



# **A CASE OF UNDIAGNOSED DISTAL FEMUR SUBCHONDRAL OSTEOID OSTEOMA**

# CASE HISTORY

- 36/m came with the complaint of atraumatic left knee pain since 4 years
- The patient had **nocturnal pains and resting pain**, the pain was relieved by the use of NSAIDS.

## On physical examination :

- Mild swelling and tenderness at the medial femoral condyle was noted.
- **Quadriceps atrophy present**
- Knee range of motion was from 0 to 110 degrees, symmetric to contralateral knee

The patient previously had 3 MRI done for the same but was undiagnosed so we planned a combined approach with both CT scan and MRI for the patient.



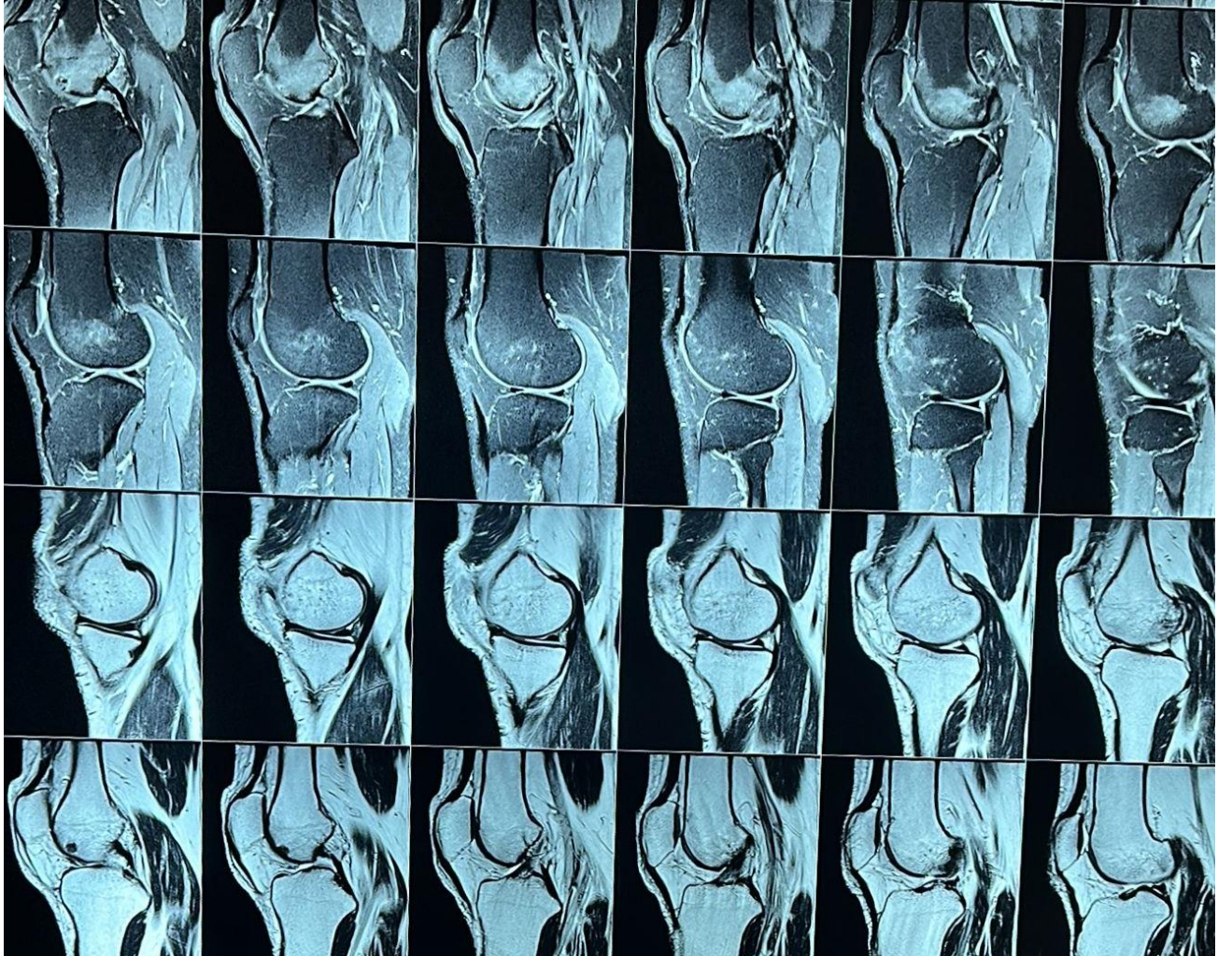
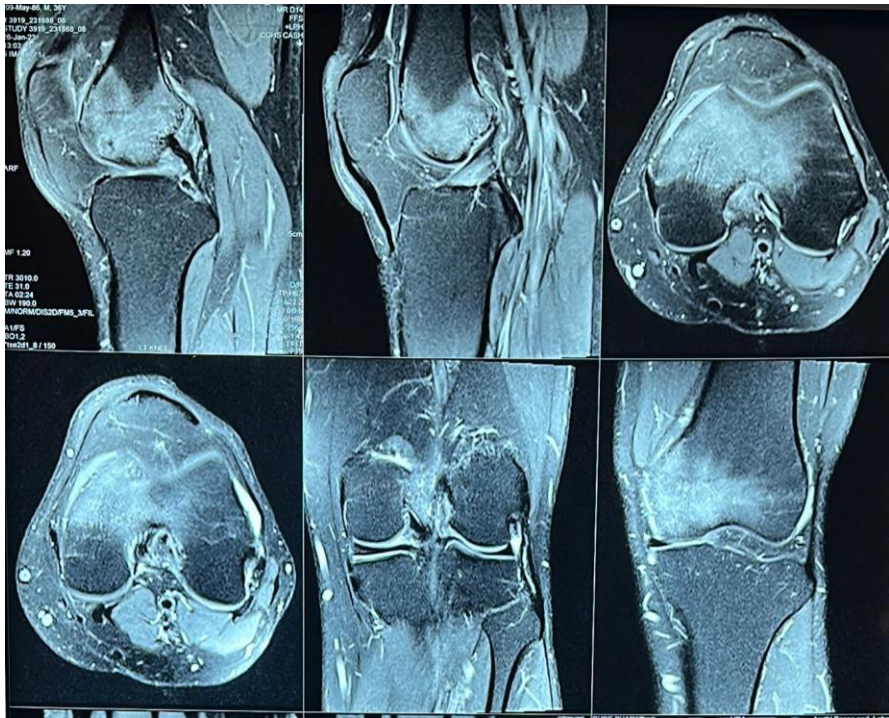
**FIG : PREOPERATIVE PLAIN RADIOGRAPH**

