Case Reports

Synovial Hemangioma of the Adult Knee Joint: a Case Report with Three Year Follow-up and Review of Literature

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Abstract

Background: *Synovial hemangioma is a rare condition mainly affecting the knee and is frequently misdiagnosed, leading to a diagnostic delay of many years. This article aims to create awareness about the possibility of hemangioma in a swelling arising from the knee joint and the importance of keeping this as a differential diagnosis. A review of available relevant literature has also been provided.*

Case report: *We report a case of a 30-year-old female who presented with non – traumatic pain & swelling of the left knee joint for more than 1 year. Her baseline blood investigations and plain radiographs were normal. MRI shows typical signal characteristics.*

Conclusion: *synovial hemangioma of the knee is a frequently misdiagnosed lesion. MRI is the investigation of choice for characterization of the lesion although confirmation is by histopathological studies. Early treatment with excision with partial or total synovectomy is crucial to avoid damage to the articular cartilage.*

Keywords: *Synovial Hemangioma, painful knee joint, excision biopsy*

Introduction

Synovial Hemangioma of the knee joint is a rare, intra-articular benign vascular tumor. It can arise from any synovium-lined surface. The knee is the most common joint affected **(**1,2**)**. Presenting features are usually non-specific and hence diagnosis is usually delayed by several years. This condition was first described by Bouchut in 1856 and since then around 200 cases have been reported in the published literature **(**3**)**.

We describe here the case of a 30-year-old female patient diagnosed with Synovial Hemangioma, describe its clinical and radiological findings, and discuss the various management options

Case Report

A 30-year-old married female patient presented with complaints of pain in the left Knee joint for more than one year. The pain was progressive, was not associated with fever. There was no diurnal variation in the intensity of pain. The patient had difficulty in standing for a long duration and decreased functioning and disturbance in activities of daily living. There was no history of trauma or any other joint involvement. There were no constitutional symptoms. The patients' medical, family, and developmental history was unremarkable.

On physical examination, a 3cm x 4cm mass was palpable around the superior aspect of the medial joint line. The swelling was mildly tender and soft inconsistency. No patellar tap or crepitus was demonstrable. Knee was stable with a full range of motion with mild pain on terminal degrees of flexion. There was slight wasting of thigh muscles in the affected limb. All the hematological investigations including the complete coagulation profile were well within normal limits. Plain radiographs of the knee did not show any abnormality except for the soft tissue shadow and some erosion of the cortex.

MRI of the knee demonstrated an irregular well-defined mass involving the lower medial femoral condyle on the anteromedial aspect. The lesion was isointense on T1 – weighted images and hyperintense on T2 – weighted images. Small effusion in medial patellofemoral joint space and calcification was also noted. Diagnosis of the synovial hemangioma was suspected with other differentials being PVNS and synovial sarcoma.

The decision was made to do the Excisional biopsy. The patient was operated on under General anesthesia. A longitudinal anterior incision was used placed medial to the mid-line and a sub-vastus approach was used. The capsule was excised in-toto and sent for histopathological examination. The underlying bone was deformed due to the pressure effect from the tumor mass and a small 2mm cyst was present which was thoroughly curetted out. Meticulous hemostasis was achieved and wound closed and compression dressing was given. Post-operative recovery was uneventful.

The histopathological study of the specimen showed thin-walled proliferating vessels with foci of old hemorrhage and dystrophic calcification and a diagnosis of Synovial Hemangioma was made. Within 6 weeks of follow-up, the patient was symptom-free, with no effusion and the full range of motion. At three year follow up there has been no recurrence and the patient has a pain-free, stable knee.

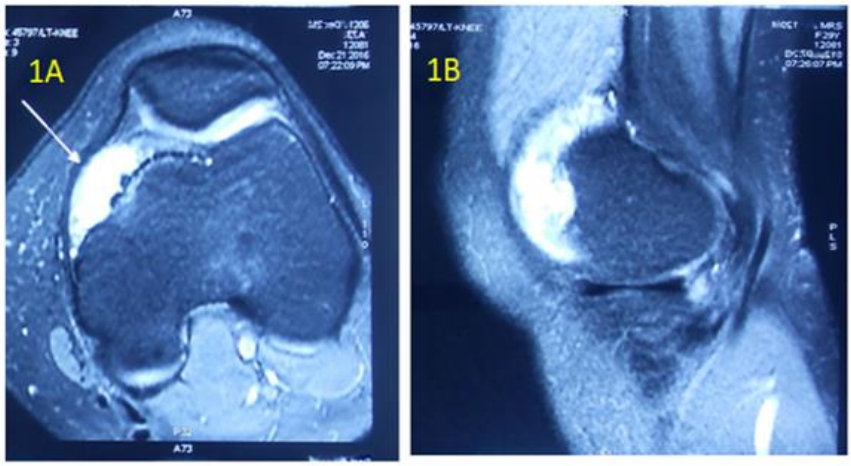

Figure 1: T2weighted axial (1A) and sagittal (1B) MRI showing Hemangioma over the anteromedial aspect of lower medial femoral condyle.

