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CASE REPORT

SYNOVIAL HAEMANGIOMA OF THE KNEE-DIAGNOSIS BY USG, DOPPLER AND MRI

[1]Krishna kumar, R and [2]Kamesh Vell, C

Department of Radiology and imaging, Sri Venkateshwaraa Medical College Hospital and Research Centre Pondicherry, India
AP, Department of community medicine, Aarupadaiveedu Medical College and Hospital, Ponicherry, India

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ABSTRACT

Synovial haemangioma is a rare intra-articular benign tumour that is difficult to diagnose because of its non-specific symptoms. It commonly arises from knee joint. Around 200 cases reported so for world wide. Patients are generally children or young adults with a nontraumatic recurrent swollen painful knee. Diagnosis can be made by USG, Doppler study and MRI, if synovial haemangioma is included and kept in mind in differential diagnosis for intra articular swelling especially in the knee joint.

INTRODUCTION

Synovial haemangioma is a rare benign tumour especially affecting knee joint. Around 200 cases have been reported in the world published reports (Rajni *et al.,* 2008; Tzurbakis *et al.,* 2008). Affected patients are usually young and often present with clinical symptoms such as localized pain, tenderness, decreased range of motion, and hemarthrosis (Rajni *et al.,* 2008; Okahashi *et al.,* 2004). Nonspecific Symptoms of the tumour add to the difficulty of making a diagnosis, which leads to delay in starting appropriate treatments (Rajni *et al.,* 2008; Okahashi *et al.,* 2004; Meislin and Parisien, 1990). We report the case of an intra-articular synovial haemangioma of left knee which is diagnosed by ultra sonography, Doppler study and Magnetic Resonance Imaging, in a 23-year-old male with a chronic history of intermittent pain and swelling in the left knee.

Case History

23-year-old male was referred with history of pain and swelling in the left knee for past 20 years. The swelling and pain was more in morning which reduced with slow walk and after elevation of limb for long time. No history of trauma. During childhood he consulted a surgeon, patient refused for surgery. Present Physical examination revealed swelling in medial aspect of knee joint which protrudes around quadriceps tendon on contraction of quadriceps. By palpation swelling is compressible. There was slight muscle atrophy in the affected thigh and leg. Laboratory data were normal. Plain radiographs showed a soft tissue density suggesting either joint effusion or a mass .USG of left knee(esaote,my lab 40, 12 MH linear array) revealed heterogeneous echogenic intra-articular lesion with multiple cystic spaces in it (Fig.1.A and 1. B).The lesion is closely attached to anterior horn of medial meniscus (Fig.1.A).Lesion is compressible by applying pressure through probe. On colour Doppler imaging there is no flow detected, but by applying gentle increasing pressure there is continuous low velocity flow with compression of cystic spaces (Fig.2).

MRI (HITACHI, AIRIS, 0.3 T) of the knee revealed an intra-articular mass located in infrapetallar region and to the medial side of the patella, measuring 10 x 5 cm in size. The intensity of the mass was heterogeneous, with iso intense to muscle on Spin Echo (SE) T1-weighted sequences (Fig.3.A) and higher on Fast Spin Echo (FSE) T2-weighted sequences with multiple serpentine strands of low intensity inside the lesion (Fig.3.B). On GRE T2*W sequence the lesion is highly hyper intense compared to FSE T2W sequence (Fig.4.A) .Contrast MRI showed moderate enhancement of the lesion (Fig.4.B). On the basis of USG, Doppler and MRI study we gave diagnosis of intra articular synovial haemangioma of left knee. Histopathology revealed the lesion to be hemangioma.

RESULT AND DISCUSSION

Synovial haemangioma is a benign vascular tumour, first described by Bouchut in 1856. It is thought to be a vascular malformation arising from any synovium-lined surface, rather that a true neoplasm (Meislin and Parisien, 1990). It occurs most frequently around the knee (97%) but has also been reported in the elbow, wrist, ankle, temporo-mandibular joint and tendon sheaths (Llauger *et al.,* 1995). It can be focal or diffuse in their involvement of the joint. Misdiagnosis often contributes to a delay in diagnosis of many years (Okahashi *et al.,* 2004; Cotton *et al.,* 1995; Devaney *et al.,* 1993; Devaney *et al.,* 1993) examined 20 patients in their study and reported that the symptoms are usually pain and swelling (31%), pain alone (31%), painless mass (31%) and recurrent intra-articular haemorrhage(5%) .Age at presentation ranged from 9 to 49 years with average age 25 years (Devaney *et al.,* 1993). They can also present with mechanical symptoms mimicking internal derangement .When the lesion is located adjacent to the medial side of the patella, physicians are likely to make an

* Corresponding author: Tel:
E-mail address: drkrishnar1980@gmail.com

incorrect diagnosis of medial shelf syndrome (Okahashi *et al.,* 2004). On clinical examination, the mass is often palpable, compressible, and spongy.

Radiographic findings of a synovial haemangioma are sparse and non-specific; often the findings mimic joint effusion (Llauger *et al.,* 1995J; Greenspan *et al.,* 1995; Greenspan *et al.,* 1992). Phleboliths are highly suggestive of the diagnosis but occasionally seen. When there is prolonged diagnostic delay, degenerative changes resembling haemophilic arthropathy can develop (Devaney *et al.,* 1993).

Images **Legends**

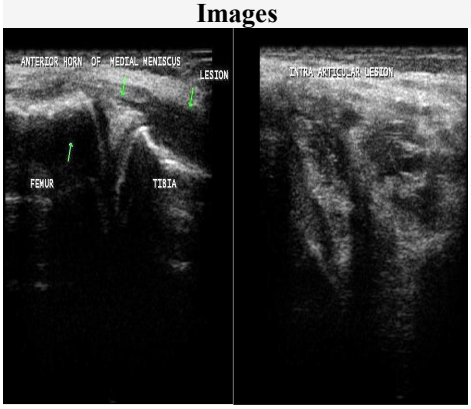

Fig.1 (A) (B)

Fig.1(A) USG of left knee, oblique Coronal view shows hypo echoic lesion attached to anterior aspect of anterior horn of medial meniscus.(B) shows intraarticular complex cystic lesion. **Figure-1(A) and (B)**

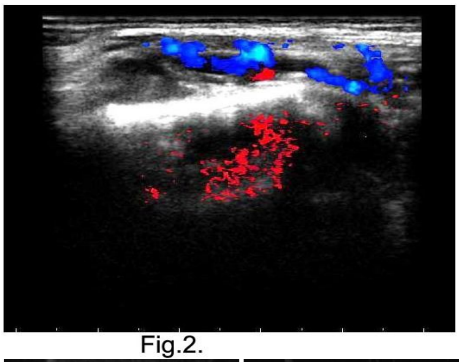

Fig.2.

Fig.2.colour Doppler image shows flow in the cystic component while applying gentle increasing pressure through probe.

Figure-2

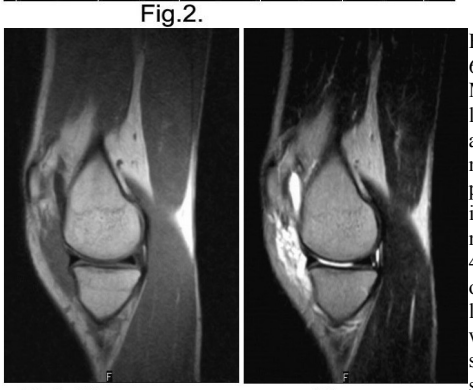

Fig.3 (A) (B)

Fig.3.(A) T1W (TR-600,TE-20) sagittal MRI of left knee shows lesion attached close to anterior horn of medial meniscus in infra patellar region, lesion is iso intense to muscle.(B) T2W (TR-4200,TE-117) image on same plane shows lesion is hyper intense with multiple serpentine hypo intense signal within it . **Figure-3 (A) and (B)**

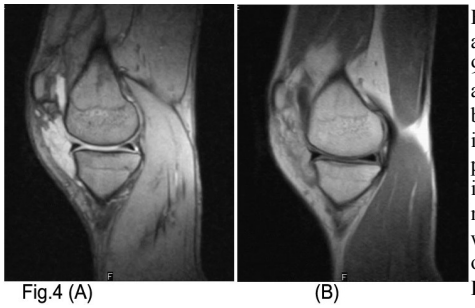

Fig.4 (A) (B)

Fig.4(A) GRE (Flip angle-60degree,TR-900,TE-15),same plane as Fig.3 shows lesion becomes very hyper intense on GRE,(B) post contrast T1W image shows lesion is moderately enhancing with clear demarcation of extent of the lesion. **Figure-4 (A) and (B)**

