

Case Report

Arthroscopic synovectomy with loose bodies removal in a case of synovial chondromatosis of knee joint

Karthik B.^{1*}, Palanivelrajan², B. P. Sharma³, Vineeth Jain¹, Hitesh Lal¹, Vishnu S.¹

¹Sports Injury Centre, Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi, India

²Madurai Institute of Sports Medicine, Madurai, India

³Central Institute of Orthopaedics, Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi, India

Received: 07 October 2024

Accepted: 19 November 2024

*Correspondence:

Dr. Karthik B.,

E-mail: dr.b.karthik06@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Synovial chondromatosis is a rare condition which affects the synovial joints, tendon sheath, bursa. Mostly commonly seen in 3rd to 5th decade with male predominance. The exact etiology is unknown. usually manifest clinically as synovitis. Clinical evaluation with appropriate radiological evaluation is necessary for the diagnosis. Surgical intervention is appropriate either open or arthroscopic. It involves arthroscopic loose body removal with extensive synovectomy. Histopathological evaluation is required for confirmation of diagnosis. Long term follow up is needed

Keywords: Arthroscopic, Loose bodies, Synovial chondromatosis

INTRODUCTION

Synovial osteochondromatosis (SOC) presents clinically with symptoms that closely mirror traditional joint arthropathies such as osteoarthritis in their temporal course but differ in their histopathology and clinical progression.¹ Synovial chondromatosis is a rare condition that affects synovial joints, tendon sheaths or bursa. It usually affects mono-articular and it occurs bilaterally 10% of the time.² Is most commonly seen in patients between the third and the fifth decades of life and the prevalence in men is up to three times greater than in women.³ The most commonly involved joint is the knee followed by, in descending order of frequency, hip, shoulder, elbow, ankle and wrist.⁴ Histologically, synovial cells undergo metaplasia into chondrocytes, which transform into multiple cartilage nodules.⁵ The treatment of choice for symptomatic patients is surgical intervention.

CASE REPORT

A 45-years-old man came to the outpatient clinic with a history of severe pain in his right knee that was associated

with functional incapacity and limitation of movement for the past 6 months. There is no history of trauma or loss of weight/appetite. Upon examination, the swelling was found in the joint, with a range of movement limited terminally and associated with severe pain and negative joint puncture. From a routine radiological evaluation of the knee in AP view, no abnormalities were seen.

The patient then underwent a magnetic resonance examination, which showed a large accumulation of fluid inside the joint, associated with marked synovial proliferation and associated multiple cartilaginous nodules. The patient underwent an arthroscopy on the right knee, which revealed numerous whitish irregular fragments, with the removal of the lesion and near total synovectomy with removal of loose bodies with debridement of the joint (Figure 3).

The material was sent for pathological examination, which showed the presence of synovial chondromatosis. Eight months after the surgery, the patient is in good general condition, without complaints, with a range of motion of 130° in the left knee without joint effusion or signs of inflammation.

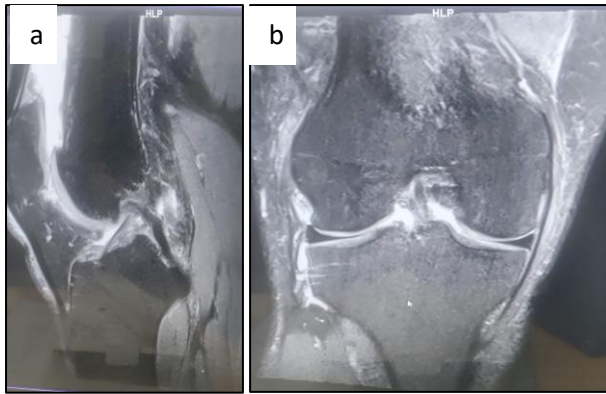


Figure 1: MRI image (a) sagittal and (b) coronal views.



Figure 2: Arthroscopy view showing multiple calcified loose bodies knee joint.