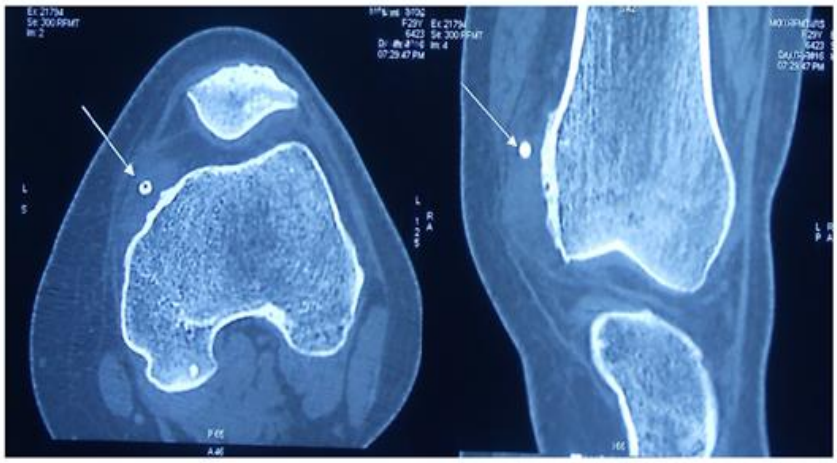

Fig. 2 Calcification within the lesion (white arrows) seen in axial and coronal MR images

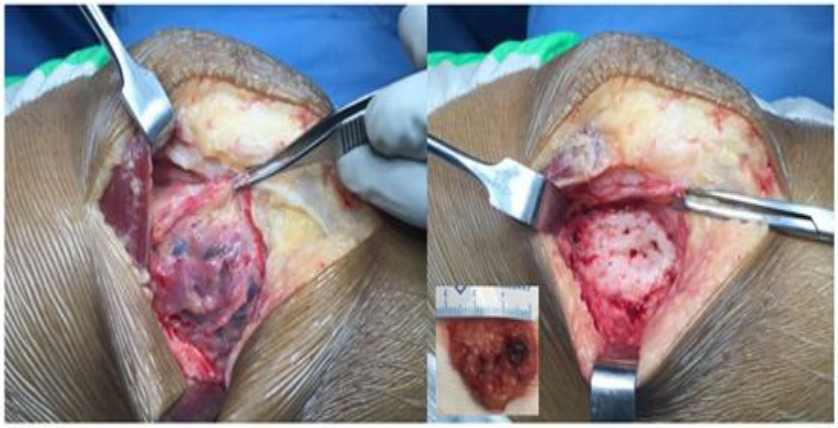

Figure 3: intra operative images (3A) before excision (3B) after excision

Discussion

Synovial hemangioma is a rare, intra-articular benign tumor. Rather than true neoplasm, it is thought to be a vascular malformation originating in sub synovial mesenchyme of the synovial membrane **(**4**)**. Although it occurs most frequently in the knee, has also been reported to occur in other joints like the elbow, wrist, and ankle **(**5**)**. Most patients present before 16 years of age with an average age of onset of 10.9 years in females and 12.5 years in males **(**6,7**)**.

Patients usually present with symptoms of Pain, Knee swelling, effusion with or without trauma, restricted range of movements, and occasionally with complaints of locking of the knee. On physical

examination usually, there is a palpable mass that is compressible, wasting of quadriceps, and restricted range of motion. As most of the patients present with non-specific features, diagnosis is frequently delayed, sometimes up to 20-40 years. Standard radiographs are usually normal; hence they are not helpful in diagnosis. Phleboliths, if present; are very suggestive. In less than 5% of patients, they show a periosteal reaction, cortical destruction, osteoporosis, advanced maturation of the epiphyses, and a discrepancy in leg length or even arthropathy simulating haemophilia **(**8**)**.

Some patients may present with recurrent atraumatic bloody effusions, usually in childhood. This recurrent spontaneous scan can identify phleboliths, if present; and delineate any local bony change due to the mass effect of the lesion. MRI provides superior contrast resolution and precisely defines the size and extent of the tumor and its vascular connections. MRI is therefore the investigation of choice for evaluation and planning management of synovial hemangioma and other soft tissue tumors **(**10, 11**)**. Typical lesions are iso-intense on T1-weighted images. On T2–weighted images synovial hemangioma is hyperintense and shows heterogenous enhancement after the gadolinium contrast injection **(**3**)**.

