Multiple Osteochondroma of the Hand in a 6 Year Old Child- A Case Report

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Introduction

Osteochondromas are the most common benign tumors of the bone. However osteochondromas are very rare in the hand but seen frequently in patients with multiple hereditary exostoses [1]. Osteochondroma of the digit in paediatric patient is associated with angular deformity, splaying of fingers and/or restricted finger movements [2]. Phalangeal osteochondroma needs to be differentiated from bizarre parosteal osteochondromatous proliferation (BPOP) or Nora's lesion, and other reactive lesions of the bone surface as treatment differs [3]. We report a case of multiple osteochondroma exclusively involving both the hands with restricted finger movements and splaying of fingers in a 6 year old boy. Patient was treated with excision of the osteochondroma of the phalanges on both the hands with good functional outcome.

Case Report

A 6 year old boy presented with the complaint of gradually increasing multiple swellings on both the hands involving right middle finger and left ring finger since 4 years of age. His parents complained that he had difficulty in doing activities like taking food and holding objects with his

hands and also splaying of fingers along with restriction of finger movements since 6 months. There was no history of similar complaints in the family. Written informed consent was obtained from the parents. On clinical evaluation, around 1.5x1cm bony hard irregular swelling was present on ulnar aspect of middle phalanx of right middle finger. An irregular 2x1cm swelling was also present on the ulnar and dorso ulnar aspect of middle phalanx of the left ring finger (Fig. 1). Passive range of movements at the proximal interphalangeal joint of right middle finger and left ring finger were 0–40° and 0–30° respectively. Grip strength measured by dynamometer was 4 kg and 3 kg on right and the left hand respectively. Splaying of the fingers and also radial deviation of the affected fingers were evident on examination. Angular deformity was measured both clinico radiologically using goniometer. This was present in the form of radial deviation of both the involved fingers measuring 30 and 40° on right middle finger and left ring finger respectively.

Radiographic assessment revealed bony outgrowth from the metaphysis of the middle phalanges of the right middle finger and left ring finger. The bony outgrowth was present on the epiphyseal side on both the sides. Third metacarpal on both the hands also showed bony outgrowth. Computed Tomography confirmed the lesions & revealed the continuity of medullary canal with bony outgrowth (Fig. 2). Clinoradiological evaluation did not reveal involvement of any other sites except hands.

Excision biopsy of the swelling with dorso medial approach was done initially on the right side under general anaesthesia. Intraoperatively the tumor was in continuity with the medullary canal of the middle phalanx with the cartilage cap. The Histopathological examination was

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Fig. 1 Clinical photograph (a) and plain radiograph (b) of both the hands showing osteochondromas involving middle phalanx of right middle finger and left ring finger and also 3rd metacarpals

confirmatory of osteochondroma. This was followed by excision on the left side after a period of 2 weeks. Post operatively wound on the right side healed uneventfully but patient developed superficial skin necrosis on left side. This could be probably due to tension at the suture site and it healed by local dressing only. Active finger movements were started after 2 weeks following surgery. Histopathological examination of the specimen showed osteochondroma on the left side also. At 6 weeks of follow up there was less than 10° angular deformity on both the sides. The passive ranges of motion at the proximal inter phalangeal joints improved to 80 to 90° on both the hands. Latest follow up (Fig. 3) at 18 months showed no recurrence of the tumour and he was able to perform all the routine activities. The grip strength of the right and left hands were 11 kg and 9 kg respectively. There was also no evidence of growth arrest of the affected fingers with the open physis of the middle phalanges. Since patient was asymptomatic for metacarpal osteochondroma surgical intervention was not done.

Fig. 2 Cut sections of the computed tomogram showing cortical and medullary continuity of the tumour on left ring finger

Discussion

Osteochondroma arises most commonly from the metaphysis of long bone and most common site is around the knee joint. It is composed of cortical & medullary bone with overlying hyaline cartilage cap and continuity with cortex and medullary canal of parent bone [4]. As such solitary osteochondroma of hand is rare and even if it is present in patients with multiple hereditary exostoses it rarely shows deformity [5]. Phalangeal osteochondroma can cause angular deformity, splaying of fingers and restriction of movement if present near the interphalangeal joints [2, 6]. Ohnishi T et al. [2] reported 5 cases of osteochondroma of the pediatric digits arising from metaphysis of the epiphyseal side in which two patients had involvement of the middle phalanx. Angular deformity was present in one of these patients and was treated by excision. There are few reports on solitary osteochondroma of finger [7]. The rarity in our case is that, when patient presented to us the osteochondromas were involving both the hands without involvement of any other sites. To the best of our knowledge osteochondroma involving multiple fingers of the hands in the same patient has not been reported in the English literature. Non familial nature in our case needs further genetic evaluation as it is usually associated with solitary rather than multiple osteochondromas.

Differential diagnosis for phalangeal osteochondroma are bizarre parosteal osteochondromatous proliferation (BPOP) or Nora's lesion [8], florid reactive periostitis, and Turret exostoses (acquired osteochondroma) which belong to the same spectrum of reactive lesions of the bone surface [9, 10]. Continuity of lesion with the underlying native bone cortex and medullary canal is pathognomonic of osteochondroma. Bizarre parosteal osteochondromatous proliferation (BPOP or Nora's lesion) is a rare cartilaginous

Fig. 3 Follow up radiograph of both the hands at 18 months showing open physis of the involved phalanges without growth arrest

neoplasm that often presents in the tubular bones of the hands and feet. It is benign but locally aggressive, often requires more extensive surgical resection and has a higher recurrence rate compared to osteochondroma [3]. Gross appearance and the presence of a cartilage cap apply to both lesions. On Histopathological examination bizarre parosteal osteochondromatous proliferation shows hyper cellularity with atypia of the cartilage, and irregular calcified cartilage matrix.

The functional impairment in terms of finger movement restriction, loss of grip strength should be considered in treating these patients. Moore et al. stated that, early treatment is desirable to prevent severe deformity caused by continual growth of the tumour over the articular surface [11]. He also recommended contouring of the articular surface to correct the deviation, though it seems difficult to correct severe deformities in which wedge osteotomy may also be considered. The late presentation in our case resulting in severe functional disability of the hand would have been prevented by means of early surgical intervention. In our case the results of the surgical procedure were satisfactory in terms of hand function though the persistence of deformity still be seen during follow up.

Though the timing of surgery is controversial in young children, early surgical intervention may be considered in such cases in the form of excision and/or corrective surgery to restore the range of motion, to prevent progression of deformity and also to prevent growth disturbance of the affected digits. However, follow up of these patients must be considered till skeletal maturity to find out the possibility of the recurrence of the tumour and also the development in other sites.

Conflict Of Interest None.

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