Abstract:
Enchondroma of the hand offer an unique and challenging opportunity for plastic surgeons, for it requires complete removal of the tumor and comprehensive functional reconstruction. 26 year old male doctor presented to us with a reduced grip strength in right hand, diagnosed as enchondroma of the proximal phalanx of mid finger. He was surgically treated with curettage and free bone graft. With a follow up of five months patient was disease free and had regained full range of movements, which enabled him to perform his professional duty as a doctor.

Keyword: Solitary Tumor, hand, enchondroma, curettage, cortico-cancellous graft

Introduction:
Enchondroma of the hand is a common benign tumor composed of mature cartilage. The small bones of the hand are the most frequent anatomic site for enchondromas with approximately 40% of the cases occurring at this site. These lesions are most frequently located in the proximal phalanx, followed by the middle phalanx, metacarpals, distal phalanx, and, rarely, in the carpal bones. Enchondromas commonly present as a pathologic fracture associated with pain, deformity, and swelling. Dysfunction of the flexor and extensor tendons of the fingers as a result of fracture and detachment of their insertion sites at the phalanges have also been described. Malignant transformation of monostotic enchondromas of the hand is rare and is associated with a very low rate of metastatic dissemination. Curettage is the mainstay of surgical treatment of enchondromas of the hand. In some patients no reconstruction is undertaken after curettage whereas in others, the remaining tumor cavity is filled with bone graft. Local tumor control and good functional outcome are anticipated in the majority of patients. To allow adequate time for bone healing, however, patients who have undergone these reconstructions must wait for 4 to 6 weeks before they can resume.
unrestricted activity with the operated hand. Moreover if patients present with a pathologic fracture, surgical intervention must often be delayed until it has healed.

Case report
26 yr old male doctor had reported to the hospital with occasional history of dull aching pain with a weakened grip strength in his right hand, with no significant past relevant history. Clinical examination revealed a non-tender bony hard swelling in the proximal phalanx of mid finger (fig 1,2). Radiological investigation x-ray (fig 3) and MRI (fig 4), revealed a well-circumscribed osteolytic lesion in the proximal phalanx of middle finger of right hand.

With a provisional diagnosis of benign bony tumor, surgical curettage of the lesion done through a dorsal approach (fig 5). After ensuring complete curettage (fig 6) the defect was filled with cortico cancellous bone graft harvested from iliac crest. Periosteum redraped and wound closed. Below elbow volar slab applied. Histopathology revealed hypocellular, non-vascular tumor with abundant hyaline cartilage matrix. The nuclei are small and round with condensed chromatin. Occasional binucleated cells without cytologic atypia, with
no mitotic activity suggestive of enchondroma.

Post operative period was uneventful. After six weeks of immobilization active mobilization of fingers in day time and night splinting continued for four more weeks. Patient returned back to professional work after two and half months and at five months follow up had complete functional restoration of hand. (fig7,8)

Discussion:
Enchondromas are benign cartilaginous lesions that are the most common primary bone tumors arising from the bones in the hand. Monostotic lesions most commonly occur in the fourth decade, with the majority of lesions developing between the ages of 10 and 40\textsuperscript{2}. The proximal phalanx is the most common site of involvement, followed by the metacarpal and middle phalanx. The carpus is rarely involved, although enchondromas have been reported in the scaphoid, lunate, and capitate.\textsuperscript{4} Patients with monostotic lesions are most commonly evaluated initially because of either localized swelling, which may be painless, or pathologic fracture associated with minor trauma. Enchondroma may also be diagnosed as an
An incidental finding on plain radiographs. Radiographs typically demonstrate a well-defined lytic lesion, which may be lobulated. Matrix calcification may be seen. Soft tissue extension is not typical and is suggestive of a more aggressive neoplasm.

Enchondromas may be approached dorsally or laterally. The initial biopsy may be done through a limited exposure and the diagnosis confirmed on frozen section if available before proceeding with wider exposure. Several reports have emphasized the need for thorough curettage, with recurrence being attributed to inadequate curettage. Iliac crest or distal radius bone graft has been most commonly used to fill the defect left after curettage.

Other methods of reconstruction includes only curettage and protected activity till bone regeneration. Fresh frozen or freeze-dried irradiated allograft. Injectable calcium phosphate bone cement to fill the defect. Methyl methacrylate cement has been advocated to fill the defect ensures immediate stability and facilitates early motion.

Early mobilization may be encouraged in an effort to minimize joint stiffness, provided that there is sufficient residual bone stock and stability. The incidence of local recurrence after curettage was 4.5%. Malignant degeneration of monostotic enchondroma to chondrosarcoma, though rare, has been well described.

Bibliography:


