CASE REPORT

Synovial Haemangioma of the Knee: A Rare and Under Recognized Condition

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INTRODUCTION

Synovial haemangioma is a rare type of tumour which was first described by Bouchut in 1856. Fewer than 200 cases have been published in the literatures worldwide. Since these lesions are uncommon and radiological findings are nonspecific, physician awareness is low, causing this lesion to be frequently misdiagnosed, leading in turn to treatment delays and irreversible complications of the affected joint. We here present our experience with a synovial haemangioma of left knee joint that was preoperatively diagnosed as septic arthritis until the lesion was seen intraoperatively.

CASE REPORT

Anamnesis

Male, 26 years old, admitted to the hospital in May 2016 with continuous pain and swelling at left knee, suffered since July 2015. History of prior treatment by a general surgeon in Masamba in October 2015, given antibiotics and debridement of knee joint and sample was taken for histopathological examination with result: Non-specific inflammation.

Physical Examination

General status: Alert / Well nourished

Vital sign:

- BP : 110/70 MmHg
- HR : 90 x/Minute
- RR : 20 x/Minute
- Temp. : 36.5 °C

Local status: Left knee region

- Look: There is scar at midline anterior aspect of knee joint as long as 13 cm. Oedem (+), deformity (-), Color is the same as surrounding
- Feel: Tenderness (+), warmer than the surrounding, there is no enlargement of the lymph nodes. NVD: sensibility is good, pulsation of dorsalispedis artery is palpable, CRT < 2 seconds
- Move : Active and passive motion of knee joint is limited due to pain
- Auscultation : bruit (-)

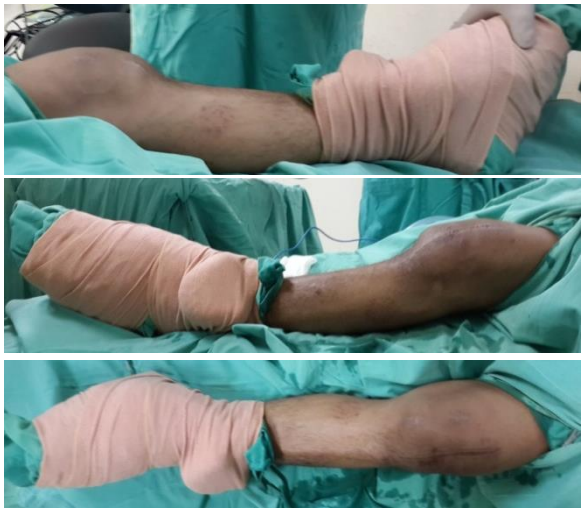

Figure 1: Local status

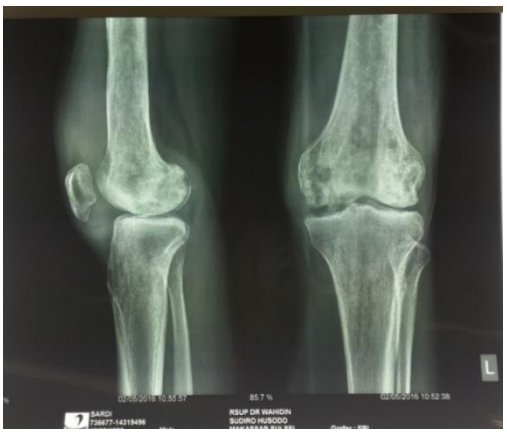

Figure 2: X-ray of left knee AP/Lateral

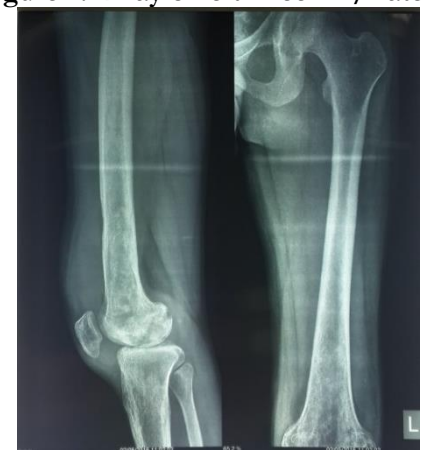

Figure 3: X-ray of left femur AP/Lateral

METHODS

We performed debridement and open synovectomy of left knee joint at May 3rd, 2016 and take a sample for histopathological examination.

RESULTS

The histopathological examination result showed synovial haemangioma. At follow up 10 months after operation the patient now has full range of motion of his left knee with mild pain during daily activity.

DISCUSSION

Synovial haemangioma is a rare vascular malformation arising from synovium-lined surface that usually affects children and young adults. They are usually diagnosed during the first to third decade of life. The most typical form of synovial hemangioma is the intraarticular type in which the tumor forms a mass lined by synovial membrane. Sixty percent of cases arise in the knee joint. Most of synovial hemangioma involve the anterior compartment of the knee, either anterolateral or anteromedial region. Only 7% cases of synovial hemangiomas of the knee arising from the infrapatellar region in reported cases. Synovial hemangiomas have al so been found in the elbow, wrist, ankle and tendon sheath. There is a slight predilection of female to male patients.

