



Case Report

Knee Pain Due to Loose Body in The Knee Joint: A Case Report in Dr. Kariadi General Hospital Semarang

Faizurrahman Andi Kusuma¹, Robin Novriansyah²

¹Faculty of Medicine Universitas Diponegoro Semarang, Indonesia

²Department of Orthopaedics and Traumatology, Dokter Kariadi General Hospital Semarang, Indonesia

Abstract

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Author Affiliation:

Department of Orthopaedics and Traumatology,
Dokter Kariadi General Hospital Semarang,
Indonesia

Author Correspondence:

Robin Novriansyah
Dr. Sutomo Street No. 16 Semarang,
Central Java 50244, Indonesia

E-mail:

novriansyahrobin@gmail.com

Background : Loose Bodies are fragments consisting of cartilage or bone that move freely in the joint space. The occurrence of Loose Bodies associated with OCD is considered a rare case in Indonesia. The presence of Loose Bodies can cause several symptoms such as pain and resistance to extension and flexion of the knee joint. The presence of an impinging osteophyte in the lateral condyle of the femur, and a pedunculated osteophyte, can provide a clinical feature similar to Loose Bodies. Good anamnesis, physical examination, and diagnosis for correct management can provide a good outcome. The objectives of this study was to provide an overview regarding diagnosis in loose body cases and arthroscopy debridement therapy in loose body cases in the knee joint.

Case : A 42-year-old man was presented with chronic pain in the left knee and limited left knee flexion since 3 years prior. Initially, the patient was diagnosed with grade 2 genu joint osteoarthritis with osteophytes in the lateral condylus. Anamnesis and physical examination were performed at dr. Kariadi General Hospital Semarang. X-photo showed a picture of the Loose Bodies. A debridement arthroscopy was performed. 8 weeks of follow-up no pain, no resistance in flexion and extension, KOOS Score from 18.6 to 92.3.

Conclusion : It is advised to remove loose body in knee joint through arthroscopy debridement. Loose bodies should always undergo thorough workup to determine the diagnosis and treat the patient accordingly.

Keywords : Knee pain, loose body, osteochondritis dissecans, arthroscopy debridement

INTRODUCTION

Loose Bodies are fragments consisting of cartilage or bone that move freely in joint space. The size of Loose Bodies can be categorized into small (<3 mm), medium (4–10 mm), and large (>11 mm). Loose Bodies are frequently associated with direct or indirect trauma against the joints, osteochondritis dissecans (OCD), degenerative joint disease (DJD), and synovial chondromatosis.¹ Osteochondritis dissecans (OCD) is the separation of bone and cartilage tissue in a joint.² The incidence rates per 100,000 person-years were 1.21 to 6.09 for knee OCD and males have higher incidences than females. The Incidence of OCD was highest in the 11–15 years old.^{3,4} The incidence of knee OCD in Indonesia is still undefined and in Dr. Kariadi General Hospital, knee OCD is rarely found. Surgical technique with arthroscopy procedures is the best choice in removing Loose Bodies that cause symptoms in the knee joint due to its minimally invasive nature and it allows the operator to examine the cartilage and perform treatment simultaneously.¹

In this case, a 42-year-old man was presented with chronic pain in the left knee and limited left knee flexion. The patient had a history of falling from a motorcycle 18 years prior and did not see a doctor for treatment. In the last 3 years, the patient underwent physiotherapy and intra-articular corticosteroid injection but the complaints did not improve. Then the patient came to the Orthopedic Clinic of dr. Kariadi General Hospital Semarang with complaints of pain, swelling, and limited left knee flexion. From the anamnesis, physical examination, and radiographic examination of the knee, we got a picture of a loose body. We performed arthroscopy debridement of the loose body due to OCD with good outcome at 8 weeks of follow-up using the Knee Injury and Osteoarthritis Outcome Score (KOOS) from 18.6 to 92.3. This is what prompts us to make a report on this case.

