

Case Report

Atypical presentation of intra-articular osteochondroma of knee in adolescent- case report

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ABSTRACT

Osteochondroma is most common benign bone tumor around knee joint. They occur during the period of growth, grows away from joint line and rarely responsible for mechanical symptoms. This paper reports a rare presentation of intra-articular osteochondroma in knee with mechanical instability symptoms, mild to moderate pain and swelling of knee joint. Patient was 20 years old male and misdiagnosed as chronic nonspecific synovitis, tubercular arthritis and anterior cruciate ligament tear of knee. We assessed him clinically and radiologically and diagnosis was established based on MRI and arthroscopy. He was treated by open excision of tumor, and patients recover uneventfully. Instability of knee joint in this case can be attributed due to rough surface of osteochondroma just beneath lower attachment of patellar tendon.

Keywords: Intra-articular, Osteochondroma, Knee, Instability

INTRODUCTION

Osteochondroma, or osteocartilaginous exostosis, is the most common skeletal neoplasm. Osteochondroma can either be flattened (sessile) or stalk-like (exostosis) and appear in a juxta-epiphyseal location. Osteochondroma are found most often in long bones, especially in distal femur and proximal tibia, with 40% of the tumours occurring around the knee. Tumour arises in metaphysis and grows toward diaphysis. The most common sites are around the knees (distal femur and proximal tibia) followed by the proximal humerus.¹ Intra-articular osteochondromas of the hip and the ankle joint have been reported, which are rare.² In cases involving the knee joint, they are para-articular, extra-skeletal osteochondromas.³ These tumours can also develop in unusual sites. Intra-articular exostosis is a rare entity that can be found in joints with large capsular spaces for example the patellofemoral joint.⁴ Benign and malignant tumours can present as painless knee swelling or knee

effusion but instability of knee joint is very rare presentation.

We report a case of Osteochondroma of tibial tuberosity with clinical symptoms of instability of knee joint, mild to moderate pain and swelling of knee joint. It was initially misdiagnosed as nonspecific synovitis, tubercular arthritis of knee and anterior cruciate ligament tear of knee and treated with various modalities. We did MRI and excisional biopsy which confirms the diagnosis.

CASE REPORT

A 20-year-old male patient was referred to the hospital with chief complaints of instability of left knee, mild to moderate pain and swelling of knee joint for 2 years. He did not report any trauma or medical problem. Pain was non progressive and was associated with swelling of knee joint. There was no restriction in the range of movements of the knee joint, but has pain with over 90 degree flexion

of the knee. Previous radiographs done a year back showed no significant findings. He was treated conservatively with NSAID's and physiotherapy elsewhere for almost 1 year. Later Magnetic resonance imaging (MRI) was done which shows mild knee joint and synovial effusion and marrow oedema in tibial and femoral condyles. Based on MRI, underwent biopsy which revealed nonspecific synovitis. He was given AKT as empirical therapy for almost a year but didn't show any improvement.

Patient was referred to our hospital for chronic non-specific synovitis with anterior instability in knee on weight bearing. On physical examination we could appreciate a firm swelling at tibial insertion of patellar tendon similar to Osgood-Schlatter disease with mild tenderness and knee effusion as shown in Figure 1. Clinical test for knee ligament and meniscus were normal except pivot-shift test. Radiograph shows bony excrescence originating from tibial tubercle which seems to be intra-articular as shown in Figure 2. MRI study shows, there is bony prominence with decrease signal intensity changes beneath lower end of patellar tendon, within the joint capsule as in Figure 3a and 3b. Reporting was done as complete anterior cruciate ligament tear by radiologist.



Figure 1: Clinical photograph showing swelling at tibial tubercle and mild knee effusion (left knee).



Figure 2: Lateral radiograph of left knee showing bony excrescence originating from tibial tubercle, most likely to be intra-articular.

