(International Print/Online Journal)

SJIF IMPACT FACTOR: 5.565
PUBMED-National Library of Medicine ID-101739732

ISSN (Print): 2209-2870
ISSN (Online): 2209-2862

International Journal of Medical Science and Current Research (IJMSCR)
Available online at: www.ijmscr.com
Volume 5, Issue 2, Page No: 1176-1182
March-April 2022

IJMSCR

Synovial Osteochondromatosis Of The Elbow Causing Ulnar Nerve Neuropathy – A Case Report

Dr. Somashekar[1], Dr. Kiran Kumar HV[2], Dr. Karan C.L[3]
[1]Professor, [2]Assistant Professor, [3]Junior Resident,
Kempegowda Institute of Medical Sciences, Bengaluru

***Corresponding Author:**
Dr. Karan C L
Department of Orthopaedics, Kempegowda Institute of Medical Sciences, Bangalore – 560004

Type of Publication: Case Report
Conflicts of Interest: Nil

Abstract

Synovial osteochondromatosis is a monoarticular benign metaplastic proliferative disorder of the synovium, usually of a large joint caused by osteocartilaginous loose bodies. It most commonly involves the knee joint (70%) followed by the hip (20%). Very few cases in the elbow joint, shoulder and wrist have been reported in literature. We report a case of a 45 year old female patient who presented with a significant swelling in the elbow with symptoms and signs of ulnar nerve palsy. The patient was evaluated and was diagnosed to have a primary synovial osteochondromatosis of the left elbow joint with ulnar nerve neuropathy. The patient was surgically managed by elbow joint debridement and synovectomy with ulnar nerve decompression and followed up for the reduction in the size of the elbow and the range of movements.

Keywords: Synovial osteochondromatosis, elbow joint, ulnar nerve palsy

Introduction

Synovial osteochondromatosis is a rare, benign, monoarticular and cartilaginous metaplasia of synovial membrane of joints, bursae and tendon sheaths. It is characterized by the formation of intra-articular cartilaginous nodules in the synovium of joints. It can affect any synovial joint but is commonly seen in large joints including the knee (70%) and hip(20%)[1]. There are few cases reported in the elbow, wrist, shoulder and ankle joints. Synovial osteochondromatosis complicated by nerve compression neuropathy at the elbow have been rarely reported. It most often affects middle-aged men in the third or fifth decade of life.[2] The clinical manifestations of primary synovial osteochondromatosis are non-specific including swelling, pain, decrease in the range of movement of the joint.

Synovial osteochondromatosis is known to occur in two forms, primary and secondary. The aetiology of the primary form has not been determined. Secondary synovial chondromatosis has been described to occur due to mechanical changes in a joint due to arthropathy[3]. Brodie confirmed the loose bodies originated from synovium. However, he noted that it could arose outside the synovial membrane in some cases[4]. Extra-articular form of the condition has been described in literature. In these cases, the lesions are found to be in bursa, tenosynovial tissue adjacent to an involved joint.

We report a case of a 45 year old female patient primary synovial osteochondromatosis of the left elbow joint with ulnar nerve neuropathy treated by elbow joint debridement and synovectomy with ulnar nerve decompression and conducted a literature review.

Case report

A 45-year-old female patient came with a history of pain in the left elbow since 1 year and swelling in the elbow since 3 months associated with increase in

pain. The patient also complained of numbness in the ring and little fingers of the hand. The patient did not give any history of trauma, or any constitutional symptoms such as fever, night sweats, loss of weight or appetite. On examination, a significant diffuse swelling was noted in the elbow. There was no restriction of movements of the elbow joint. Terminal restriction of pronation was noted with full range of supination. A hypoesthesia was noted over the ipsilateral little finger and ulnar half of the ring finger, pointing to a neuropathy of the ulnar nerve. Other joints were normal.

X-ray of the elbow showed chronic osteoarthritic changes, erosions of adjacent bones with destruction of the radial head with surrounding calcification. The patient presented to our hospital with an MRI which showed multiloculated wall enhancing lesions around the elbow joint with loose bodies. Cortical erosion was noted with destruction of articular cartilage. A differential diagnosis of inflammatory synovitis or synovial chondromatosis or synovial chondrosarcoma was made. The patient was advised to undergo core needle biopsy which suggested primary synovial osteochondromatosis. Routine blood investigations were normal.

