# CASE REPORT

## SYNOVIAL CHONDRAMATOSIS OF PROXIMAL INTERPHALANGEAL JOINT OF MIDDLE FINGER: A RARE CASE REPORT

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**HOW TO CITE THIS ARTICLE:**
T. Bhavani Prasad, Sandeep Saraf, Sasi Bhushan Reddy, Ravi Teja, Rajesh Reddy. "Synovial Chondramatosis of Proximal Interphalangeal Joint of Middle Finger: A Rare Case Report". Journal of Evidence based Medicine and Healthcare; Volume 1, Issue 15, December 15, 2014; Page: 1955-1960.

**INTRODUCTION:** Synovial chondromatosis is a rare condition in which multiple cartilaginous nodules develop in the intimal layer of synovial membrane of joints, bursae or tendon sheaths as a result of subsynovial connective tissue metaplasia.[1] The etiology is unknown. The cartilaginous foci become pedunculated and may be sequestrated into the synovial cavity to form loose bodies. The centre of a focus may calcify and ossify, but the term osteochondromatosis is confusing and best avoided. Although this condition usually involves large joints such as knee, it has very rare instances been reported in hand and wrist.[1] Because of its low prevalence and non-specific symptoms, it presents diagnostic difficulties for hand surgeon and lead to delay in treatment.[1]

The knee is involved in two thirds of patients, with the hip or elbow about equally divided as the next most frequent site.[2] Lesions of the shoulder, ankle, carpus, tarsus, temporomandibular joint,[3] and fingers have been reported on isolated occasions.[4] About 10% of the knee, hip, elbow and shoulder lesions are bilateral. Males are affected twice as often as females, and age ranges from 14 to 67 years with a peak in the fifth decade.[5] We have reviewed the literature and hereby report a case of synovial chondramatosis over flexor aspect of proximal interphalangeal joint of middle finger which is extremely rare.

**CASE REPORT:** A 21 years old male patient, student by occupation, reported with a swelling over the flexor aspect of the proximal interphalangeal joint of middle finger of left hand for last 3 years. He first noticed a small swelling, which was gradually progressive (Fig-1). Painless to start with, the swelling became dull aching since last 1 year. The pain aggravated on movements at PIP Joint. There was no history of trauma, fever or pain in other joints. On examination there was a single (2 x 3) cm globular swelling flexor aspect of the proximal interphalangeal joint of middle finger of left hand. The swelling was firm to hard in consistency with multiple bony hard nodules which freely mobile against each other and over the underlying bone. There were no a sign of local inflammation. Flexion and Extension were limited and painful.

**FIGURE 1: Clinical photograph of swelling over left hand middle finger**

Roentgenogram of the left hand (Fig-2) showed soft tissue shadow with sclerosis of PIP joint and base of middle phalanx of left Middle finger in antero-posterior view and multiple radio-opaque shadow and periosteal reaction volarly in lateral view. Articular margins were intact and joint space was maintained.

**FIGURE: 2: X-ray of left hand PA View and Lateral View**

MRI sagittal (Fig-3) and axial (Fig-4) sections Showed encapsulated soft tissue swelling with hyperintense signals over volar, medial and lateral aspect of flexor tendon of middle finger at PIP Joint and Base of middle phalanx.