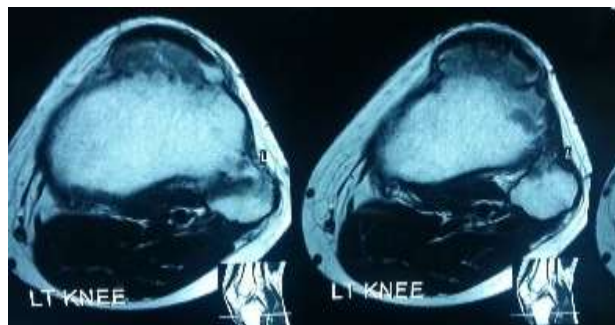


Figure 3a: Axial MRI scanning of left knee, there is a large bony excrescence originated from tibial tubercle and is extended toward knee joint. The cortex and the medulla of tibia appear to be in continuation the lesion. The soft-tissues are normal. Therefore, the diagnosis of osteochondroma is more probable.

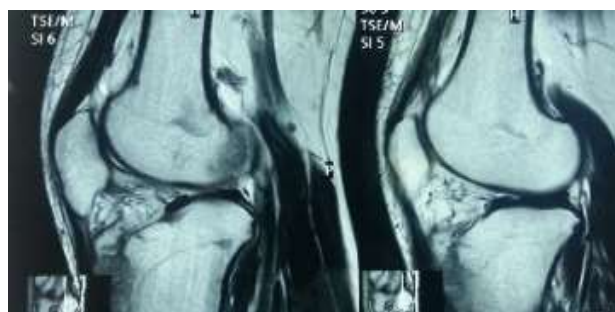


Figure 3b: Sagittal MRI scan shows bony mass originating from the tibial tubercle and intra-articular in occurrence, arising just beneath the lower attachment of patellar tendon.

We planned to do diagnostic arthroscopy. There was minimal synovitis in knee joint. Ligaments, cartilage, and meniscus were intact, but patellar tracking was not normal. A sudden jerky patellar movement was seen on flexion beyond 90 degrees. An abnormal bony growth was seen, anterior to tibia in midline beneath patellar tendon. We decided to convert it into conventional open procedure, and skin incision made just medial to patellar tendon and bony growth exposed and removed completely and sent for biopsy. The biopsy report revealed that the bony outgrowth was mainly a cancellous bone with a cartilaginous cap, which is a feature consistent with osteochondroma. Patient has improved significantly after the surgery, and at last follow-up 8 months post-surgery, the patient was asymptomatic and involved in full activities. Radiographic follow up revealed no recurrence.

DISCUSSION

Osteochondroma around knee joint are the most common benign bone tumours which comprise about 40 % of overall occurrence with 85 % of osteochondroma's being solitary in nature.⁵ They typically arise from metaphysis and grow towards diaphysis. Clinical features include painless, non-tender mass around joint which usually

progresses till epiphyseal closure.⁶ Patient may become symptomatic following compression of vital structures, or due to development of malignant changes. The clinical presentation of this case was atypical, as patient presents with mild knee swelling associated with mechanical symptoms.

Intra-articular osteochondroma of the knee is a rare entity. Generally, osteochondromas occur around the growth plate of long bones in a skeletally immature person and move towards the diaphysis. Therefore, it is rare that osteochondroma is located within the articular compartment of a joint in an adult.³ Literature reports, few cases of intra-articular osteochondromas in hip and ankle joints but there occurrence in knee joint is rare.⁷ Takahashi et al, resected the intra-articular osteochondroma by arthroscopy, their case involved multiple osteochondromas.⁸ Jong et al, reported a case of arthroscopic excision of solitary intra-articular osteochondroma of the knee.⁹ While the extra-articular tumors are usually asymptomatic, intra-articular tumours cause pain and discomfort with restrictions in the range of movements. Differential diagnoses include synovial chondromatosis, low-grade chondrosarcoma, and osteosarcoma. MRI study helps to narrow down the diagnosis.¹⁰

Diagnosis is made by a combination of clinical signs, radiographs and MRI. But, in this case, accurate diagnosis was approached through arthroscopy and histopathology. Biopsy showed typical matured trabeculae with cartilaginous cap. To rule out malignant changes, cellular atypia and mitotic activity needs to be evaluated.¹¹ Surgical excision is treatment of choice for osteochondromas, which can be performed by open technique or arthroscopically.³ Recurrences usually do not occur.¹² Instability of knee joint in this case can be attributed due to rough surface of osteochondroma just beneath of patellar tendon, so whenever patellar tendon glide over surface of tumour mass patient experiences mechanical instability.

In conclusion, intra-articular osteochondroma of the knee presenting with mechanical symptoms is a rare entity, which can be successfully managed with conventional open procedure with good clinical outcomes.

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