The patient was planned for surgical management by joint debridement and synovectomy. A posterior surgical approach was taken and triceps muscle split to access the elbow joint. We found multiple calcific bodies adherent to the thickened synovium and within the joint space. Extensive joint debridement was done and the joint was irrigated thoroughly. One large and multiple small loose bodies were removed. The samples were sent for histopathology which confirmed the diagnosis. Ulnar nerve exploration was done and released. The nerve was found to be free following removal of the mass and decompression.

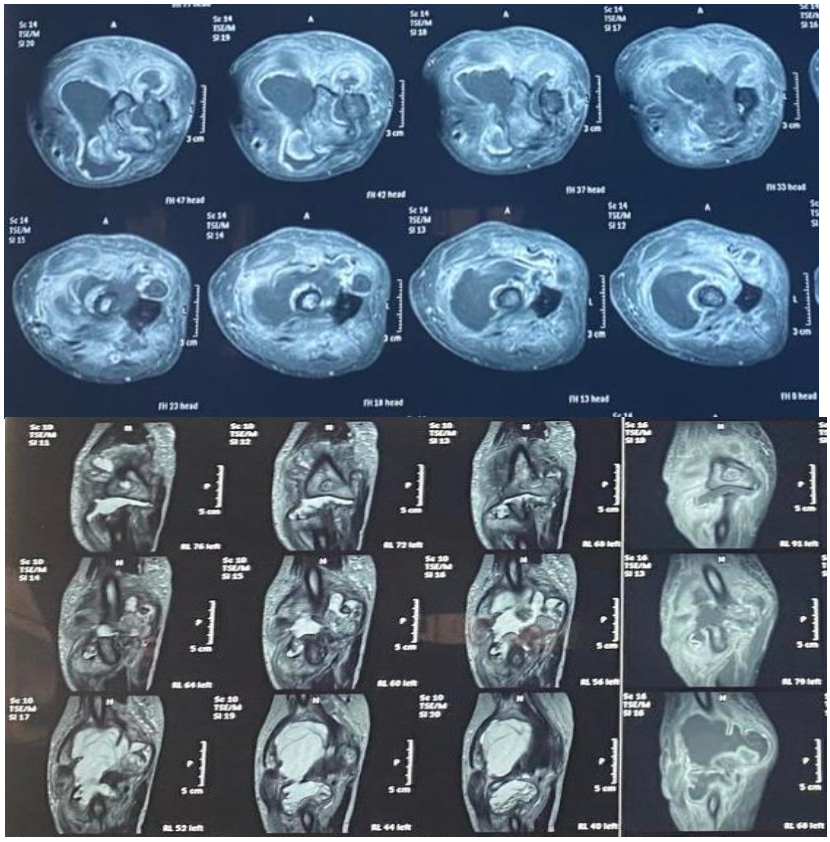
Post-operatively the elbow was immobilized in above elbow splint for 4 weeks and was subsequently started on graded mobilization. The patient was followed up regularly to note the reduction in the size of the elbow and the range of movements. At the end of 6 months, swelling had subsided and the patient had no symptoms of ulnar neuropathy.

Figure 1: Clinical photographs of left elbow swelling

Volume 5, Issue 2; March-April 2022; Page No 1176-1182

Figure 2: Pre-operative radiograph showing osteoarthritic changes, erosions of adjacent bones, destruction of the radial head, surrounding calcification

Figure 3: MRI showing multiloculated wall enhancing lesions around the elbow joint with loose bodies