**A: WEIGHT BEARING AP VIEW OF LEFT KNEE JOINT**

**B: LATERAL VIEW OF LEFT KNEE JOINT**

**C: ROSENBERG VIEW OF LEFT KNEE JOINT**

# MRI images



MRI films showing presence of edema

# CT scan images



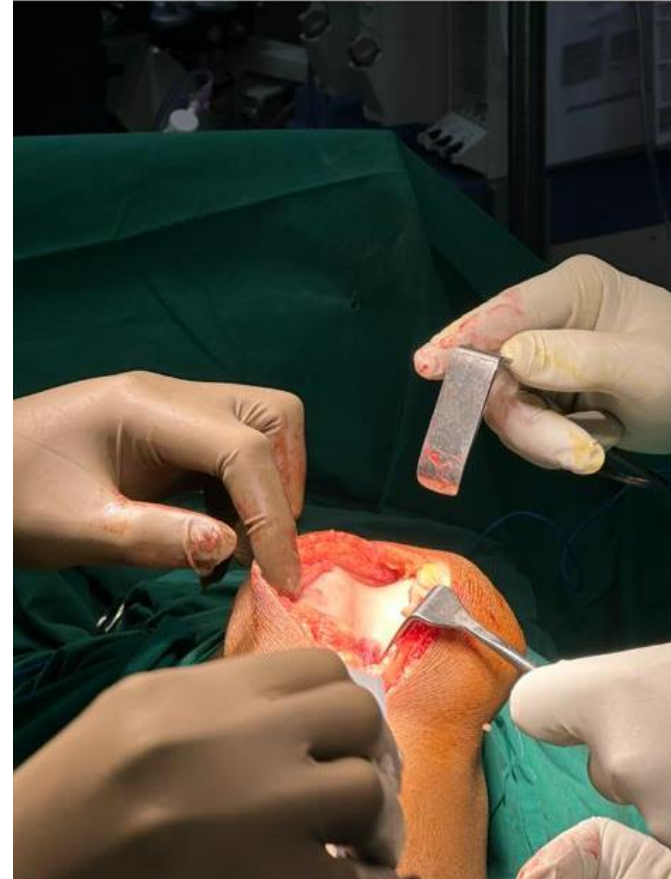
Markings and measurements were taken on the CT scan