Differentials on MRI include polyvillonodular synovitis, synovial osteochondromatosis, synovial sarcoma, hemophilic arthropathy, and lipoma arborescence. Arthroscopic visualization can characterize the lesion as present in an accessible location. Angiography can define the size and location of the lesion and can identify feeder vessels or an associated arteriovenous malformation **(**12,13**)**. It also offers selective embolism of the feeder's vessels as an alternative to surgery. The final diagnosis is by histopathologic confirmation.

Various treatment methods have been proposed which include embolization, open hemarthrosis of the knee joint and normal coagulation parameters should direct attention to the possibility of a synovial hemangioma **(**9**)**. CT is preferred if the lesion is large-sized and extends diffusely in the joint. Arthroscopic excision is the treatment of choice if the lesion is pedunculated and localized. The rate of recurrence is higher after open excision due to the diffuse nature of the lesion **(**11**)**. Nevertheless, synovial hemangiomas should be treated early because they can cause Arthropathy due to repeated intra-articular bleed and can infiltrate muscles, fat and cortical bone **(**7,11**)**.

Conclusion

Synovial Hemangioma is a rare disorder. The knee is the most common joint affected. Presenting symptoms are usually non-specific leading to frequent misdiagnosis. Recurrent spontaneous haemarthrosis with a normal coagulation profile should raise the suspicion. Plain radiographs are of

poor diagnostic value and MRI is the investigation of choice. Angiography is valuable but is invasive and not available at all centers. Once the diagnosis is made early treatment should be instituted to reduce the risk of cartilage degradation. Arthroscopic excision is the treatment of choice in case of localized and pedunculated lesions whereas open excision and synovectomy should be preferred in diffuse lesions.

Clinical Message

Anterior knee pain with recurrent spontaneous haemarthrosis with a normal coagulation profile should raise the suspicion of synovial hemangioma.

References

1.Barakat MJ, Hirehal K, Hopkins JR, Gosal HS. "Synovial hemangioma of the knee". J Knee Surg 2007;20(4):296–8.

2.Elliot AJ, Fulkerson JP. "Skeletal muscle hemangioma: a cause of unexplained pain about the knee". Arthroscopy 1989;5(4):269–73.

3.Sasho T, Nakagawa K, Matsuki K, Hoshi H, Saito M, Ikegawa N, et al. "Two cases of synovial hemangioma of the knee joint: Gd-enhanced image features on MRI and arthroscopic excision". Knee 2011;18:509-11.

4.Meislin RJ, Parisien JS: "A case report of arthroscopic excision of synovial hemangioma of the knee". Arthroscopy 1990, 6:64-67.

5.Leaguer J, Monill JM, Palmer J, Clotet M: "Synovial hemangioma of the knee: MRI findings in two cases". Skeletal Radiol 1995, 24:579-581

6.De Gori, Galasso O, Gasparini G: "Synovial hemangioma and osteoarthritis of the knee". Acta OrthopTraumatolTurc 2014;48(5):607-610.

7.Moon NF: Synovial hemangioma of the knee joint. "A review of previously reported cases and inclusion of two new cases". Clin Orthop Relat Res 1973;90:183-90.

8.Resnick D, Oliphant M. "Hemophilia-like arthropathy of the knee associated with cutaneous and synovial hemangiomas". Report of 3 cases and review of the literature. Radiology 1975;114: 323–6.

9.Vakil-Adli A, Zandieh S, Hochreiter J, Huber M, Ritschl P. “Synovial hemangioma of the knee joint in a 12-year-old boy: a case report”. J Med Case Rep 2010;4:105.

10.Gougeon F, Lecomte-Houcke M, Chastanet P: “Synovial haemangioma of the knee: a frequently misdiagnosed lesion”. Skeletal Radiol 1995, 24:257-261.

11.Ramseier LE, Exner GU: “Arthropathy of the knee joint caused by synovial hemangioma”. J Pediatr Orthop 2004, 24:83-86.

12.Akgün I, Kesmezacar H, Ögüt T, Dervisoglu S: “Intra-articular hemangioma of the knee”. Arthroscopy 2003, 19:17.

13.Durieux S, Brugieres P, Voisin MC, Goutallier D, Larget-Piet B, Chevalier X: “Radiologic vignette”. Arthritis & Rheumatism 1995, 38:559-564.

14.Price NJ, Cundy PJ. “Synovial hemangioma of the knee”. J PediatrOrthop1997;17:74–7.

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