Volume 5, Issue 2; March-April 2022; Page No 1176-1182

Figure 4: Posterior approach to the elbow

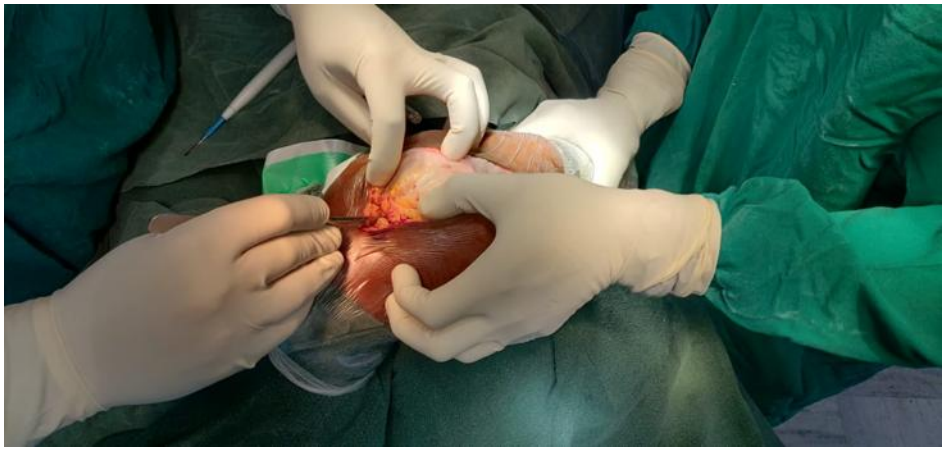
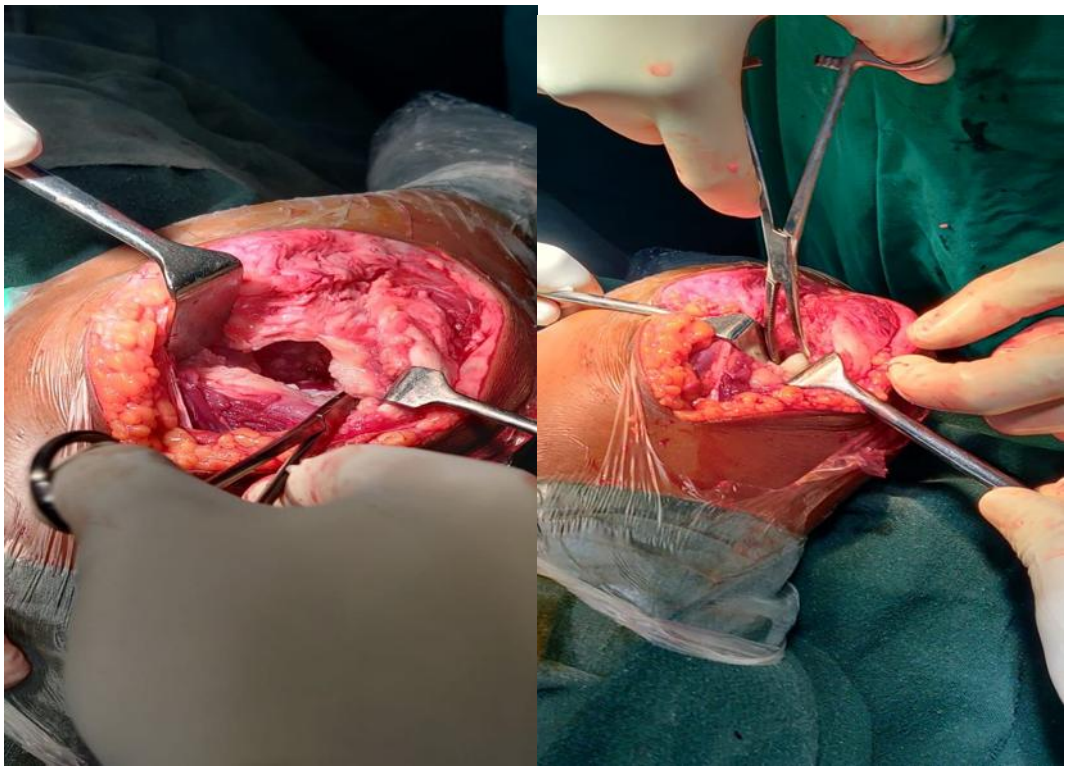


Figure 5: Intra-operatively we found multiple calcific bodies adherent to the thickened synovium and within the joint space. Removal of loose body