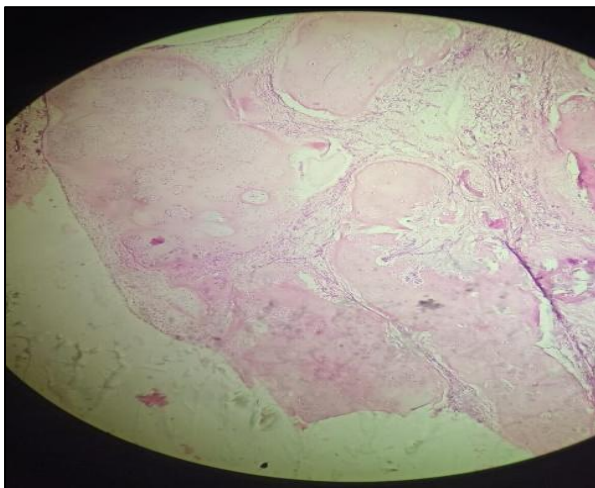


Figure 3: Histopathology.

DISCUSSION

Primary synovial chondromatosis of the knee joint is a rare disease. Its true incidence is unknown. Although primary synovial chondromatosis is a locally aggressive condition

with a slight tendency to recur, it has no metastatic potential. The treatment for symptomatic primary synovial chondromatosis consists of the removal of the cartilaginous bodies with or without partial synovectomy.^{6,7} Conventional radiology is mostly characteristic if the free bodies are calcified (osteochondromatosis), but are difficult to interpret when they are radiotransparent (chondromatosis). T2-weighted magnetic resonance image shows heterogenous synovial hyperplasia and ring-shaped images with a center showing greater intensity.

On arthroscopy, there is a marked thickening of synovium seen and associated with multiple small and loose cartilaginous bodies. Loose bodies removal can be performed using additional necessary portals. The differential diagnosis of the lesion is usually synovial chondrosarcoma which occurs when small fragments of bone or joint cartilage detach and remain in the joint space following trauma or degenerative diseases. Authors believe that the proposed treatment was appropriate since extensive synovectomy presents a greater likelihood of functional limitation.⁷

Complications of synovial chondromatosis can be secondary osteoarthritis, malignant transformation and recurrence.^{8,9} Pigmented villonodular synovitis, synovial hemangioma and lipoma arborescens are a few conditions that can mimic synovial chondromatosis.¹⁰ Radiography and histology may help in accurately differentiating between them.

CONCLUSION

Patient with synovial chondromatosis needs long-term follow-up to look for any recurrence or malignant change. Extensive synovectomy with removal of all loose bodies using necessary portals is essential. The use of additional accessory portals helps in the removal of cartilaginous loose bodies.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. Guglielmino C, Giunta AD, Cassarino AM. Clinical characteristics and treatment outcomes in synovial chondromatosis disease: a case report. *Acta Medica Mediterranea*. 2019;35:1975-80.
2. Neumann JA, Garrigues GE, Brigman BE, Eward WC. Synovial chondromatosis. *JBJS Review* 2016;4:67-9.
3. Ranalletta M, Bongiovanni S, Calvo JM, Gallucci G, Maignon G. Arthroscopic treatment of synovial chondromatosis of the shoulder: report of three patients. *J Shoulder Elbow Surg*. 2009;18:4-8.
4. Bojanić I, Vuletić LB, Troha I, Smoljanović T, Borić I, Seiwerth S. Synovial chondromatosis. *Lijec Vjesn*. 2010;132:102-10.

5. Darfam MD, Czerniak B. "Synovial lesions," in Bone Tumours. Mosby, St. Louis, Mo, USA. 1998: 1041-1086.
6. Hermann G, Klein MJ, Abdelwahab IF, Kenan S. Synovial chondrosarcoma arising in synovial chondromatosis of the right hip. *Skeletal Radiol.* 1997;26(6):366–9.
7. Murphy FP, Dahlin DC, Sullivan CR. Articular synovial chondromatosis. *J Bone Joint Surg.* 1962;44:7–86.
8. Ackerman D, Lett P, Galat DD, Parvizi J, Stuart MJ. Results of total hip and total knee arthroplasties in patients with synovial chondromatosis. *J Arthrop.* 2008;23(3):395–400.
9. Peter H, Neil A, Justin C, Ali F, William H. Malignant transformation in synovial chondromatosis of the knee. *The Knee.* 2001;8(3):239–42.
10. Adelani MA, Wupperman RM, Holt GE. Benign synovial disorders. *J Am Acad Orthop Surg.* 2008;16(5):268–75.

Cite this article as: Karthik B, Palanivelrajan, Sharma BP, Jain V, Lal H, Vishnu S. Arthroscopic synovectomy with loose bodies removal in a case of synovial chondromatosis of knee joint
Int J Res Orthop 2025;11:936-8.