

Case Report

Synovial chondromatosis of knee joint: a case report

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ABSTRACT

Synovial chondromatosis is a benign condition encountered infrequently within joints which is also known as synovial osteochondromatosis. They present as multiple nodules in the synovium which are either fibrin type or cartilaginous type. The fibrin type usually results from bleeding within the joint, rheumatoid arthritis and tuberculosis. The cartilaginous type is usually due to trauma or osteoarthritis. This typically involves large joints, knee being the most common, rarely small joints also may be involved. Here we report a case of 30-year-old female who presented to us with symptoms of swelling, restriction of movement and pain in the right knee. After clinical and radiological assessment, arthroscopic exploration with loose body removal and synovectomy done, following which patient achieved painless complete range of movements. Histopathological examination confirmed the diagnosis as synovial chondromatosis.

Keywords: Synovial chondromatosis, Loose bodies, Arthroscopic exploration, Knee joint

INTRODUCTION

Synovial chondromatosis is a rare, benign metaplastic process of the synovial joints characterised by the development of focal cartilage in the synovium and the formation of cartilaginous nodules. These nodules can detach from the synovium causing intra articular loose bodies.^{1,2} It mainly affects large joints knee, hip, shoulder, ankle, wrist.³

Rarely small joints involvement has also been reported which includes distal radio ulnar joints, tibio fibular joints, metacarpophalangeal and metatarsophalangeal joints. It usually presents in 3rd to 5th decades of life and rarely in childhood.^{4,5} It usually presents with pain swelling and restriction of movements.⁶ It may be diagnosed using radiographs computed tomography (CT) or magnetic resonance imaging (MRI). Clinical management of the condition is either open surgical or arthroscopic removal of loose bodies.⁷

CASE REPORT

A 30-year-old female weighing 60 kgs presented to us with complaints of pain, swelling and restriction of movements of right knee joint for two years which was insidious in onset, gradually progressed in severity over the preceding 6 months. There is no history of trauma, loss of appetite or fever. Symptoms were exacerbated while walking and climbing stairs. Patient had several consultations over a period of 3 months and was on non-steroidal anti-inflammatory drugs (NSAIDs) treatment on and off. After her knee range of movements regressed to 60 degrees patient was referred to us.

On clinical examination right knee range of motion (ROM) was 60 degrees of flexion with obvious quadriceps wasting, generalised swelling of knee. On palpation effusion was present with diffuse tenderness and no local raise of temperature. Anteroposterior and lateral radiographic views revealed multiple loose bodies predominantly in posterior and lateral aspect of knee

(Figure 1). MRI scan revealed multiple intra articular loose bodies in posterior aspect of tibio femoral joint space with mild to moderate effusion (Figure 2).



Figure 1: Pre operative X ray.

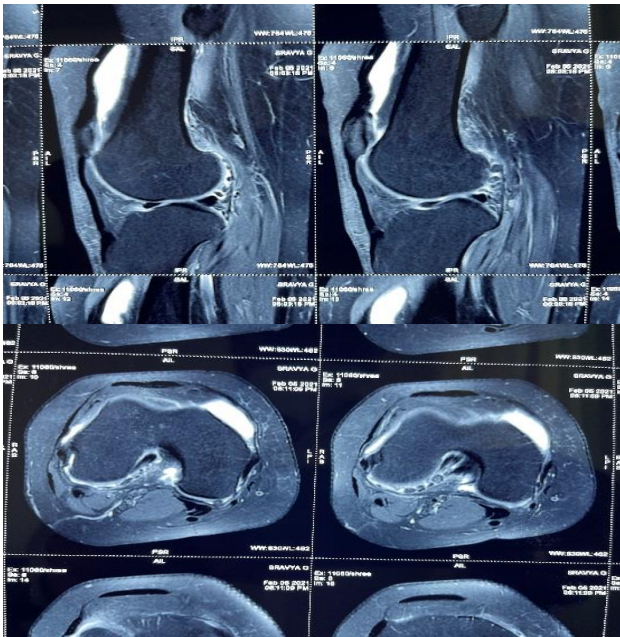


Figure 2: Pre operative MRI.

