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Case Report

Locking Knee with Unusual Location of Loose Body Finding on Arthroscopy: A Case Report

Ibrahim Alsinan[1], Yassen Alrasasy[2], Ali AlRasasi[3], Adia Abdulaziz Almutairi[4]*, Muath Almuqhim[5], Bashayer AlFuraikh[6], Abdulaziz Almutlaq[7] and Omar Alghamdi[7]

[1]Orthopedic Resident, Imam Abdulrahman Al Faisal National Guard Hospital, Dammam, Saudi Arabia

[2]Orthopedic Consultant, King Fahad Hospital, Hufof, Saudi Arabia

[3]Orthopedic Specialist, King Fahad Hospital, Hufof, Saudi Arabia

[4]Orthopedic Resident, King Abdulaziz National Guard Hospital, Alahsa, Saudi Arabia

[5]Orthopedic Resident, King Saud Medical City, Riyadh, Saudi Arabia

[6]Radiology Resident, King Fahad Hospital, Hufof, Saudi Arabia

[7]Medical Student, College of Medicine, King Faisal University, Alhasa, Saudi Arabia

***Corresponding Author:** Adia Abdulaziz Almutairi, Orthopedic Resident, King Abdulaziz National Guard Hospital, Alahsa, Saudi Arabia.

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Abstract

This article explores the anatomy and movement of the knee joint, focusing on loose bodies that can cause symptoms like pain, swelling, and restricted movement. A case study of a 52-year-old male with a loose body in an unusual suprapatellar location is presented, highlighting the importance of preoperative imaging for diagnosis and surgical planning. Arthroscopic removal is recommended for treating loose bodies to improve knee function, although challenges may arise in addressing them effectively. Early diagnosis and appropriate management can lead to successful outcomes and improved patient mobility.

Keywords: *Arthroscopy; Anatomy; Movement; Knee Joint*

Introduction

The knee is a modified hinge joint. The patellofemoral, medial and lateral tibiofemoral articulations are the three functional compartments of the knee. There are six degrees of movement of the knee joint: anterior-posterior, medial-lateral, inferior-superior, intra- external rotation, adduction-abduction and flexion-extension which is the most important. The extended knee is at 0° and when the hip is flexed, the knee can reach 120° - 140° during active flexion, and it can reach 160° during passive flexion. The interaction of the menisci, ligaments, muscles, capsule and the bony geometry of the femur and tibia maintains the knee's overall movement and stability [1,2].

A knee that is incapable of achieving full extension or exhibits fixed flexion can be defined as a locked knee. It can result from various conditions such as Anterior cruciate ligament (ACL) tears, degeneration, trauma, or loose bodies. Among the numerous possible causes, meniscal tears remain the most frequent cause [2].

Rice bodies and knee joint mice are other names for loose bodies which are fragments of bone or cartilage floating freely in the synovial fluid of the knee joint [3,4]. The presence of a loose body can be related to previous knee surgery, dislocation of patellar in patients

suffering from rheumatoid arthritis (RA) or osteoarthritis (OA), and it causes knee locking when the loose body is stuck between the tibial plateau and femoral condyle when attempting knee extension [2,5]. Despite large loose bodies have been reported, loose bodies are typically small [6].

In this case report we present an unusual location of intraarticular loose body in the knee hiding inside plica.

Case Study

A 52-year-old male presented with right knee pain and locking symptoms for 4 months. The pain worsened with walking and improved with rest. He also had limited range of motion. No history of trauma or significant findings on examination were noted.

On examination, there was mild swelling and tenderness over the suprapatellar area. He had full active and passive range of motion in extension but limited flexion to 90 degrees. McMurray test and Lachman test were negative. X-ray and MRI were ordered for the patient, and MRI revealed a loose body in the suprapatellar area.

The patient was admitted electively for diagnostic knee arthroscopy and was discharged the following day. He was discharged on full weight-bearing mobilization. After 3 months of follow-up in the clinic, his previous symptoms improved, and he achieved full flexion and extension with no locking.