# Challenges in the operative procedure

- Identification of tumour was difficult as the tumour was below the cartilage
- Radio-frequency probe couldn't be used because of the subchondral location and the risk of cartilage damage.
- Intra-operative identification would have required 3D printed zig but given the cost implication for the same, we did calculation on Ct scan, pre operative CT images showed a lesion which was between 10-12 mm in diameter and 2-3 mm in depth.

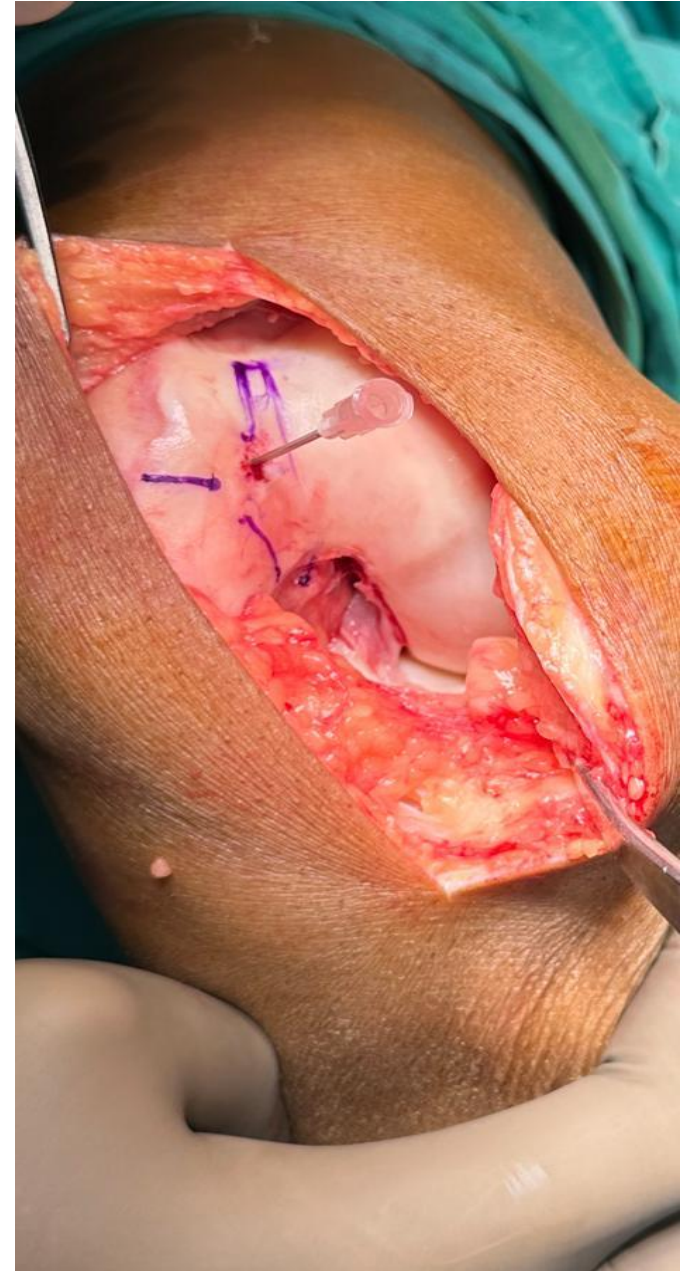
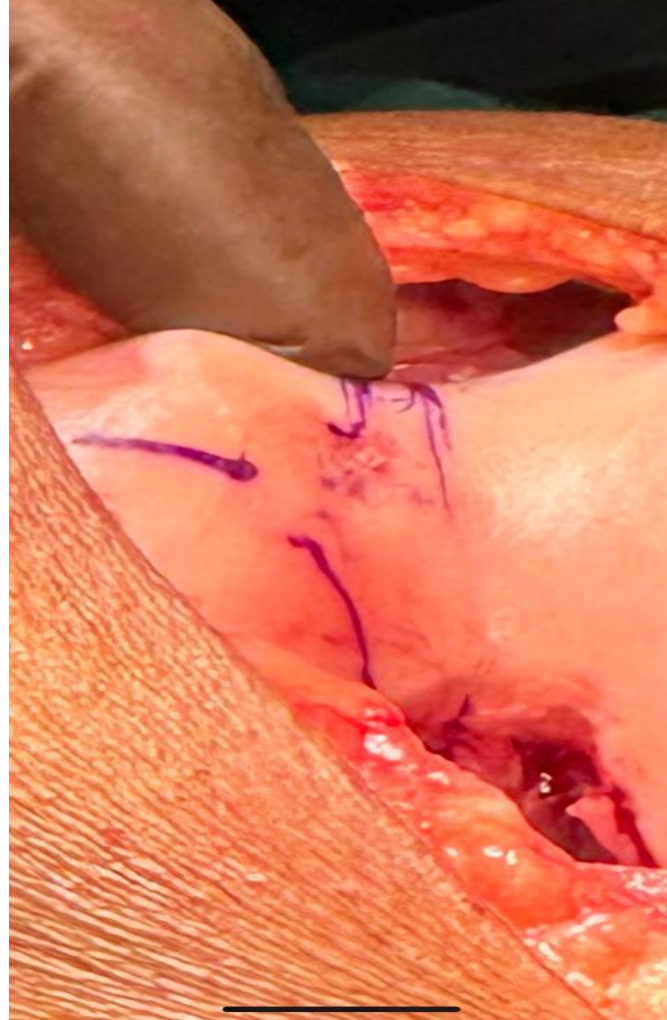
# SURGICAL APPROACH

