



International Journal of Orthopaedics Sciences

E-ISSN: 2395-1958
P-ISSN: 2706-6630
IJOS 2024; 10(3): 24-27
© 2024 IJOS
www.orthopaper.com
Received: 06-06-2024
Accepted: 08-07-2024

Dr. G Ruthvik Reddy
Assistant Professor,
Orthopaedics, Apollo Institute of
Medical Sciences and Research
Centre, Hyderabad, Telangana,
India

Dr. Syeda Saba Khaleel
Senior Resident, Apollo Institute
of Medical Sciences and Research
Centre, Hyderabad, Telangana,
India

Dr. Rizwan Yusuf Halai
Junior Resident, Apollo Institute
of Medical Sciences and Research
Centre, Hyderabad, Telangana,
India

Dr. Vamsi Krishna
Junior Resident, Apollo Institute
of Medical Sciences and Research
Centre, Hyderabad, Telangana,
India

Corresponding Author:
Dr. G Ruthvik Reddy
Assistant Professor,
Orthopaedics, Apollo Institute of
Medical Sciences and Research
Centre, Hyderabad, Telangana,
India

Unusual Etiology of shoulder pain: A rare case report of synovial chondromatosis managed arthroscopically

**Dr. G Ruthvik Reddy, Dr. Syeda Saba Khaleel, Dr. Rizwan Yusuf Halai
and Dr. Vamsi Krishna**

DOI: <https://doi.org/10.22271/ortho.2024.v10.i3a.3574>

Abstract

Case Background: Synovial chondromatosis is a rare type of benign bone tumour that grows outside the bone. Most people have multiple nodules or tumors in a single joint. The most common place for nodules to form is your knee. Nodules may also affect your elbow, hip or shoulder. This case is of a 46-year-old male who initially presented with right Shoulder pain. The patient was ultimately found to have extensive synovial chondromatosis. The diagnosis was confirmed by histopathologic evaluation and treated with loose body removal and radical synovectomy via an arthroscopic approach.

Conclusion: Synovial chondromatosis can be successfully treated arthroscopically as it provides intra-articular and extra articular access with early rehabilitation, lesser morbidity, and early recovery.

Keywords: Arthroscopic management, loose bodies, shoulder synovial chondromatosis, shoulder pain.

Introduction

Synovial chondromatosis is a benign idiopathic metaplasia of the synovial membrane. It affects one in 100000 persons. It is 3 times more common in males, arising between 30 and 50 years of age and mainly affects large joints such as the knees (70%), hips (20%) and shoulders (19%). Its etiology is unknown, although it has been associated with chromosomal mutations (p21.3 and 12q13) that affect proteins,

Milgram described three stages

- (1) Active disease without intraarticular loose bodies,
- (2) Transitional lesions with synovial proliferation and loose bodies, and
- (3) Loose bodies without synovial disease.

The purpose of this case report is to describe key elements in the clinical presentation, diagnostic workup, and management of the patient with extensive SC of the shoulder, to review the pathology report of a patient who was treated arthroscopically.

The Treatment for synovial chondromatosis in the past has classically been open arthrotomy, synovectomy, and removal of the free fragments. With recent advances in arthroscopic techniques, arthroscopy has become one of the methods for treatment of synovial chondromatosis of the shoulder. Arthroscopy of the shoulder is not only an extremely skilled surgery but also requires a lot of perseverance and patience when it comes to technically challenging procedures such as retrieval of multiple loose bodies of varying sizes.

Case Report

A 40-year-old, right-hand-dominant man presented to the orthopaedic department with right shoulder pain and restriction of movements. He reported a 6 months history of pain of unknown origin, with no previous trauma. The pain was insidious in onset, gradually progressive, dull aching, non-radiating, aggravated with shoulder movements which decreased with taking rest or medication with no diurnal variation.



Fig 1: Showed multiple loose bodies in the shoulder joint.

The patient was treated conservatively with medications. The patient was unable to comb hair, reach for overhead objects, and he had difficulty in riding his motor bike. There was no history of trauma, fever, multiple joint pains, and morning stiffness of joints, no loss of weight or appetite, or any other systemic illness. On physical examination, there was muscle wasting. There was no local rise of temperature or tenderness. His range of movements was grossly restricted with flexion of 45 degrees, extension of 10 degrees, abduction of 30 degrees, external rotation of 30 degrees, and internal rotation of 15 degrees. The shoulder movements were associated with pain and crepitus. There was no distal neurovascular deficit. The contra-lateral shoulder joint and other joints examination were normal. The general systemic and physical examination was normal. The hemogram, erythrocyte sedimentation rate, C-