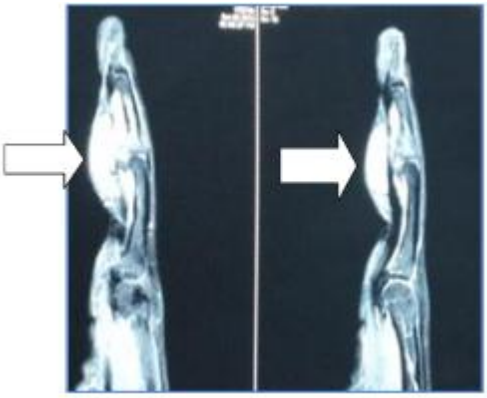


FIGURE 3: SAGITAL SECTION

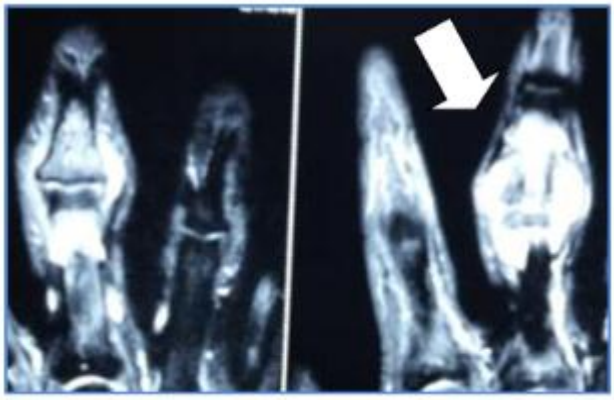


FIGURE 4: AXIAL SECTION

At operation, the joint was explored, there was hypertrophied synovial membrane studded with multiple glistening, whitish and hard loose bodies (Fig-5 & Fig-6).The synovial membrane and loose bodies were removed (Fig-7).

FIGURE 5

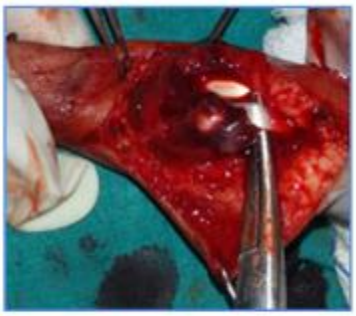


FIGURE 6

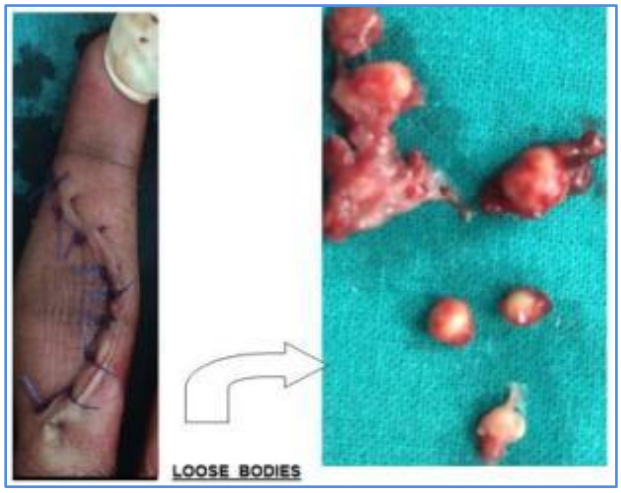


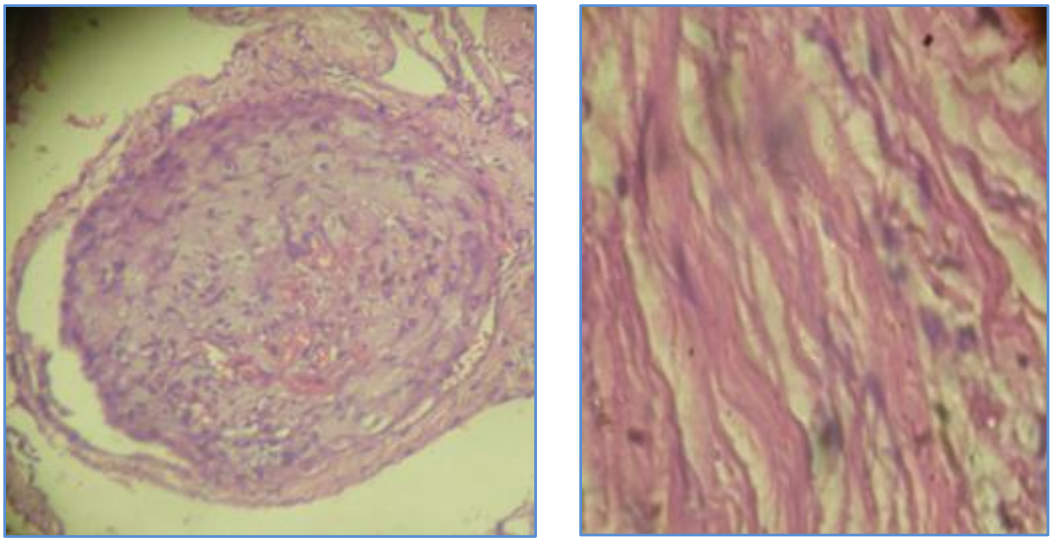

FIGURE 7

Post-operative x-ray shows complete removal of loose bodies and soft tissue. (Fig-8)

**FIGURE 8: POST-OP X-RAY**

Shows complete removal of calcified soft tissue mass over PIP Joint of LT middle finger.