- Under spinal anaesthesia and on supine position, medial parapatellar incision was taken and patella was flipped to lateral side,
- There was normal cartilage all over
- On c-arm the lesion was not seen .
- As lesion was subchondral with only 1-2 mm bone needle pierced in the lesion and with multiple punctures the site was exactly marked .



Normal cartilage

So as planned on CT scan measurements were drawn from bony landmarks from 3 sides with marker pen then to confirm 18G needle was pricked in that area







Cartilage removal was done

Curettage was done





Cartilage bed was prepared

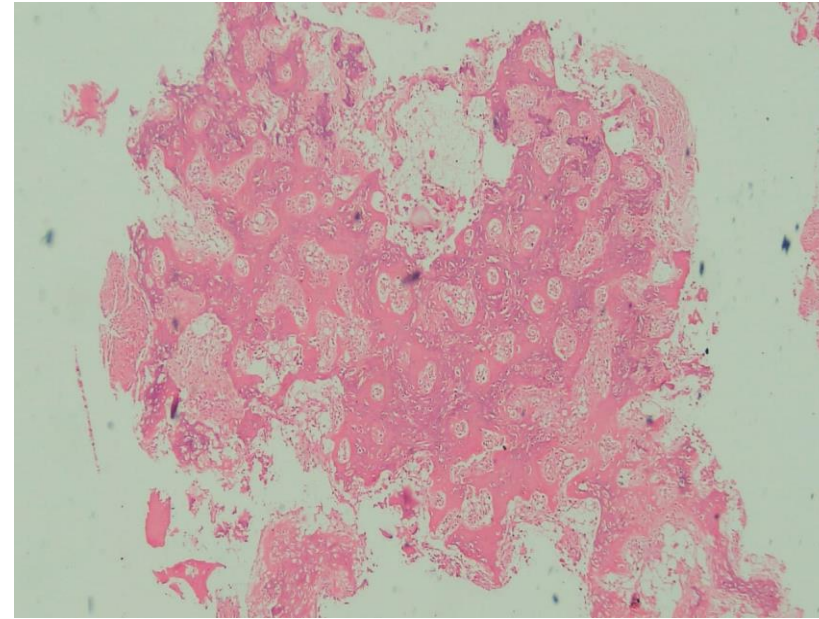
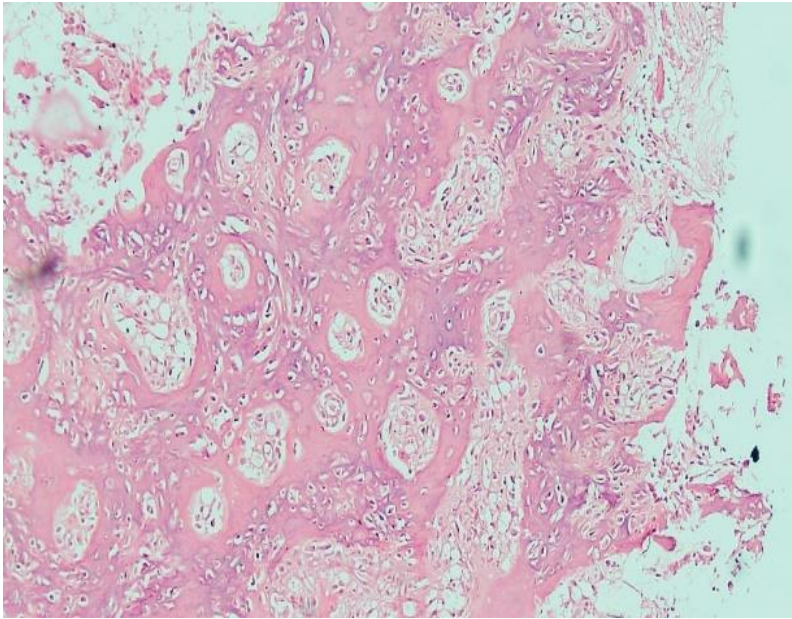
Cartilage autograft harvesting done with 8 mm harvester