Volume 5, Issue 2; March-April 2022; Page No 1176-1182

Figure 6: Extensive joint debridement was done

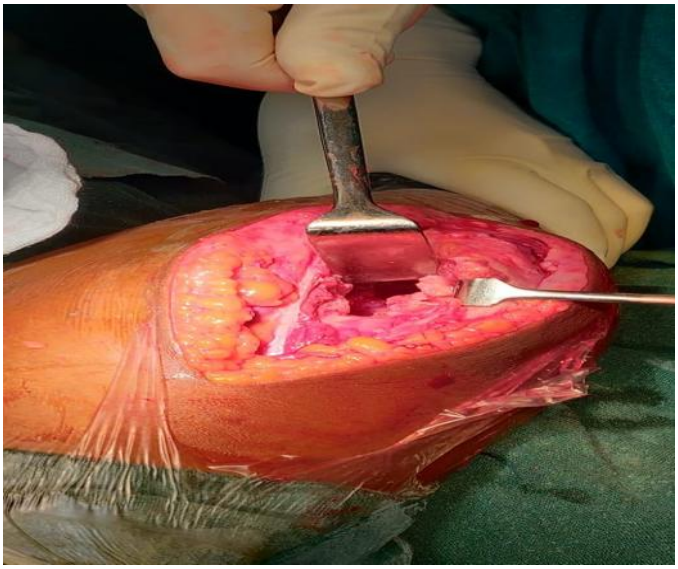


Figure 7: Ulnar nerve exploration was done and released

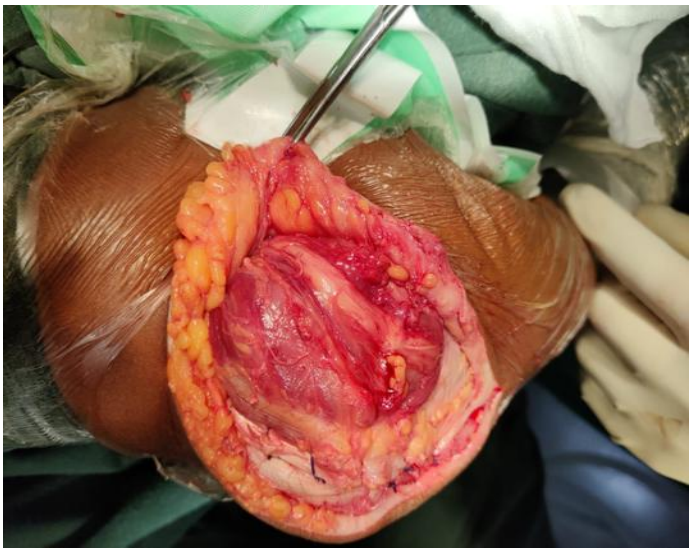


Figure 8: Post-operative X-ray showing removal of calcified synovium

Volume 5, Issue 2; March-April 2022; Page No 1176-1182

Discussion

Synovial osteochondromatosis of the elbow joint is an uncommon condition. It is characterized by proliferation of synovial and extra-synovial adjacent soft tissue. Milgram et al.[5] studied the disease process and classified them into three distinct stages. In the first stage, the synovial lining undergoes cartilaginous metaplasia, causing active intrasynovial disease only, with no loose bodies. In the second stage, the nodules begin to detach from the synovium and appear as loose bodies, the patient becomes symptomatic. Multiple loose bodies can be observed in the third stage within the joint cavity with no visible intrasynovial bodies, indicating that activation of the synovium has subsided. There is a tendency of the loose bodies to unite and calcify.

The clinical findings are non-specific and may be suggestive of other pathology conditions. Patients usually present with pain, swelling, stiffness, or a detectable mass. The patient may experience locking or catching in the joint. Occasionally, the mass may proliferate beyond the joint and into the adjoining soft tissue causing compression neuropathy of the adjacent nerves. Diagnosis can be delayed due to the rarity of the disease and its nonspecific symptoms[6].

The plain radiographic appearance of the multiple synovial osteochondromatosis is multiple calcified bodies, typically smooth, round, and of variable size found within the joint capsule[7]. Erosion of the adjacent bone may be present which might mimic a malignant condition. MRI is a useful since the clinical and radiological findings are non-specific. The malignant transformation of synovial chondromatosis is rare but this diagnosis must be established to start appropriate treatment[8]. Therefore, the standard method to confirm the diagnosis of synovial osteochondromatosis is tissue biopsy followed by pathological examination[9].

The involvement of the ulnar nerve at SC of the elbow joint is extremely rare. Kiminori Yukata et al.[10] retrieved seven cases of ulnar nerve palsy associated with synovial osteochondromatosis from the articles published from 1950 to until 2015 on Medline database. Surgical treatment was done in all these cases by nerve decompression or anterior subcutaneous nerve transposition.

The goal for the treatment is to remove the loose bodies, improve pain symptoms, regain movement in the joint, and limit the development of early osteoarthritis[11]. The treatment of primary synovial chondromatosis requires surgery, and the removal of the loose bodies. The standard method for treatment has been Open arthrotomy and synovectomy. A study done to compare removal of the loose bodies alone with arthroscopic synovectomy concluded that recurrence rate is significantly lower when synovectomy is performed[12].

Proper preoperative planning is necessary. A dual anterior and posterior surgical access can be considered for perimetral exposure of the elbow. It has the advantage of a better control of the vascular and neuro structures and easier radical synovectomy, especially in significant distension of the elbow[13].

Arthroscopic removal has been described in newer literature. The advantages of arthroscopic removal are good visualization during surgery, low morbidity, less surgical trauma, early rehabilitation. However, recurrence is known to occur and the patient needs to be counselled[14].