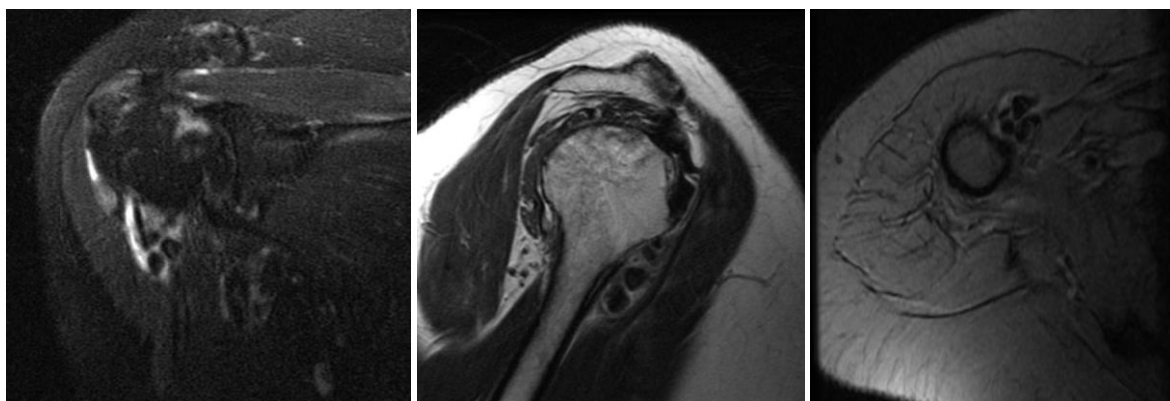
reactive protein were normal.

The X-ray Figure 1 showed multiple loose bodies in the shoulder joint.



Fig 2: Showed multiple loose bodies in the shoulder joint, in the subdeltoid region, and subscapularis muscle with subacromial bursitis

The MRI Figure 2 showed multiple loose bodies in the shoulder joint, in the subdeltoid region, and subscapularis muscle with subacromial bursitis.



The patient was then prepared for arthroscopic removal of the loose bodies and subacromial decompression with informed written consent. The patient was made to lie in the beach chair position under general anesthesia. Posterior, posterolateral

and anterior portals were used for the procedure. Most of the loose bodies were extracted through the anterior portal. The loose body extraction was followed by subacromial decompression.



Fig 3: Arthroscopic View of loose bodies

More than 7 loose bodies [Figures 3-4] of varying size and shapes were removed arthroscopically. The patient was given arm pouch post-operatively. The patient's shoulder was mobilized both actively and passively on the 4th post-operative day after the patient was comfortable enough to initiate shoulder movements.



Fig 4: Loose bodies of variable size after extraction

Investigation

XRAY: Plain radiography, obtained during this initial consultation, demonstrated multiple calcific densities over the glenohumeral joint suggestive of synovial osteochondromatosis

MRI: Subsequent MRI demonstrated multiple calcified intra-articular loose bodies around the anterior and posterior joint and axillary recess. These were considered pathognomonic, and confirmed the diagnosis of synovial osteochondromatosis

Diagnosis

Synovial chondromatosis (Milgram stage 2)

Evolution

After 4 months rehabilitating functional reaches, the patient achieved a full arc without shoulder pain and a final Constant of 75 points. There were no recurrences of the problem after 2 years of follow-up

Discussion

The case of synovial chondromatosis of the shoulder is very uncommon and its arthroscopic treatment has not been studied much in the literature. The recurrence rate of synovial chondromatosis ranges from 3.2% to 22.3% [7]. Although the disease is quite uncommon, it still displays the possibility of malignant transformation. Recurrent synovial chondromatosis at the same location favors diagnosis malignant transformation to synovial chondrosarcoma [8]. Although the definitive etiology of synovial chondromatosis is not known, it can be classified as primary or secondary. The primary form is uncommon, it does not have a known cause and is frequently monoarticular. Secondary reasons include primarily trauma, then osteochondritis dissecans, rheumatoid arthritis, and tubercular arthritis

Milgram defined three stages of synovial chondromatosis. At Stage 1, there is active intrasynovial disease but no free fragments. At Stage 2, there is active intrasynovial proliferation, and lesions are seen in transition to free fragments, and at Stage 3, there are multiple osteochondral free fragments, but active intrasynovial disease is not seen [9]. Controversy still lies over the management, whether open

removal of the loose bodies is better or the arthroscopic retrieval is better. Open surgery would provide easy access to sites that would be difficult with arthroscopy, wide visualization capability [10]. However, mandatory subscapularis tenotomy, higher morbidity, and inhibition of early rehabilitation are the main disadvantages of open surgery [5].