CASE REPORT

A 42-year-old man with complaints of pain in his left knee. The patient is a policeman. History taking revealed that the patient had had a motorcycle accident and hit his left knee 18 years ago. After the accident, the patient felt pain but did not go to the doctor or hospital for his complaints and the complaints gradually improve without therapy. Patients can do activities as usual, exercise, and lift heavy weights.

3 years prior the patient suddenly felt pain in his left knee which gradually worsened. The patient examined complaints, then underwent physiotherapy and got intraarticular injection of corticosteroids.

In the last 1 month, the patient was re-examined with complaints of swelling and pain in the left knee. Joint fluid biopsy was performed on the left knee. Amorphous mass, PMN leukocytes, lymphocytes, monocytes, erythrocytes were found, with no visible malignant cells. Radiological examination revealed a grade 2 knee joint osteoarthritis with osteophytes in the lateral condylus. The patient was then referred to dr. Kariadi General Hospital Semarang.

The patient came to the Orthopedic Clinic of dr. Kariadi General Hospital Semarang, complaining about the frequent restriction of flexion and extension of the left knee so that the patient often fell suddenly while walking around. The patient also felt something moving in his left knee. From the physical examination to the patient, we found swelling, redness, pain and limitations to movement of the left knee. We did some Scoring with the KOOScore with the result of 18.6. Then we performed X-photo of the left genu with anteroposterior view and lateral view. Anteroposterior view showed a loose body on the lateral epicondyle of the genu (Figure 1).

On routine blood examination, normal results were obtained. So, we diagnosed it as knee pain due to

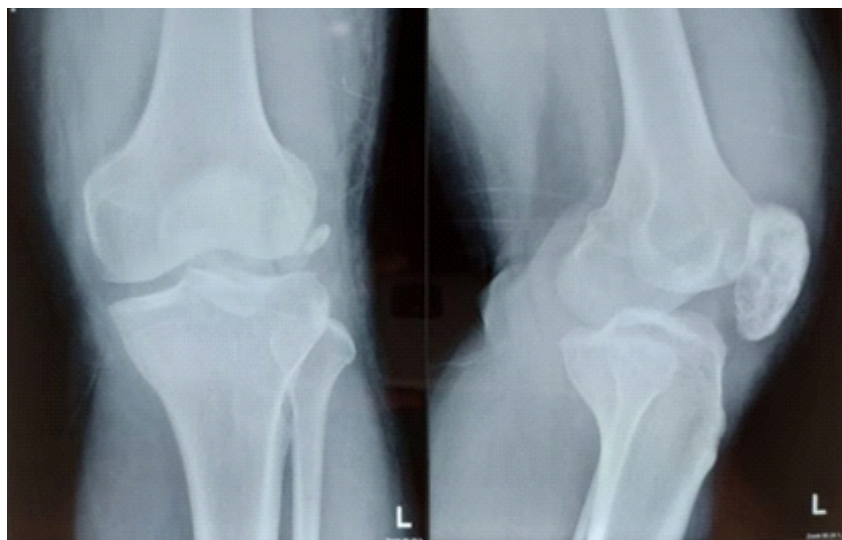


Figure 1. AP view and Lateral view



Figure 2. Positioning. (A) patella, (B) patellar tendon, (C) tibial tubercle, (D) anteromedial portal, (E) anterolateral portal

loose body, with differential diagnosis as impinging osteophyte and pedunculated osteophyte. Then the patient was planned to undergo debridement arthroscopy to remove the loose body. Arthroscopy debridement was performed on the patient under regional anesthesia in a supine position, left knee flexion, portal made anteromedial and anterolateral (Figure 2).

From the arthroscopy debridement procedure that we have already done, it was found that the joint cartilage structure was still quite good, the ligaments were still intact, and a loose body with a size of 13 mm x 10 mm x 4 mm was removed which was composed of osteo-cartilaginous tissue caused by OCD (Figure 3).

