

Case Report

A Case Report of Extra Capsular Intra-articular Enchondroma of the Knee

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Abstract

Many tumors affect the bones and the soft tissue of body, this case report addresses a case of an enchondroma located in the periarticular tissue of the knee. Enchondromas are rare benign tumors of chondroid nature, they usually develop in the bony skeleton especially the metaphysis and diaphysis of long bones, and rarely involve the soft tissue, joints or periarticular structures.

Keywords: Enchondroma; Knee; Ollier's disease

Introduction

A variant of interest is Ollier's disease which is a condition where multiple enchondromas affect the bone and rarely the surrounding soft tissue in which there has been documented cases of periarticular involvement of soft tissue. The case we will discuss however is a solitary enchondroma that was located in the lateral aspect of Hoffa's fat pad. The lesion showed signs of calcification over the medial aspect and caused mass effect on the patellar tendon and the lateral patellar retinaculum in a 59-year-old Bahraini female.

Extraskeletal chondromas appear primarily in three variants: synovial chondromatosis, paraarticular chondroma and soft tissue chondromas. The first type is common with the other two being quite rare even sometimes presenting with atypical features. Intracapsular or periarticular enchondromas are thought to arise from cartilaginous metaplasia of the periarticular connective tissue or joint capsule.

This report presents findings of the plain radiograph, magnetic resonance imaging and the pathologic finding by surgical biopsy. The report also addresses the diagnostic and management approach the team implied in managing the patient that presented in this case.

Case Presentation

This is a case of a 59-year-old Bahraini female that presented with a history of left knee pain of 2 years duration. The pain had a gradual increase in intensity on serial assessment upon frequent presentation to the General Physician's (GP) clinic. The patient was prescribed NSAIDs and physiotherapy by her GP and did not show any improvement with conservative therapy. She was then referred to our clinic after the discovery of a sclerotic lesion on plain x-rays (Figure 1,2).

Upon examination of the left knee, the patient had 0-120 range of movement with mild localized swelling over the anterolateral side of the knee and mild tenderness on deep palpation. The patient's symptoms were described as inferior knee pain whenever she bent her knee and when sitting on the ground while praying.

Plain radiographs were reviewed, and an MRI scan of the left knee was ordered, and it showed a 2.6 X 2.4 X 2.8 cm heterogeneous hyper intense lesion in T2W images, hypo intense in T1W sequences



Figure 1: An anteroposterior view of the knee joint.



Figure 2: Lateral view of the knee joint.

(Figure 3-5). The lesion was seen located over the lateral aspect of Hoffa's pad with 7 mm focal hyper intense lesion in T1W showing signs calcification. The lesion showed mild enhancement and caused mass effect on the patellar tendon and lateral patellar retinaculum. The lesion did not show any surrounding enhancement of the surrounding fatty tissue. We chose to book the patient for surgery and use tourniquet with bier block while performing the procedure.

We chose the parapatellar lateral approach as it gives us direct



Figure 3: T2WFS sagittal view of the knee joint.



Figure 4: Hyperintense lesion in PDFS sequence.



Figure 5: Hypointense in T1W sequence.

access to the lesion and further greater access when needed.

Intraoperative, the lesion was within the Hoffa's fat pad (Figure 6). It was excised with great care for hemostasis and to avoid damaging the surrounding tissue. Not all the fat pad was excised. A part of the retinaculum which impeded part of the lesion was excised and the retinaculum was then repaired at closure using Vicryl sutures. Skin was closed using Nylon sutures and no drain was used.

The patient was kept in the ward for 1 day for observation of any postoperative complication and was then discharged with instructions of mild bending activity. She was reviewed at two weeks for removal of sutures and review of the histology report.

The histology report revealed a nodular proliferation composed on lobules of mature hyaline cartilage with focal myxoid degeneration of stroma and foci of enchondral ossification. Histology report has showed that the lesion to be 3.7 X 3.0 X 2.7 cm which is bigger than the MRI suggested. The pathologist diagnosed the specimen as being a benign chondroma.

Upon follow up in 3 months the patient had full range of movement with no residual pain.



Figure 6: Intraoperative view of the enchondromas.

Discussion & Conclusion

Many names have been given to periarticular and intracapsular enchondromas in the literature, amongst which are: capsular osteomas, osteochondromas or chondromas depending on the proportion of the tumor that is bony or cartilaginous those terms were in prior grouped under a classification by. The knee is the overall most common location for intracapsular or extrasynovial enchondromas most occurring anteriorly, in the infrapatellar region and on the medial aspect of the knee joint although cases have been reported where the chondroma involved the lateral aspect of the knee joint most cases overall have by far involved the infrapatellar (Hoffa's) fat pad, chondromas involving the suprapatellar fat pad are quite rare and even more rare are those involving the posterior aspect of the knee. The prevalence is mostly centered on the age group from 12 to 75 years (mean of 49.4 years) with no preponderance for any sex. The clinical presentation is usually that of a painless mass that progressively grows to become painful and restricts range of motion over time.

The pathogenesis of those tumors remains quite controversial with some attributing it to metaplasia of the capsule due to trauma or repetitive joint damage as some antecedent trauma was reported in some of the cases while others believe it to be a de novo metaplasia of a pluripotent cell line derived from the joint synovium, tenosynovium, or joint connective tissue. Our case had no antecedent trauma and her lesion we believe is probably due to de novo metaplasia of the joint capsule.

The radiological appearance of Extraskeletal osteochondromas typically consists of a well circumscribed, lobulated mass with dense central calcification and areas of ossification. CT shows the extraskeletal location and dense calcification or ossification of the osteochondroma while MRI shows a well demarcated heterogenous lesion which has a mostly low signal on T1 images and mixed high and low signals on T2 images. Areas of mature ossification have intermediate signal intensity except for densely calcified areas which have a low signal intensity.

The differential diagnosis could be very wide and includes many lesions that present in a similar fashion, those include: myositis ossificans, lipomatous lesion, tumoral calcinosis, extraskeletal chondroma, pseudomalignant osseous tumors, synovial

chondromatosis (Ollier's disease), and synovial sarcomas especially when the mass is discrete and shows calcification an ossification.

In our case the lesion presented in our case report was located in the lateral aspect of Hoffa's pad. The patient experienced significant pain and tenderness after an initial period of painless growth of the tumor. due to the growth of the tumor medially the patient experienced significant limitation in her range of motion which was significantly improved to near baseline status postoperatively we attribute the later presentation of the patient to the slow growth of the tumor and the delayed onset of tenderness which led her to present to the hospital, an impression that has been reported by prior case reports of similar cases.

In conclusion the presentation of our case had some significant similarities to prior cases published in the literature of similar tumors in various aspect of the knee joint, this case report serves to contrast our diagnostic and management approach to those already existing in the literature and provide an evidence-based approach to such lesions if encountered in the future.

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