Arthroscopy allows to avoid damaging the subscapularis and does not require dissection of tissues, improving the Constant test significantly according to Lunn ($P < 0.04$), without significant restrictions on mobility and a more satisfactory postoperative stage [12]. Main disadvantages of arthroscopic surgery are permission of limited synovectomy and difficult interventions around the axillary recess or biceps sheath [11]. There might be a need to change portals of the scope and suction cannula to remove loose bodies in different joint spaces. The subacromial space must be looked for loose bodies. Thorough cleaning, lavage, and synovectomy are important parts of this surgery [8].

Conclusion

Arthroscopic treatment of the synovial chondromatosis of the shoulder is recommended in patients because it provides intra-articular and extra-articular access with early rehabilitation, lesser morbidity, and early recovery.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship

Nil.

Conflicts of interest

*There are no conflicts of interest.

Acknowledgement

None

Learning Points

- Synovial osteochondromatosis of the shoulder is a rare cause of pain but can present in a similar fashion to more common shoulder conditions.
- Radiological findings are pathognomonic, although in early stages, the typical nodules may not be seen on plain radiography, which can lead to a delay in diagnosis.
- Clinicians should maintain an index of suspicion for more unusual causes of shoulder pain and consider repeat imaging and/or specialist referral in cases that are not responding to treatment as expected.
- This case also highlights that significant shoulder pathology can be overlooked when the common clinical screening tests are unremarkable.
- Occasionally, the benign form can transform into secondary malignant synovial chondrosarcoma, therefore, histology of removed nodules is essential. Adequate duration of postoperative follow-up must also be ensured.

References

1. Milgram JW. Synovial osteochondromatosis: a histological study of thirty cases. *J Bone Joint Surg Am.* 1977;59:792-801.
2. Covall DJ, Fowble CD. Arthroscopic treatment of synovial chondromatosis of the shoulder and biceps tendon sheath. *Arthroscopy.* 1993;9:602-4. doi:

- 10.1016/S0749-8063(05)80414-1.
3. Anract P, Katabi M, Forest M, Benoit J, Witvoet J, Tomeno B. Synovial chondromatosis and chondrosarcoma. A study of the relationship between these two diseases. *Rev Chir Orthop Reparatrice Appar Mot.* 1996;82:216-24.
 4. Chen A, Wong LY, Sheu CY, *et al.* Distinguishing multiple rice body formation in chronic subacromial-subdeltoid bursitis from synovial chondromatosis. *Skeletal Radiol.* 2002;31:119-21. doi: 10.1007/s002560100412.
 5. Murphey MD, Vidal JA, Fanburg-Smith JC, Gajewski DA. Imaging of synovial chondromatosis with radiologic-pathologic correlation. *Radiographics.* 2007 Sep-Oct;27(5):1465-88. doi: 10.1148/rg.275075116.
 6. Lunn JV, Castellanos-Rosas J, Walch G. Arthroscopic synovectomy, removal of loose bodies and selective biceps tenodesis for synovial chondromatosis of the shoulder. *J Bone Joint Surg Br.* 2007;89:1329-35.
 7. Tokis AV, Andrikoula SI, Chouliaras VT, *et al.* Diagnosis and arthroscopic treatment of primary synovial chondromatosis of the shoulder. *Arthroscopy.* 2007;23(9):1023.
 8. Urbach D, McGuigan FX, John M, Neumann W, Ender SA. Long-term results after arthroscopic treatment of synovial chondromatosis of the shoulder. *Arthroscopy.* 2008;24:318-22.
 9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/11307084>
 10. Jiménez-Martín A, Zurera-Carmona M, Santos-Yubero FJ, Pérez-Hidalgo S. Arthroscopic treatment of synovial chondromatosis, an unusual cause of shoulder pain. *Reumatol Clin.* 2014;10:416-7.
 11. Raval P, Vijayan A, Jariwala A. Arthroscopic retrieval of over 100 loose bodies in shoulder synovial chondromatosis: a case report and review of literature. *Orthop Surg.* 2016;8:511-5. doi: 10.1111/os.12294.
 12. Habusta SF, Mabrouk A, Tuck JA. Synovial chondromatosis. *StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. PMID: 29262110*

How to Cite This Article

Reddy GR, Khaleel SS, Halai RY, Krishna V. Unusual Etiology of shoulder pain: A rare case report of synovial chondromatosis managed arthroscopically. *International Journal of Orthopaedics Sciences.* 2024;10(3):24-27.

Creative Commons (CC) License

This is an open-access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.