The patient was given a knee immobilizer for around one week, then performed some exercises in physiotherapy. Knee pain is reduced and range of motion (ROM) increases postoperative. The patient performed quadriceps strengthening exercises and physiotherapy. At the 8-week follow-up after surgery, there was a significant improvement in the patient's left knee, where the patient felt no more pain, no resistance in flexion and extension movements, never locking on the left knee, and the KOOScore increased to 92.3.

DISCUSSION

Loose Bodies are fragments consisting of cartilage or bone that move freely in the joint space. This can occur as a result of trauma to the joint or wear-and-tear due to degenerative processes. Loose bodies can be stable or unstable. Stable loose bodies are loose bodies that are

fixed and well tolerated by the patient. Whereas unstable loose bodies are loose bodies that float and move freely in the joints causing symptoms like in this case.¹

There are three types of loose bodies: fibrinous, cartilaginous, and osteo-cartilaginous. Fibrinous loose bodies occur due to bleeding inside the joint or as a result of a dead synovial membrane, which is associated to tuberculosis, DJD, and rheumatoid arthritis. Cartilaginous loose bodies are cartilage fragments that formed as a result of trauma to the joints and DJD. Osteo-cartilaginous loose bodies are fragments consisting of cartilage and bone that occur as a result of fractures, DJD, OCD, and synovial chondromatosis.¹ In this case, the loose body was the result of OCD due to a history of knee injury.

Osteochondritis dissecans (OCD) is the separation of bone and cartilage tissue in a joint. This occurs due to inflammation and necrosis caused by injury. Compared to other joints, the knee joint is 75% more common with OCD than the wrist, elbow, ankle, and hip joint.² The incidence rates per 100,000 person-years were 1.21 to 6.09 for knee OCD and males have higher incidences than females. The Incidence of OCD is the highest in the 11–15 years old.^{3,4} The incidence of knee OCD in Indonesia is still undefined and in Dr. Kariadi General Hospital, knee OCD is relatively rare.

OCD is classified into: grade 1, asymptomatic, the joint cartilage tissue still looks normal; grade 2, in situ fragmentations. The joint cartilage still appears normal, yet softer than normal joint cartilage around it; grade 3, there is a partial detachment that can cause symptoms;

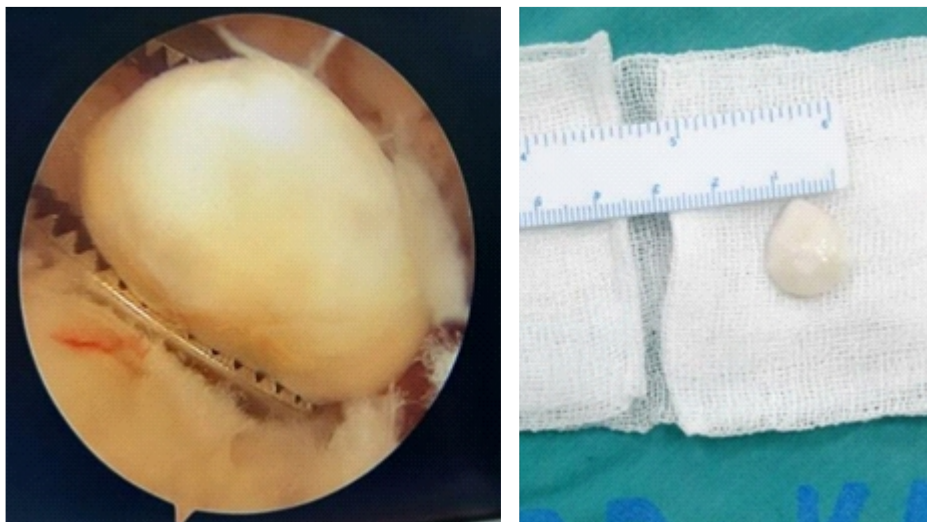


Figure 3. Loose Body

and grade 4, the existence of a complete detachment, resulting in a loose body, which causes pain and other mechanical symptoms^{2,5} as mentioned in this case.

