

Arthroscopic Management of Synovial Chondromatosis: Case Report

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ABSTRACT

Synovial chondromatosis (SC) is a rare, benign condition characterized by the formation of cartilaginous nodules within the synovium, which can detach and become loose bodies in the joint space. This case report presents a 38-year-old woman who experienced bilateral knee pain and recurrent locking episodes, predominantly affecting the left knee. After failed conservative management, the patient was treated successfully with arthroscopic surgery, which resulted in symptom relief and improved joint function. The report emphasizes the role of arthroscopy as an effective treatment for SC, offering a minimally invasive option for removing loose bodies and addressing associated cartilage damage.

Keywords: synovial chondromatosis; arthroscopy; loose bodies; chondroplasty; synovectomy.

INTRODUCTION

Synovial chondromatosis (SC) is a rare, benign disorder primarily affecting large joints such as the knee. It occurs when the synovial membrane undergoes metaplastic transformation, leading to the formation of cartilaginous nodules that may become detached and act as loose bodies within the joint. SC often presents with mechanical symptoms, including joint locking, pain, and swelling, and can significantly impair joint function. Due to its non-specific symptoms, it is often misdiagnosed or confused with other joint disorders like osteoarthritis. Early diagnosis and intervention are essential to prevent progressive joint degeneration. Arthroscopic surgery is commonly employed for treatment, as it offers a minimally invasive approach to remove loose bodies, perform synovectomy, and address cartilage damage, leading to substantial symptom relief and functional improvement. 1,2

CASE PRESENTATION

Patient History

A 38-year-old housewife presented with a 6-month history of bilateral knee pain, more severe on the left side, accompanied by recurrent locking episodes. The patient underwent arthroscopic removal of loose bodies in 2008. She reported exacerbation of knee pain with prolonged standing and walking (VAS 6/10). Her pain significantly impacted her daily activities, including work and sleep, despite regular use of analgesics, exercise routines, and a knee brace.

Physical Examination

Both knees exhibited crepitus during movement and tenderness over the patellofemoral joint and lateral joint line. The cruciate and collateral ligaments were intact.

Imaging Studies

- X-ray: Moderate osteoarthritis (OA) changes in the left knee with intra-articular loose bodies; mild OA changes in the right knee.



FIGURE 1: The Lateral view of the left knee demonstrated loose bodies.



FIGURE 2: AP view of both knees showed loose bodies in the left knee joint space

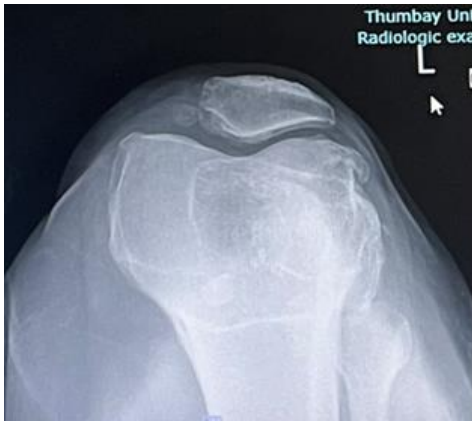


FIGURE 3: Skyline Patellar's view of the left knee shows loose bodies in the patellofemoral joint.

- MRI: Showed chondral damage in the femoral condyles and patellar facets, with multiple loose bodies in the left knee.



FIGURE 4: A Sagittal T2-weighted MRI of the left knee demonstrated loose bodies, consistent with.



FIGURE 5: Coronal Proton Density MRI of the left knee demonstrated loose bodies, consistent with synovial chondromatosis.

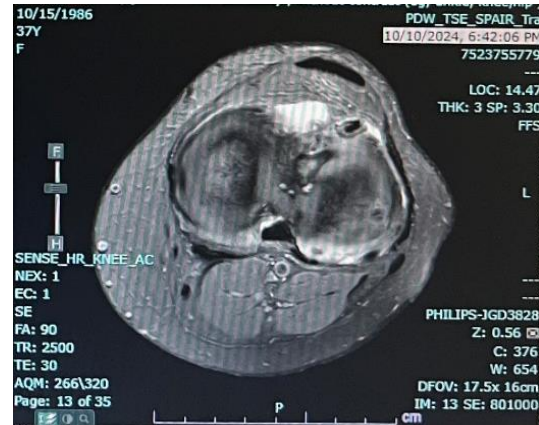


FIGURE 6: Axial Proton Density MRI of the left knee showed loose bodies, indicating synovial chondromatosis.

Treatment History

The patient was already on collagen and glucosamine supplements, as well as analgesics and knee brace support. Physiotherapy was attempted but provided minimal relief, prompting the patient's decision to pursue surgical intervention.

Surgical Management

The patient opted for arthroscopic surgery to address her left knee symptoms. Proposed procedures included:

- Arthroscopic removal of loose bodies
- Synovectomy
- Chondroplasty of arthritic surfaces

SURGICAL INTERVENTION AND FINDINGS Procedure

The patient underwent left knee arthroscopic loose body removal under general anesthesia.

Procedure Steps

- Arthroscopy was performed using anterolateral, anteromedial, and posteromedial portals.
- Loose bodies were identified and removed, with lavage used to clear debris from the joint space.
- Chondroplasty was performed on affected areas to smooth damaged cartilage.
- Synovectomy was carried out in the suprapatellar area and intercondylar notch.

Intraoperative Findings:

- Multiple loose bodies were observed within the joint cavity, consistent with synovial chondromatosis.
- Chondral damage was noted on the femoral condyles and patellar surfaces.