Mosaicplasty was done with transfer of cartilage from non weight bearing surface to articular patella-femoral junction

- The intra-operative samples were sent for histopathological examination.



Histopath examination showing few woven bones with prominent vascular proliferation and scattered osteoclastic giant cell (Nidus) are also seen.



FIGURE : POST OPERATIVE PLAIN RADIOGRAPH OF LEFT KNEE JOINT



# POST OPERATIVE REHABILITATION

- The patient was mobilized on the next day post surgery and was allowed to weight bear as tolerated with crutches in long knee brace for 6 weeks after surgery.
- The patient had complete pain relief and NSAIDS were stopped on day 2 post operatively
- The patient had no pain after stopping NSAIDS. This indirectly confirmed complete excision
- Knee Range of motion was done upto 60 degree only for cartilage healing in patellar facet, and gradually increased after 6 weeks
- Patient had no pain and full range activity after end of 3 months.



Post operative Range of movements at  
3 weeks

# Discussion

- Osteoid osteoma is a painful, benign and common tumor accounting for 3% of all bone neoplasms and 10-12% of all benign lesions.
- 50% of tumors occurs usually during the second decade of life, the rarely occur before the age of 5 and after the age of 35.
- Osteoid osteoma consists of core called nidus, that is typically small but can also range from size of 1 cm-2 cm and is surrounded by cortico-periosteal thickening.



- Radiography based classification system was proposed by Edeiken, where the osteoid osteoma were classified as cortical (75%) cancellous (20%) and subperiosteal (5%) , Kayser later proposed a 4 classification system based on cross section namely : sub-periosteal, intra-cortical, endosteal and medullary.