Computed tomography (CT), if obtained, can confirm the presence of a soft tissue mass, identify phleboliths if present, and delineate any adjacent osseous change related to local mass effect. CT however, is limited in the actual characterization of the soft tissue tumour itself (Greenspan *et al.,* 1995; Cotton *et al.,* 1995; Greenspan *et al.,* 1992). USG shows a complex cystic lesion as in our case or mixed echogenic lesion (Greenspan *et al.,* 1995; Greenspan *et al.,* 1992), phleboliths if present can be seen as hyperechoic foci with posterior acoustic shadowing. Doppler study may or may not reveal flow depending on velocity, but finding flow on gentle compression with collapse of cystic space may be taken as supportive finding as in our case. Literature regarding usefulness of Ultrasonography and Doppler in diagnosis of synovial haemangioma is not much available because only few retrospective studies (Devaney *et al.,* 1993; Greenspan *et al.,* 1995; Greenspan *et al.,* 1992) done for synovial haemangioma where complete USG findings were not available or USG was not performed. So usefulness of USG and Doppler will remain controversial if all the findings are not documented in case report. MRI allows superior contrast resolution and is the modality of choice (Greenspan *et al.,* 1995) in the imaging evaluation of synovial haemangioma (or any soft tissue tumour in general). On T1-weighted images, synovial haemangioma display low to intermediate signal intensity as compared to surrounding muscle, whereas T2-weighted images appear as high signal intensity (Llauger *et al.,* 1995; De Filippo *et al.,* 2006; Greenspan *et al.,* 1992). Thin, fibrofatty septa are characteristically seen as hypointense serpentine strands separating the vascular components (Llauger *et al.,* 1995; De Filippo *et al.,* 2006, Greenspan *et al.,* 1992). On GRE T2*W the lesion becomes very hyperintense compared to FSE T2W image (Stark, 1998).The identification of tiny, rounded signal voids is compatible with the presence of phleboliths, which are not common (Greenspan *et al.,* 1995; Cotton *et al.,* 1995; De Filippo *et al.,* 2006). Fluid-fluid levels are non-specific but have been reported (Greenspan *et al.,* 1995). On Gadolinium-enhanced MRI there will be moderate to intense enhancement of the lesion and provides clear demarcation of the frequently lobulated borders of the lesion, to include demonstration of any extra-articular involvement (Llauger *et al.,* 1995; Cotton *et al.,* 1995; Greenspan *et al.,* 1992). The vascular mass can be differentiated from joint fluid or adjacent muscle with the use of intravenous gadolinium. MRI is superior for diagnosis of synovial haemangioma and for defining its extent. To avoid making a misdiagnosis a high index of suspicion is required, and MRI should be actively used as this is a non-invasive and useful technique which can provide much preoperative information.

CONCLUSION

In spite of its rarity, synovial haemangioma had to be considered as a differential diagnosis in young patients presenting with recurrent painful swelling of the knee, which alone can lead to early diagnosis and proper management of the case. Where MRI not immediately available, USG can be used as a screening.

References

Rajni, Khanna G, Gupta A, Gupta V. Synovial haemangioma: A rare benign synovial lesion. Indian J Pathol Microbiol 2008; 51:257-8

Tzurbakis M, Mouzopoulos G, Morakis E, Nikolaras G, Georgilas I. Intra-articular knee haemangioma originating from the anterior cruciate ligament: a case report.J Med Case Reports. 2008 Jul 28; 2:254.

Okahashi K, Sugimoto K, Iwai M, Tanaka M, Fujisawa Y, Takakura Y. Intra-articular synovial haemangioma; a rare cause of knee pain and swelling. Arch Orthop Trauma Surg. 2004; 124:571–573. doi: 10.1007/s00402-004-0735-9.

Meislin RJ, Parisien JS. Case report of arthroscopic excision of synovial haemangioma of the knee. Arthroscopy. 1990;6:64–67.

Llauger J, Monill JM, Palmer J, Clotet M. Synovial haemangioma of the knee: MRI findings in two cases. Skeletal Radiol. 1995; 24:579–581. doi: 10.1007/BF00204855.

Devaney K, Vinh TN, Sweet DE. Synovial haemangioma: a report of 20 cases with differential diagnostic considerations. Hum Pathol. 1993; 24: 737–745. doi: 10.1016/0046-8177(93)90010-E.

Greenspan A, Azouz EM, Matthews J, 2nd, Decarie JC. Synovial haemangioma: imaging features in eight histologically proven cases, review of the literature, and differential diagnosis. Skeletal Radiol 1995; 24:583-590.

Cotton A, Flipo RM, Herbaux B, Gougeon F, Lecomte-Houcke M, Chastanet P. Synovial haemangioma of the knee: a frequently misdiagnosed lesion. Skeletal Radiol 1995; 24:257-261.

De Filippo M, Rovani C, Sudberry JJ, Rossi F, Pogliacomi F, Zompatori M. Magnetic resonance imaging comparison of intra-articular cavernous synovial haemangioma and cystic synovial hyperplasia of the knee. Acta Radiol 2006; 47:581-584.

Greenspan A, McGahan JP, Vogelsang P, Szabo RM. Imaging strategies in the evaluation of soft-tissue haemangiomas of the extremities: correlation of the findings of plain radiography, angiography, CT, MRI, and ultrasonography in 12 histologically proven cases. Skeletal Radiol 1992; 21:11-18.

Stark D. D, Bradley W. G. Magnetic Resonance Imaging ,3RD edition,Mosby CD online ,19 98.Chapter 47

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