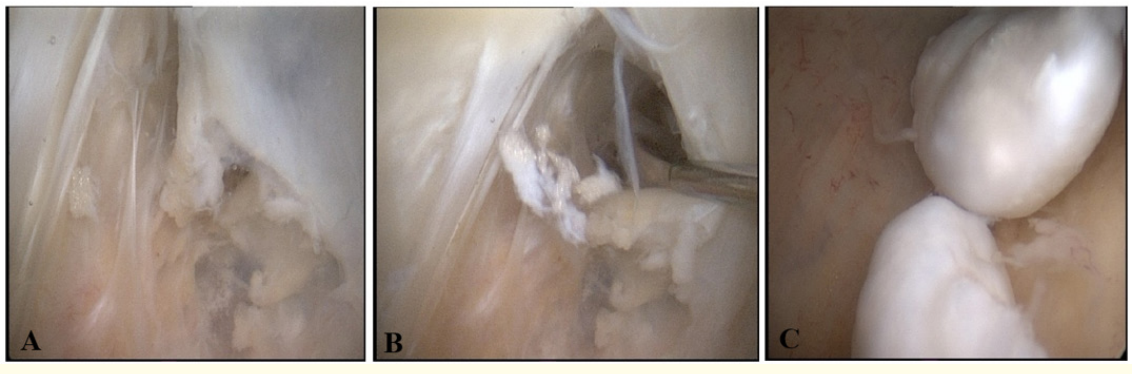

Figure 1: *The two cartilaginous loose bodies hidden between the plicae.*

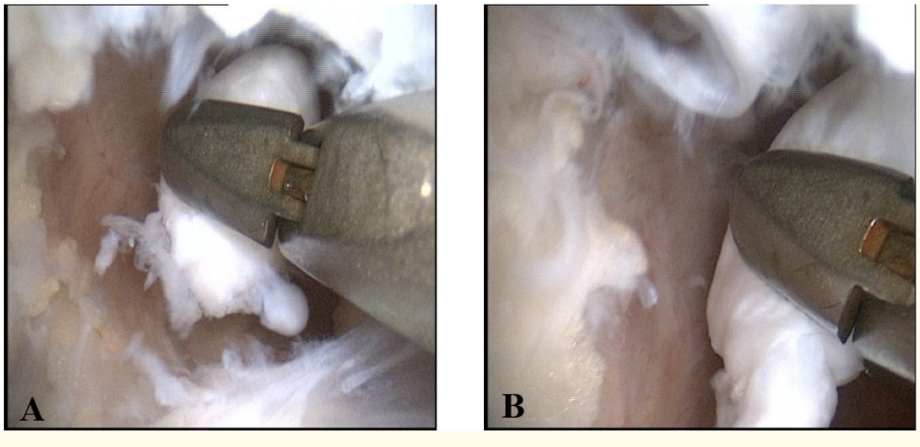

Figure 2: *Shows the extraction of the loose bodies.*

Discussion

Loose bodies are fragments of cartilage or bone that float within the knee joint space. There are two main types: stable loose bodies, which are fixed in position, and unstable loose bodies, which move freely within the joint space which can cause pain, swelling, restricted movement, or locking [7]. Commonly, the loose body is located in the posterior compartment of the knee due to the gravity effect [8]. However, we report an unusual location of the loose body, which is in the suprapatellar pouch, the space above the patella.

Preoperative investigation is crucial for surgical planning of the knee. X-ray is one of the diagnostic modalities used to identify and localize loose bodies within the knee joint. In some cases, repeated x-rays may be needed to determine the location of the loose body on lateral and anteroposterior views. However, further investigation may be required if the loose body is not visible on the x-ray views [9]. Currently, CT and MRI are the preferred imaging modalities for evaluating loose bodies. CT can identify small loose bodies, while MRI can be valuable in identifying loose bodies that are not visible on x-ray as well as those that are difficult to visualize during arthroscopic examination. In addition, MRI is valuable for diagnosing other knee injuries. This comprehensive assessment can provide valuable information for preoperative planning [8,10]. While in our study, X-ray and MRI have been performed preoperatively to confirm the location of the loose body.

Arthroscopic removal is the recommended choice to treat loose bodies in the knee, especially when the symptoms affect the patient's daily activities. Even with the widespread use of arthroscopy, there are still some difficulties to remove loose bodies from various locations within the knee joint [8,11].

Conclusion

In conclusion, loose bodies in the knee joint can present with symptoms such as pain, swelling, restricted movement, and locking. While they are commonly found in the posterior compartment of the knee, our case report highlights an unusual location of a loose body in the suprapatellar area above the patella. Preoperative imaging modalities such as X-ray and MRI play a crucial role in diagnosing and localizing loose bodies within the knee joint, aiding in surgical planning.

Arthroscopic removal remains the recommended treatment option for loose bodies to alleviate symptoms and improve knee function, although challenges may arise in removing them from various locations within the knee joint. Early diagnosis and appropriate management, as seen in our case study, can lead to successful outcomes and improved patient mobility.

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