

# SYNOVIAL CHONDROMATOSIS OF KNEE : ARTHROSCOPIC MANAGEMENT

## AUTHOR

DR. SIDDHARTH AGRAWAL

DNB RESIDENT

Dept. of Orthopedics

SIR GANGARAM HOSPITAL ,

NEW DELHI , INDIA

[dr.agrawal.siddharth@gmail.com](mailto:dr.agrawal.siddharth@gmail.com)

## GUIDE

DR. GAGGAN CHADHA ,

SENIOR CONSULTANT

Dept. of Orthopedics

SIR GANGARAM HOSPITAL ,

NEW DELHI , INDIA

## CO-GUIDE

DR. SATISH KUMAR SHARMA ,

SENIOR CONSULTANT

Dept. of Orthopedics

SIR GANGARAM HOSPITAL ,

NEW DELHI , INDIA

## INTRODUCTION:



- Synovial chondromatosis is a rare condition in which foci of cartilage develop in the synovial membrane as a result of benign metaplasia of the subsynovial connective tissue.
- Countless tiny fronds of synovial membrane undergo cartilage metaplasia at their tips; these tips break free and may ossify.
- Self-limited and non-aggressive.
- Also known as primary synovial osteochondromatosis, synovial chondrometaplasia and Reichel syndrome.



## EXAMINATION



- **LOOK** the joint may be enlarged with no overlying skin changes.
- **FEEL** large effusion with spongy sensation, palpable loose bodies in synovial recesses, tenderness along joint line.
- **MOVE** ROM is typically decreased and movement is painful. Ligamentous examination (eg, Lachman test, drawer test) are normal.



## PRESENTATION:



- Gradual onset of monoarticular pain and stiffness, decreased range of motion, effusions, crepitation and eventual locking of the joint.
- Secondary synovial chondromatosis may be present after long standing osteoarthritis, trauma or infection.



## INVESTIGATIONS



- CBC, ESR and C-reactive protein level if the physical findings suggest possible infection.
- Results are expected to be normal in primary synovial chondromatosis, but may be elevated in secondary synovial chondromatosis due to systemic inflammation.



## X-RAY APPEARANCE

- Frequently normal. Between 5-30% of patients do not have radiographically visible calcifications although secondary widening of the joint space may be noted.
- If loose bodies undergo ossification, they may be visible in the joint space. The pattern of mineralization varies with size.
- In secondary synovial chondromatosis, changes consistent with the underlying disease process are evident.



Radiograph of the knee with synovial chondromatosis. No abnormality noted.



Radiograph of the knee with synovial chondromatosis. Visible calcification in joint space.

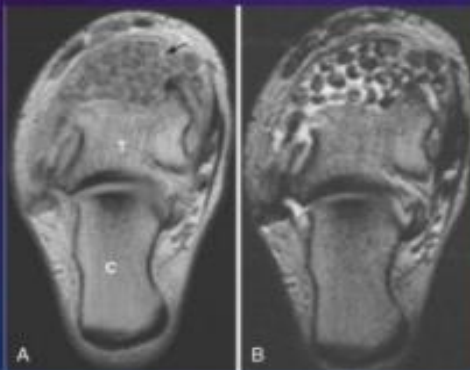
## TREATMENT MEDICAL THERAPY



- NSAIDs can be used along with transcutaneous therapies (eg, ultrasound, thermal therapies) for reduction of inflammation. Patients do not benefit significantly from nonoperative therapy.

## MAGNETIC RESONANCE IMAGING

- Cartilaginous nodules have intermediate signal intensity on T1-weighted images and high signal intensity on T2-weighted images.
- The addition of intra-articular gadolinium-based contrast material increases the sensitivity for detecting lesions.



Synovial osteochondromatosis shown on MRI. A, Oblique axial proton density MR image of the ankle shows multiple, fairly uniformly sized bodies (arrow) with low signal rims and intermediate signal centers.

B, Corresponding T2-weighted image shows the periphery of the nodules to remain dark, consistent with calcification or bone, and the centers of the nodules to remain intermediate in signal intensity. The joint fluid is very bright on the T2-weighted image. C, calcaneus; T, talus.

## SURGICAL THERAPY



- The traditional surgical approach consisted of an open arthrotomy of the joint, with removal of all loose bodies and either a partial or a full synovectomy - largely been abandoned now.
- Standard treatment is arthroscopic examination and excision of loose bodies, with limited synovectomy of involved synovium only.

## ARTHROSCOPIC TREATMENT PROCEDURE

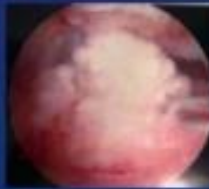
- The affected leg is surgically prepared to the level of the tourniquet.
- Standard arthroscopic portals made in the medial suprapatellar and medial and lateral parapatellar locations
- A 30° arthroscope is inserted through the lateral parapatellar portal, and diagnostic arthroscopy is performed. Abundant round cartilaginous bodies, both free in the joint and embedded in the synovial lining are typically present.
- Arthroscopic graspers are used to remove all free loose bodies.
- Large or pedunculated lesions embedded in the synovium are excised by using arthroscopic graspers and shavers. A large outflow cannula is used for extracting loose cartilaginous pieces.
- Specimens are sent to for histo-pathology.
- Arthroscopic instruments are withdrawn, and portals are closed, sterile dressing is applied and the knee is immobilized.



Arthroscopic appearance of synovial chondromatosis loose bodies in the shoulder.



Arthroscopic shaver during attempted removal of loose bodies.



Arthroscopic image of pedunculated synovial chondromatosis in the knee.

## COMPLICATIONS



- Stiffness and recurrence of mechanical symptoms due to loose-body generation are most common.
- Repeat arthroscopic surgery were needed in < 20%.

## OUTCOME AND PROGNOSIS



- In current practice, most authors agree that arthroscopic removal of loose bodies for mechanical symptoms is the best surgical treatment. This strategy minimizes postoperative stiffness associated with open procedures and successfully accomplishes synovectomy and loose body removal.

## Pre – op X ray



## Intra – op photos



## Post – Op Photos & X-Rays