Surgical management was planned by arthroscopic exploration. Arthroscopy was performed under spinal anaesthesia. On placing antero-lateral portal clear straw-coloured fluid exited through the cannula. After placing postero-medial and antero-medial portals multiple loose bodies measuring around 5-8 mm were identified and extracted (Figure 3). Newly forming loose bodies on the synovium were observed (Figure 4). There were no arthritic changes, but the synovial lining was hypertrophied and reactive. Synovectomy was done. The excised synovium and loose bodies (Figure 5) were sent to histopathological examination which revealed multiple fragments of cartilaginous tissue composed of chondrocytes with focal enchondral ossification and mild

atypia of chondrocytes covered with a layer of fibrotic synovial membrane suggestive of synovial chondromatosis.

Patient was followed up 1- and 3-months patients' range of motion (ROM) was 0 to 130 degrees without any pain. She could regain complete ROM only after 12 weeks with physiotherapy.

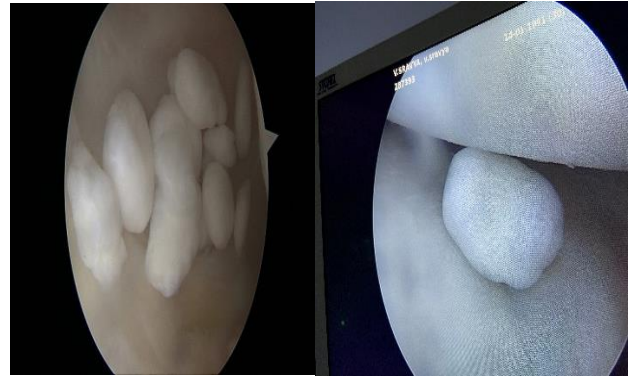


Figure 3: Intraoperative arthroscopic pictures.



Figure 4: Newly forming loose bodies from synovium.



Figure 5: Specimen.

DISCUSSION

Synovial chondromatosis is an uncommon, benign, metaplastic condition. which is portrayed by development of cartilaginous bodies inside the synovium of joints, bursae and synovial sheaths. Though any joint can be

involved for example, metacarpo phalangeal joint, DRUJ, hips, the knee is the most widely recognized with recurrence rate of 50-65%.^{1,2}

Milgram, in 1977, classified the synovial chondromatosis into 3 particular stages where we can track down the connection between the cartilage foci and the synovium.³

In stage I, metaplasia of the synovial intima occurs. Active synovitis and nodule development is present, yet no calcifications can be identified.

In stage II, nodular synovitis and loose bodies are present in the joint. The loose bodies are still cartilaginous.

In stage III, the loose bodies remain yet the synovitis has settled. The loose bodies likewise tend to join together and calcify.

Partial or total synovectomy should be done during stage I and II, and loose bodies should be removed at stage III with no treatment for synovitis as it will be settled by this stage. The patient included here is with stage II exhibiting extensive intraarticular loose bodies with reactive synovial lining where loose bodies removal was performed along with synovectomy.

Synovial chondromatosis patients are typically in the aged between 30-50 years, though there are reports of occurrence in childhood.^{4,5} Men are affected twice as much as women.⁸ Patients typically present with pain, swelling and restriction of movements in the affected joints.⁶ The presentation is usually unilateral but bilateral presentations are also seen.^{9,10} Synovial chondromatosis should be differentiated from osteoarthritis and meniscal pathology due to its possibility of malignant transformation. Plain radiographs may help in the III stage in identifying the loose bodies and peri articular erosions. Ultrasound is also useful in diagnosis, which can show echogenic bodies and synovial effusion, hypertrophy. However, MRI is the modality of choice for definitive diagnosis because of its superior soft tissue contrast in early stages.¹¹

NSAIDs and injections can be tried in the initial stages. Typically, management includes surgery either open or arthroscopic if the loose bodies are seen because they cause effusion and limit the range of motion. According to Oglive-Harris et al, synovectomy along with loose body removal gives better results than loose body removal alone as there is a potential for recurrence.⁷

Arthroscopy has become most preferred mode of surgery over traditional incision surgery due to its small incision and fast post operative recovery. Complications include secondary osteoarthritis and malignant transformation.¹²

Limitations of the study include the sample limited to one patient and the method of treatment which cannot be compared to other modes of treatment.

CONCLUSION

Synovial chondromatosis is one of the rare reasons for knee pain and swelling and ought to be remembered as a differential diagnosis while treating the patients aged between 30 and 50 years with knee pain. The present case describes a successful treatment of synovial chondromatosis of knee with arthroscopic loose body removal and total synovectomy.

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