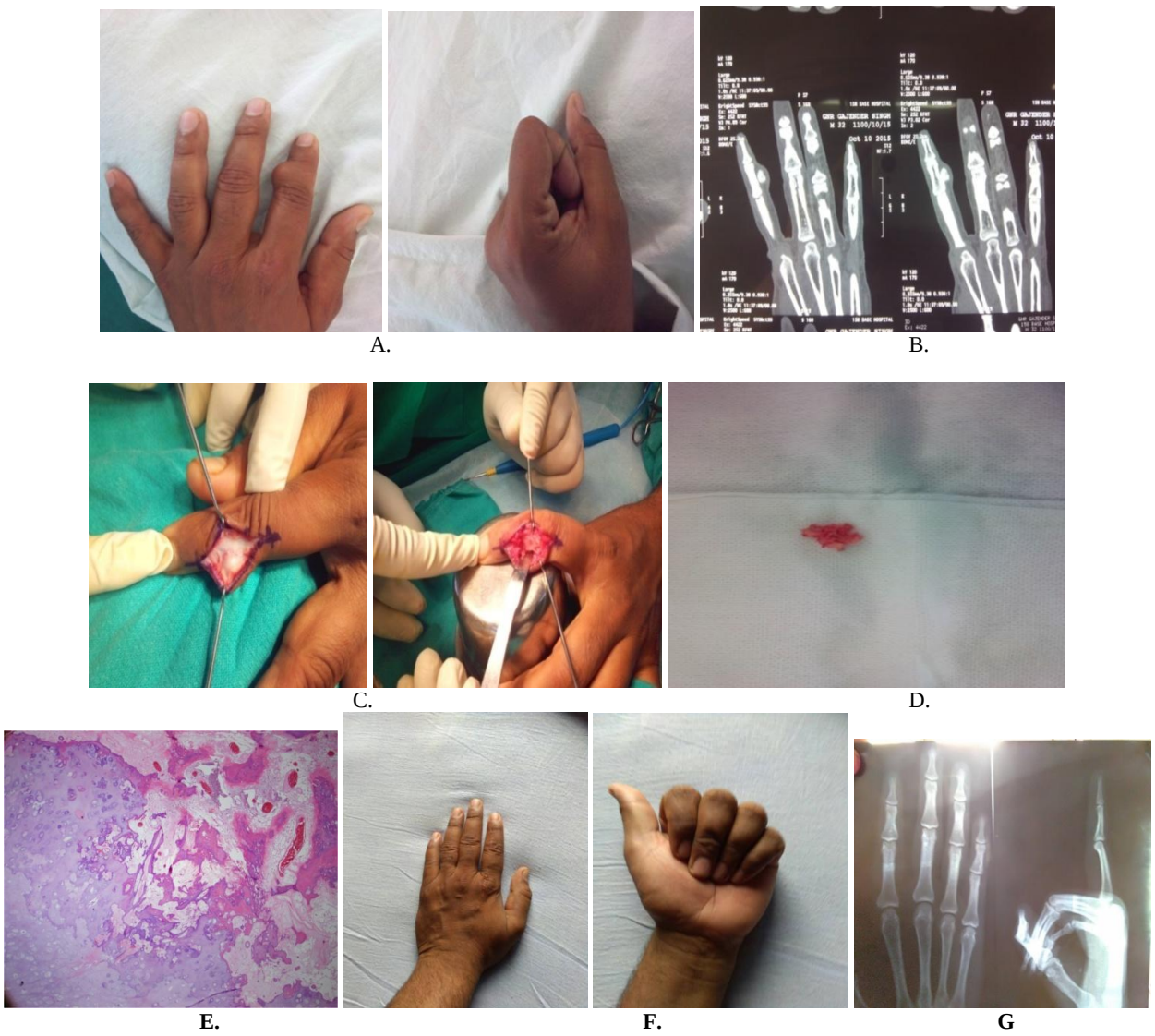

Fig 1: (A) Clinical presentation.(B) NCCT showing tumour arising from middle phalanx.(C) Intraoperative images.(D) Resected tumour.(E) Histopathology showing bony trabeculae with cartilage cap.(F) Clinical photograph showing range of motion and (G) radiograph at 18 month follow up.

Discussion

Solitary osteochondroma of the middle phalanx of hand is a rare. Lesion needs to be differentiated from turret exostosis, bizarre parosteal osteochondromatous proliferation (BPOP) also called Nora's lesion in adults [5, 6] and florid reactive periosteitis.

A turret exostosis is an infrequent osseous excrescence originally described by Wissinger in 1966 as a smooth, dome-shaped, extracortical mass arising from the dorsum of a proximal or middle phalanx of the hand usually recall antecedent trauma. Ossification occurs as the hematoma matures that often diminishes the excursion of the extensor tendon and leads to a progressive reduction in the ability to flex the finger. Radiologically, there is a well-defined osseous mass fused to the underling bony cortex without communication to the medullary canal, which is typical of osteochondromas. The lesion is covered by a thin cartilage shell, which demonstrates less cytologic atypia [5]. Bizarre parosteal osteochondromatous proliferation (BPOP) or Nora's lesion was described by Nora *et al* in 1983 [7]. BPOP typically presents with a painless or mildly painful mass that grows over a period of weeks to months. BPOP exhibits no periosteal reaction and has normal underlying bone and adjacent soft tissue radiologically [7]. Cartilage at the margins of the lesion, bone at the center, with fibrous granulation tissue admixed in between are features of BPOP. Florid reactive periosteitis was first described by Spjut and Dorfman in 19818. It is a rare lesion commonly affecting the hands and feet of young adults in their 20s and 30s. Clinically, there is a history of gradually progressive swelling, erythema and pain or a painful mass in the affected part. Histologically, the predominant cells are large spindle shaped fibroblasts with prominent nuclei. There is no pleomorphism. Mitoses are present, which may be frequent but not abnormal.

Multinucleated giant cells are frequently seen. There is mature and immature osteoid, woven boneand myxoid element [7, 8]. The overall rate of recurrence for turret exostosis of the hand is 20%, compared with 55% for BPOP [7, 9, 10].

Conclusion

Solitary osteochondroma of the middle phalanx in an adult is a rare osteocartilaginous lesion. In view of a varied differential diagnosis and a high rate of local recurrence, an early identification and a wide excision is essential.

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