**HISTOPATHOLOGY:** Histopathological examination of a specimen showed the typical cartilaginous tissue with areas of metaplastic synovial tissue and its conversion in to cartilage (Fig-9). The patient is still under observation, and when last seen had no symptoms and no abnormality of the involved joint on examination.



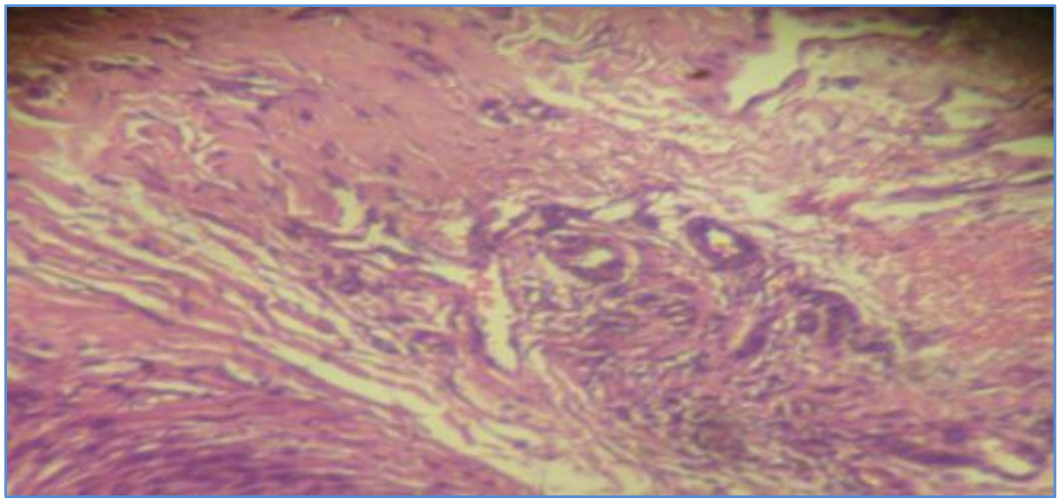


**FIGURE 9**

**FIGURE 9:** Lobulated Osteochondral loose body, consisting mainly of central cartilaginous material with focal endochondral ossification and covered with a layer of fibrotic synovial membrane. Attenuated synovial cells are present on the surface (Haematoxylin and Eosin stained section).

**DISCUSSION:** The etiology of synovial chondromatosis is still far from clear. The usual explanation is that, myriad tiny fronds of synovial tissue undergo cartilage metaplasia at their tips. These tips break free and may ossify. It has, however, been suggested that chondrocytes may be cultured in the synovial fluid and some of the products are then deposited onto previously normal synovium, so producing the familiar appearence.[6]

Confirmation of diagnosis is obtained by histopathological examination. Numerous rounded masses of cartilage, often with bony centres, are seen lying immediately under the surface of the synovial membrane. These foci may be sessile, or pedunculated in synovial villi. A transitional zone of cellular metaplasia surrounds the focus. The staining reactions are those of normal cartilage.[1]

It is a benign, slowly progressive condition with a strong tendency to eventual resolution. In many cases spontaneous regression occurs after incomplete synovectomy or simple removal of the loose bodies either by arthroscopy or open operation. Recurrence after surgery is not unusual, and there are rare reports of malignant transformation to chondrosarcoma.[7]

**SUMMARY:** Synovial chondramatosis is a rare disease; involvement of Proximal Interphalangeal Joint is still rarer. Only 1 case of synovial chondramatosis over PIP Joint of Index finger has been reported in Literature.[1]

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Date of Submission: 13/11/2014.
Date of Peer Review: 14/11/2014.
Date of Acceptance: 28/11/2014.
Date of Publishing: 15/12/2014.