## Classification

Normal bone



Subperiosteal location



Cortical location



Endosteal location



Medullary location



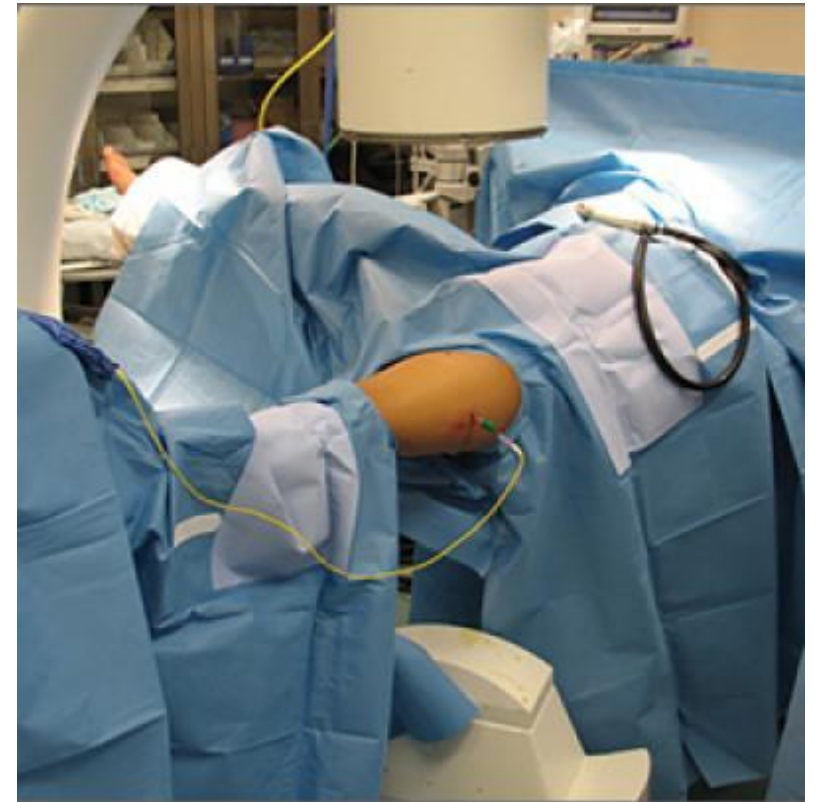
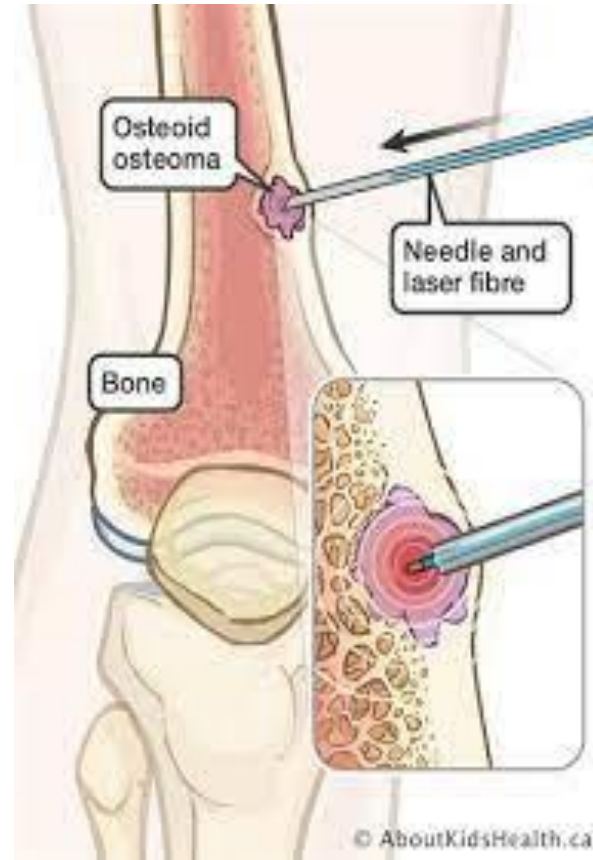
- **Intra articular osteoid osteoma has most commonly been described in the hip joint affecting the proximal femur but has also been found within the knee, ankle, elbow, hand, subtalar, and metatarsophalangeal joints.**
  - **Standard radiographs do not readily identify Intra articular osteoid osteoma with the characteristic sclerotic rim absent in the majority.**

- There are Various modalities for treatment of osteoid osteoma

A) Conservative management

B) Surgical management which includes

1. Curretage and cortical shaving
2. Radiofrequency ablation



- We present a patient with subchondral Intra articular osteoid osteoma within the distal femur.
- In this example, radiofrequency ablation has the potential for destruction of the overlying cartilage and under treatment of pathologically soft cartilage.
- Simple excision may be pain relieving but fails to address the resultant loss of articular cartilage in weight bearing zone of patellofemoral articulation which may lead to development of early osteoarthritis in the patient as the articular cartilage have a very low potential for spontaneous repairs.
- We present an alternative treatment for this rare case consisting of arthrotomy followed by mosaicplasty, resulting in good pain relief and restoration of the articular surface
- **Moreover intraoperative identification was done using needle pricking technique which , we did not find in literature search , it is economical and can be used in peripheral centres.**

THANK YOU