

Case Report

Synovial hemangioma: an unusual cause of chronic anterior knee pain in children

Purushotham Lingaiah*, Vineet Thomas Abraham

Department of Orthopaedics, AIIMS, Mangalagiri, Andhra Pradesh, India

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*Correspondence:

Dr. Purushotham Lingaiah,

E-mail: puru@aiismangalagiri.edu.in

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ABSTRACT

Synovial hemangioma is an uncommon cause of chronic anterior knee pain. The non-specific clinical presentation leads to delay in diagnosis. MRI is diagnostic and should be considered early in evaluation to plan treatment and prevent functional disability. We present a case of unilateral synovial hemangioma of the knee in a child with pain, swelling and restricted knee mobility. Arthroscopy can be diagnostic and therapeutic in such cases.

Keywords: Synovial hemangioma, Diagnostic MRI, Arthroscopy, Chronic knee pain

INTRODUCTION

Anterior knee pain results in varying degrees of functional disability.¹ Evaluation of such pain is challenging as the symptoms are non-specific and the differential diagnosis is quite extensive.² Tumors of the synovium are rarely seen and the diagnosis of synovial hemangioma is frequently missed as it is an infrequent cause of knee pain especially in children. Synovial hemangioma is a rare benign vascular tumor of the synovial membrane affecting adolescents and young adults and presents as unilateral chronic knee pain and swelling.

We present as case of synovial hemangioma of the knee in a middle childhood girl presenting as chronic knee pain and swelling over a period of One year. The clinical presentation, radiological findings, management and expectant follow-up of this disease is highlighted with emphasis on inclusion of magnetic resonance imaging (MRI) early in the work up for timely management and prevention of functional disability.

CASE REPORT

A girl in her middle childhood presented with anterior knee pain for one year and swelling in the anterior aspect of

knee for six months. The pain was localized to anterior and antero-medial aspect of the knee, sharp pin like character and aggravated with squatting and climbing stairs. There was no trauma, any other joint pain or constitutional symptoms. The knee pain had significantly affected the daily activities of the child including absence from school.

On examination, a small tender swelling was present on the antero-medial aspect of the knee joint adjacent to the patellar tendon. Local temperature was mildly raised. There was no effusion. Synovium was normal on palpation. The knee movements were painful with restricted terminal 30 degrees of knee flexion. There was no deformity. There was no regional lymphadenopathy. Hip examination was unremarkable.

Complete blood count, erythrocyte sedimentation rate, C-reactive protein, plain radiograph (Figure 1) and an ultrasound of the knee were unremarkable.

MRI revealed a well-defined, lobulated T1 hypointense, T2, PDFS and STIR hyperintense lesion in the infra patellar compartment of the knee measuring 3.2×4.1×3 cm. There were multiple tiny lobulated phleboliths within the lesion. The lesion was predominantly posterior to the patellar tendon with no obvious bony erosions or invasions

(Figure 2 and 3). Contrast was not used in this case as the child did not co-operate for an injection. Based on these clinico-radiological features, synovial hemangioma was diagnosed.



Figure 1 (A and B): Plain radiograph of the knee anteroposterior and lateral views shows no remarkable findings.



Figure 2: MRI knee sagittal section shows a well-defined lobulated T1 hypointense, T2, PDFS and STIR hyperintense lesion in the infrapatellar compartment of the knee measuring 3.2x4.1x3 cm.

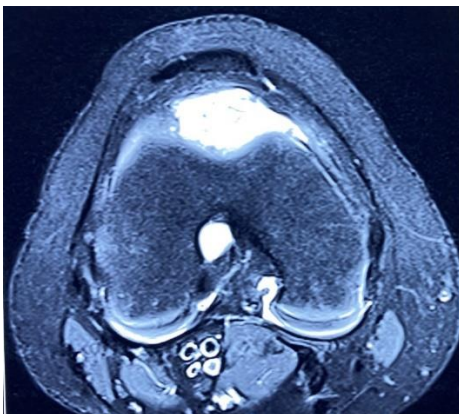


Figure 3: MRI knee axial section shows retropatellar location of the lesion abutting the femur without any obvious invasion.



Figure 4: Post-op crossed leg shows functional recovery with ability to freely sit with legs crossed.