Symptoms that are often seen on loose bodies are swelling, pain, and limited motion with intermittent locking of the joints. Locking might disappear suddenly and can reappear. Atrophy of the quadriceps muscle could be present in symptomatic loose bodies of long duration. Wilson's maneuver could reproduce pain through internal rotation of the tibia during knee extension, starting from 90° flexion. The pain is reduced through external rotation. This maneuver is recommended as a clinical diagnostic test at the knee joint.^{6,7}

In some cases, the presence of osteophytes in the lateral condyle of the femur can provide a clinical symptom similar to that of loose bodies. The presence of the impinging osteophyte will press the popliteus tendon so that the patient will feel pain, limited movement and a sensation of "pooping" or "snapping" during knee flexion or extension. The presence of a pedunculated osteophyte in the knee joint can also provide clinical symptoms similar with loose bodies.^{8,9} In this case misdiagnosis between the impinging osteophyte, pedunculated osteophyte and loose bodies may occur.

The initial diagnosis of loose body due to OCD lesion starts with a radiographic imaging in 2 orthogonal planes. The projections used are standing anterior-posterior (AP) view, and lateral view with the knee flexed 35°. MRI is one of the best modalities, since it allows analysis on bone quality, possible subchondral separation, cartilage condition, and edema.^{6,7} In this case, the AP view X-ray of the knee on the lateral condyle of the femur looks like the presence of an osteophytes. MRI is one of the best modalities to view these lesions.² However, there was a history of trauma to the patient's

knee and from the patient's specific signs and symptoms we diagnosed this case as loose bodies and performed arthroscopy debridement to remove loose bodies without doing MRI.

Surgery is indicated when the lesion becomes unstable and the pain persists despite a period of rest. If the diameter of a lesion is 2 cm or less, removal of the fragment can be a surprisingly good outcome for the patient.^{10,11} In this case, removal of the fragment through arthroscopy debridement should be the first choice of treatment. Arthroscopy debridement was performed with anteromedial and anterolateral portals. The patient was in supine position under regional anesthesia with 90° knee flexion and marked on the patella, patellar tendon, tibial tubercle, anteromedial portal and anterolateral portal (Figure 2). The anterolateral portal is placed 1 cm above the joint line and lateral to the patellar tendon in the soft area on palpation. The anteromedial portal is placed 1 cm above the joint line and medially to the patellar tendon in the soft area on palpation. After the marking, the injection was made under local anesthetic and a 4 mm incision was made. The skin and subsequently the joint capsule must be incised. The ligaments, cartilage and meniscus should not be incised. The arthroscopic cannula with a blunt obturator is then inserted into the anterolateral portal at an angle parallel to the tibial plateau. Then the cannula is pushed to the intercondylar notch. Cannula can certainly move freely. Then the obturator blunt is taken and the camera is inserted into the cannula. The anteromedial portal is the main working / instrumentation portal.¹²⁻¹⁴ In the arthroscopy debridement we found a loose body with a size of 13 mm x 10 mm x 4 mm which composed of osteo-cartilaginous tissue caused by OCD (Figure 3).

After surgery, the patient must undergo cryotherapy to relieve swelling and pain. The subsequent

goal is to restore the full range of motion and strength of the patient's knee that was previously operated on. Muscle strength training therapy is carried out in stages that can be tolerated by the patient. Once full, pain-free motion is regained and the individual has gained enough strength for all daily living activities, therapy may progress and shift to balance and proprioceptive exercises. Patients should be given instructions on a home exercise program to complement the supervised exercise regimen.¹⁵

We performed the same postoperative therapy we described above and at follow-up 8 weeks after surgery and rehabilitation, there was a significant improvement in the patient's left knee, where the patient had no pain, no resistance in flexion and extension, never locking. on the left knee, and the KOOS Score increased from 18.6 to 92.3.

CONCLUSION

It is advised to remove loose body in knee joint through arthroscopy debridement. Loose bodies should always undergo thorough workup to determine the diagnosis and treat the patient accordingly.

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