During the arthroscopic procedure, images were captured, demonstrating the visualization of loose bodies on the arthroscopic screen and the extracted loose bodies collected in a specimen container.

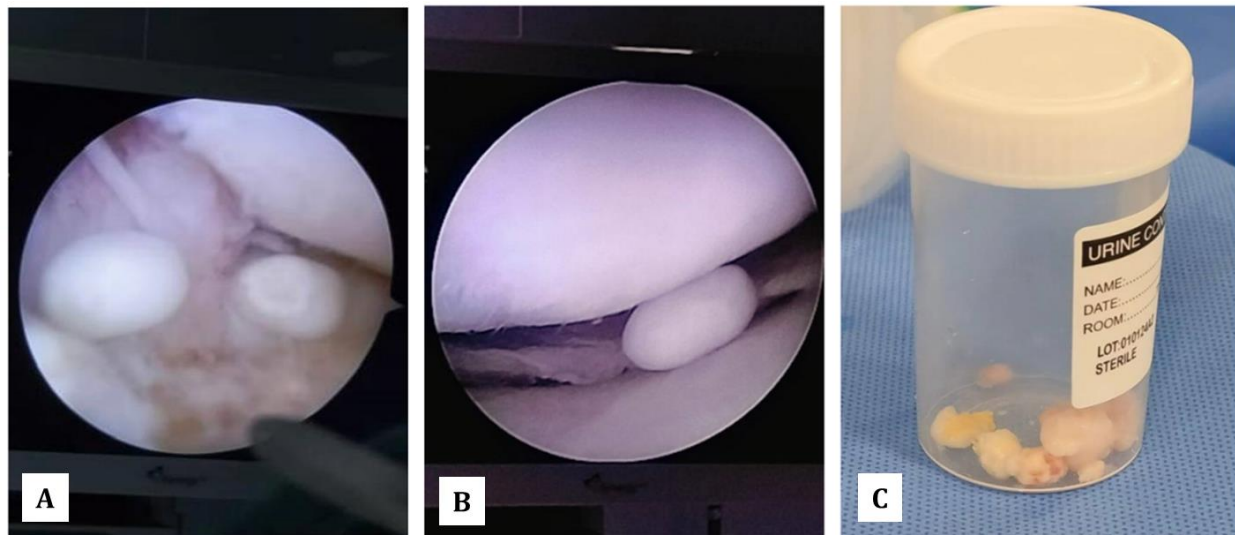


FIGURE 6: (A)&(B) Intra-operative pictures of loose body, (C) the extracted loose bodies were collected in a specimen bottle.

POSTOPERATIVE CARE

Immediate Postoperative Care

- Pain management included NSAIDs and oral analgesics.
- Early mobilization with guidance from a physiotherapist was initiated to restore joint function.

Follow-Up Care

- The patient was scheduled for regular follow-ups to monitor for recurrence and assess recovery progress.
- Long-term physiotherapy was recommended to strengthen periarticular muscles and improve range of motion.

Surgical Procedure

Under general anesthesia, left knee arthroscopy was performed using anterolateral, anteromedial, and posteromedial portals. Loose bodies were removed, and lavage was used to clear joint debris. Chondroplasty smoothed damaged cartilage, and synovectomy was performed in the suprapatellar and intercondylar areas.

Intraoperative Findings

Multiple loose bodies were identified and extracted from the joint cavity. Chondral damage was observed on the femoral condyles and patellar surfaces.

POST-OPERATIVE CARE

Immediate Care

- NSAIDs and analgesics were administered for pain management.
- Early mobilization and physiotherapy were recommended to promote recovery.

Follow-Up

Regular follow-ups were scheduled to monitor for recurrence.

DISCUSSION

Synovial chondromatosis is a rare condition that can lead to significant joint dysfunction if untreated. Arthroscopic intervention provides a minimally invasive option to remove loose bodies, perform synovectomy, and address chondral damage, thus alleviating symptoms and improving joint function. A review of current literature reveals that synovial chondromatosis predominantly affects middle-aged adults, with a higher prevalence in men. The condition is often misdiagnosed due to its non-specific symptoms and can be mistaken for osteoarthritis or other joint disorders. Typical presentations include chronic joint pain, swelling, and mechanical symptoms like locking, similar to those observed in this case. Surgical intervention, particularly arthroscopy, is widely considered the gold standard for treatment, with high success rates in reducing symptoms and preventing recurrence.

Comparatively, this patient's case aligns with the typical presentation regarding age and symptomatology but differs in the duration of symptom onset and the prior history of loose body removal. The post-operative outcomes in this case are consistent with those reported in the literature, emphasizing the effectiveness of arthroscopic management in providing relief and improving joint function. Chondromatosis is a rare condition that can lead to significant joint dysfunction if untreated. The Arthroscopic intervention provides a minimally invasive option to remove loose bodies, perform synovectomy, and address chondral damage, thus alleviating symptoms and improving joint function.^{1,3,4,5,6,8.}

CONCLUSION

This case highlights the importance of early diagnosis and surgical intervention in managing synovial chondromatosis. It contributes to the existing body of knowledge by emphasizing the success of arthroscopic techniques in achieving symptomatic relief and improved joint function.

Furthermore, the detailed follow-up outcomes provide valuable insights into the long-term effectiveness of these surgical interventions in preventing recurrence. The Arthroscopic removal of loose bodies combined with synovectomy and chondroplasty resulted in significant symptomatic relief for the patient. Regular follow-up is essential to monitor for recurrence and ensure long-term joint health.^{7,8}

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