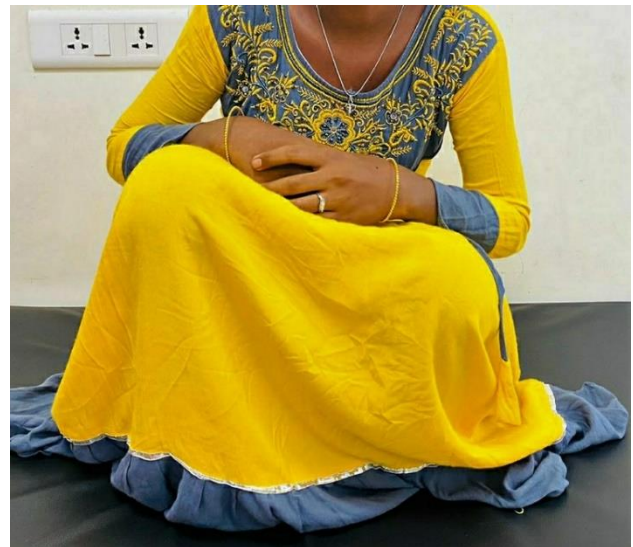


Figure 5: Post-op squat shows ability to squat with knee up to 130 degrees flexion.

Arthroscopic excision and ablation were done. Histopathology confirmed synovial hemangioma. Post-operatively, at 2 weeks, sutures were removed and knee range of movements were started. Pain and swelling had completely subsided at 1 month and 130 degrees knee flexion was regained at 3 months (Figure 4 and 5). There were no signs of recurrence of symptoms/lesion at 1 year follow up. Child returned to school at 1 month.

DISCUSSION

Synovial hemangioma is a rare benign vascular tumor accounting for less than 1% of all hemangioma.³ Knee is the frequently affected. It is commonly seen in adolescents and young adults presenting with chronic pain and swelling.⁴

The location of pain, presence of swelling and restricted movements is so non-specific that it is challenging to make

an early diagnosis as was seen in our case. The child had the symptoms for 1 year and was undiagnosed due to this non-specificity. The differential diagnosis is very extensive in adolescents and includes PFPS, Osgood Schattler disease, plica syndrome, patellar tendinitis, osteochondritis dissecans, quadriceps tendinopathy, stress fractures, bursitis amongst commoner causes. Tumors of the synovium are a very rare cause of knee pain. Most synovial tumors result in pain due to inflammation. However, hemangioma usually results in mechanical pain.⁵

Plain radiographs may not yield anything substantial especially in the initial stage. At a later stage, soft tissue shadow, phleboliths, joint erosions and arthritis changes may be visible. The diagnosis requires imaging studies like ultrasonography and MRI. Ultrasound may show a homogenous hypoechoic lesion with internal vascularity.⁶ However, USG is usually non diagnostic. The lesion was not clearly defined in our case due to its location in the infra patellar compartmental behind the patellar tendon.

The gold standard for the diagnosis of synovial hemangioma is an MRI.⁷ The lesion appears as an intra-articular lobulated mass with a hypo or isointense signal on T1-weighted images, hyperintensity on T2-weighted images. The MRI defines various aspects of tumor like the size, its location and its extension to soft tissue. More importantly it helps to rule out other differential diagnoses.⁸

MRI guides the management. In cases where radiological investigations are either not clear or is not possible (claustrophobia/younger child requiring anesthesia etc), Arthroscopy is definitely helpful as it not only aids in diagnosis but also provides an added advantage of therapeutic excision and ablation in the same setting. The lesions appear as bunch of grapes which bleeds on incision as was seen in our case.

Histopathology is the ultimate confirmation for any biopsy lesion. Synovial hemangioma lesions are usually small and hence therapeutic excision is performed without prior biopsy. Biopsy may still be indicated in extensive lesions posing diagnostic dilemma.

There are several treatment options for synovial hemangioma. These include sclerotherapy, selective embolization, laser ablation, arthroscopic excision/ablation and open excision.⁹ We performed arthroscopic excision and ablation. The child in our case was also pain free and resumed schooling and routine activities after 1 post operative month.

Long term complications of synovial hemangioma are rare. Joint erosions, chronic arthritis and hemarthrosis are possible. Recurrence is rare after surgery, possibly seen in

cases with large lesions with soft tissue extensions. To keep a check on this, long follow-up is required.

CONCLUSION

The vast differential diagnosis of knee pain does not usually alert the possibility of rare synovial hemangioma. In cases presenting with chronic knee pain and swelling, especially in children and adolescents, the diagnosis of synovial hemangioma should be considered and MRI should be done to confirm and/or rule out differentials. Early diagnosis and treatment are required as the lesion has the potential to cause significant morbidity.

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