Post-operative management includes a progressive range of motion and strengthening of peri-articular muscle groups. In our case we extracted one large and multiple small loose bodies from left elbow. Those which were deep or adherent to synovium were removed by synovectomy and thorough joint irrigation. We preferred a posterior approach to access the elbow joint and found to have an adequate exposure to perform synovectomy. On follow up, patient was pain free with no recurrence of symptoms.

Conclusion

Synovial osteochondromatosis of the elbow joint is an uncommon condition. The involvement of the ulnar nerve is extremely rare. The diagnosis can be made with clinical, radiological and histo-pathological findings. The treatment is joint debridement, synovectomy and removal of the loose bodies. Ulnar nerve palsy can be managed by nerve decompression or anterior subcutaneous nerve transposition.

References

Volume 5, Issue 2; March-April 2022; Page No 1176-1182

1. Davis RI, Hamilton A, Biggart JD. Primary synovial chondromatosis: a clinicopathologic review and assessment of malignant potential. *Hum Pathol*. 1998;29(7):683-688. doi:10.1016/s0046-8177(98)90276-3
2. Gu, H., Li, W., Dai, M., Zhang, B., Liu, H., & Ding, Y. (2016). Synovial osteochondromatosis of the wrist joint: A case report. Oncology Letters, 11, 1819-1822. https://doi.org/10.3892/ol.2016.4106
3. Habusta SF, Tuck JA. Synovial Chondromatosis. [Updated 2021 Jan 3]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK470463/
4. Loong, L. L., An, W. K., & Zakaria, Z. (2019). A Rare Case of Synovial Osteochondromatosis of the Elbow. *Borneo Journal of Medical Sciences (BJMS)*, 49-49.
5. Milgram JW. Synovial osteochondromatosis: a histopathological study of thirty cases. The Journal of Bone and Joint surgery. American Volume. 1977 Sep;59(6):792-801. PMID: 908703.
6. Ho YY, Choueka J. Synovial chondromatosis of the upper extremity. *J Hand Surg Am*. 2013;38(4):804-810. doi:10.1016/j.jhsa.2013.01.041
7. Kenneth Wong, David Sallomi, Dennis L. Janzen, Peter L. Munk, John X. O'Connell, Mark J. Lee. Monoarticular synovial lesions: Radiologic pictorial essay with pathologic illustration, Clinical Radiology. Volume 54, Issue 5, 1999, Pages 273-284, ISSN 0009-9260, https://doi.org/10.1016/S0009-9260(99)90554-8.
8. Anract P, Katabi M, Forest M, Benoit J, Witvoët J, Tomeno B. Chondromatose synoviale et chondrosarcome. Etude des rapports entre les deux affections [Synovial chondromatosis and chondrosarcoma. A study of the relationship between these two diseases]. *Rev Chir Orthop Reparatrice Appar Mot*. 1996;82(3):216-224.
9. Gu, H., Li, W., Dai, M., Zhang, B., Liu, H., & Ding, Y. (2016). Synovial osteochondromatosis of the wrist joint: A case report. Oncology Letters, 11, 1819-1822. https://doi.org/10.3892/ol.2016.4106
10. Yukata K, Murase M, Hashimoto T, Shimaoka Y, Taguchi T, Hamawaki J. Ulnar nerve palsy caused by synovial protrusion in synovial chondromatosis of the elbow: a case report and literature review. *Shoulder Elbow*. 2018;10(2):128-132. doi:10.1177/1758573216683396
11. Sedeek, SM, Choudry, Q, Garg, S. Synovial chondromatosis of the ankle joint: clinical, radiological, and intraoperative findings. Case Rep Orthop. 2015;2015:359024.
12. Ogilvie-Harris DJ, Saleh K. Generalized synovial chondromatosis of the knee: a comparison of removal of the loose bodies alone with arthroscopic synovectomy. *Arthroscopy*. 1994;10(2):166-170. doi:10.1016/s0749-8063(05)80088-x
13. Giannetti, S., Santucci, A., Patricola, A. *et al.* Neglected synovial osteochondromatosis of the elbow: a rare case. *World J Surg Onc* 11**,** 233 (2013). https://doi.org/10.1186/1477-7819-11-233
14. Wahab H, Hasan O, Habib A, Baloch N. Arthroscopic removal of loose bodies in synovial chondromatosis of shoulder joint, unusual location of rare disease: A case report and literature review. *Ann Med Surg (Lond)*. 2018;37:25-29. Published 2018 Dec 5. doi:10.1016/j.amsu.2018.11.016

Volume 5, Issue 2; March-April 2022; Page No 1176-1182