Arthroscopic Management of Synovial Chondromatosis of the Knee Joint

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Authors’ contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Synovial Chondromatosis is a rare and it is a benign condition characterized by multiple cartilaginous nodules in synovial facet spaces. Synovial Chondromatosis affects most commonly the knee joint. This is a case report of a 30-year-old male patient presented with pain and swelling over the left knee joint. On evaluation MRI shows loose bodies, for which he underwent, arthroscopic exploration. Viscous fluid and loose bodies were identified and showed synovial hyperemia. Synovial debridement was done and loose bodies were removed and sent to histopathological examination. The result signify that arthroscopy is efficient method both in diagnostic as well as therapeutic management of synovial chondromatosis.

Keywords: Synovial chondromatosis; knee joint; arthroscopy; loose bodies.

1. INTRODUCTION

Synovial chondromatosis furthermore called as synovial Osteo-Chondromatosis, is a rare and benign disorder characterized by multiple cartilaginous nodules deemed to be loose bodies within the synovium of joints [1,2]. Synovial chondromatosis affects single large joints, knee being more common, subsequently hip, elbow, shoulder and ankle [3] are also reported. But also affects the small joints as well, especially in distal radio-ulnar, tibio-fibular, metacarpo-phalangeal and metatarso-phalangeal joints [4-7]. Clinical features may vary from being completely

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asymptomatic to symptomatic with subtle history of pain, associated with swelling, joint crepitus or may also present with typical history of locking of the knee joint [8]. Diagnosis is mainly based on radiological investigations such as x-ray, computed tomography (CT) scans. Magnetic resonance imaging (MRI) and Histopathological examination are the definitive tool for diagnosis. Clinical management involves excision of loose bodies using arthroscopic technique [9] to avoid further joint destruction [10]. We a case of synovial chondromatosis of the knee in adult patient with pain in knee joint for past one year.

2. CASE REPORT

A 30-year-old male patient with past history of trauma 1-year back presented with pain in the left knee aggravated for past 1 month. Pain was insidious at onset, intermittent (initially) and progressive and severe since 1 month. Symptoms aggravates on climbing stairs associated with swelling and pain of the left knee and the patient experienced difficulties in activities of daily living like squatting, walking and several episodes of locking of the knees. On clinical examination, there was a swelling associated with local tenderness at the front and back of the left knee. The range of movements was not restricted. MRI scans identified loose bodies in anterior inter-condylar region.

Patient was posted for Arthroscopic removal of loose bodies. Under Spinal anesthesia, under tourniquet control standard Antero-medial and Antero-lateral portals were used. With the help of Probe hooks, joint spaces and structures were initially assessed in all directions. Articular cartilages were examined as well. Intra operatively it was observed that there was hyperemia and edema in the medial and lateral recesses. Partial synovectomy performed. Irregular cartilage-like bodies of ~16x7 mm, identified and subsequently removed with forceps. Synovial membrane and the loose bodies were sent to Histopathological analysis.

![Fig. 1. X-Ray image of knee](image-url)
Fig. 2. MRI scans showing loose bodies

Fig. 3. Arthroscopic image showing recess Arthroscopic image showing loose body

Fig. 4. Histopathological analysis – cartilage bodies
Pathological gross specimen showed multiple white loose bodies and was reported as synovial hyperplasia with cartilage bodies, which was consistent with synovial chondromatosis.

The Patient underwent standard postoperative protocol with antibiotics, analgesics and physical therapy. Postoperative period was uneventful. The Patient improved symptomatically and terminal pain was relieved. The Patient could sit crossed legs and squat without pain.

3. DISCUSSION

Synovial chondromatosis is a condition that has an underlining etiology pertaining to synovial metaplasia [11]. The cartilaginous nodules in the synovium or in joints leads to formation of subintimal fibroblasts in tendons and bursae [12]. These extrudes from synovium to become loose bodies found to be floating in the synovial spaces or extend to the extra articular soft tissue [13].

Milgram’s classified, synovial osteochondromatosis in three stages based on gross and pathological findings. Stage I, referred to active lesions of the synovium, without loose bodies and synovial cartilage metaplasia. Stage II, referred to transitional lesions with active intra-synovial proliferation with free loose bodies. Loose bodies may remain within proliferated membrane. Stage III, referred to multiple loose bodies in joint space and synovitis subsides [2]. Partial or total synovectomy has done during stages II and stage III free body removal and I. This patient was found to be in stage III.

Synovial chondromatosis mostly seen in patients aged between 30-50 years [14]. Radiological investigations, including AP and lateral X-ray, and MRI scans are mandatory for diagnosis. Multiple irregular loose bodies were identified in x-ray and MRI, with minimal effusion. Arthroscopy has better clinical outcome compared to arthrotomy, in view of postoperative early recovery, less operative time period, minimal incision and complete instrumentation and arthroscopy is a more effective treatment than loose body removal alone [15,16]. According to Urbach et al [17] loose body removal with local synovectomy, eliminates abnormal synovial tissue and prevent recurrence [18-29].

4. CONCLUSION

This case report concludes that arthroscopic technique is safe and effective method in the treatment of synovial chondromatosis with loose bodies.

CONSENT AND ETHICAL APPROVAL

As per university standard guideline, patient’s consent and ethical approval have been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.
REFERENCES