The symptoms of synovial hemangiomaoccuring in the knee are non-specific. Patients can complain of pain, recurrent knee swelling,limitation of motion, painless mass, and recurrent intra-articular hemorrhage.Muscle atrophy may also be present and 40 % of cases, with concomitant cutaneous haemangiomas. Because of high incidence of synovial hemangiomas in adolescents or young adults, such patients might be not able for clinicians to accurately evaluate the physical signs and clinical features. Synovial hemangiomas of the knee are rare; very few clinicians have experience of the entity. Therefore, an accurate diagnosis before operation is difficult. Therefore, an accurate diagnosis before operation is difficult. In the case of recur rent hemarthrosis, synovial hemangioma should be considered as a differential diagnosis in the absence of a coagulopathy. However, the majority of patients with synovial hemangioma presented with non-specific symptoms and signs, diagnosis is frequently delayed for several years.

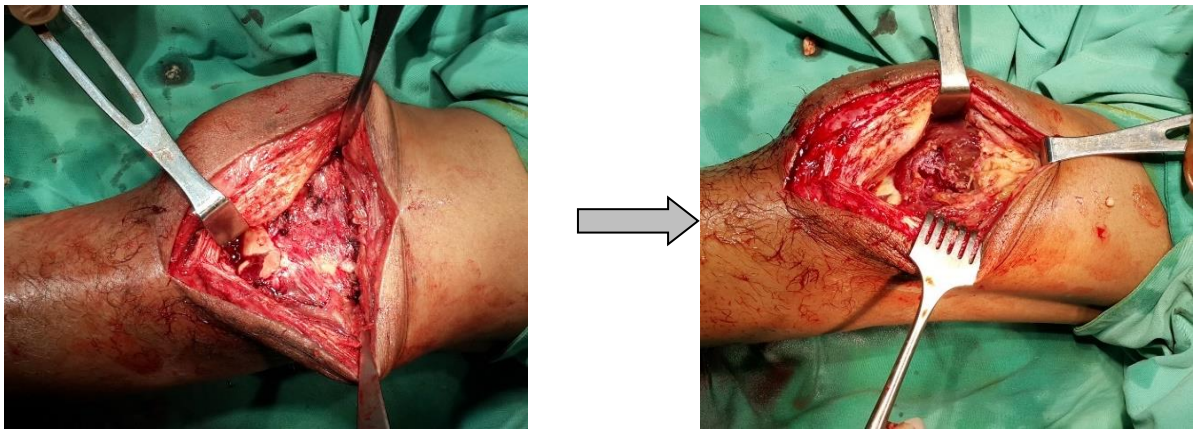

Figure 4: Surgical technique

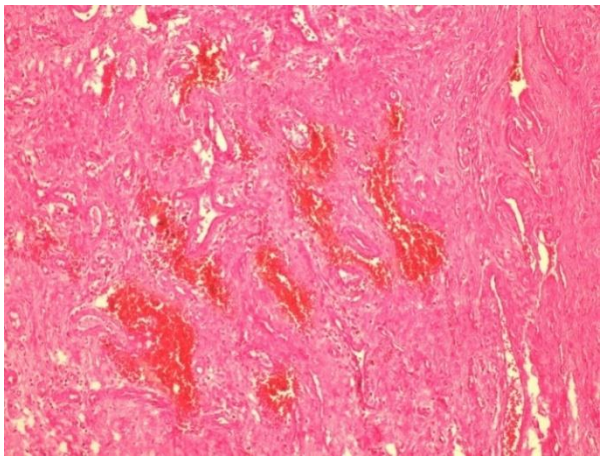

Figure 5: Histopathological examination results

Delays in the diagnosis and treatment of synovial haemangioma can lead to long-term consequences including cartilage erosion and degenerative joint disease. Progressive joint destruction is believed to occur from intermittent bleeding into the joint resulting in inflammation and direct chondrotoxicity.

Plain radiography may be unremarkable in over half the patients. Phleboliths, soft tissue, periosteal thickening, advanced maturation of the epiphysis, and arthritic changes are occasionally present. While phleboliths may be present in all kinds of haemangioma occurring in any organ, they are visualised in only 50 % of cavernous haemangioma and 30 % of soft tissue haemangioma.

CT scan aids in demonstrating an intraarticular soft tissue mass but is non-specific for the diagnosis, and demarcation of the tumor is usually not clear.

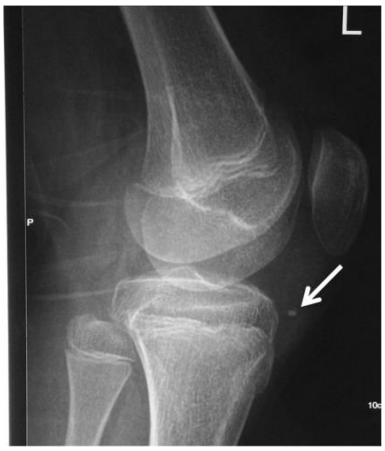

Figure 6: Plain radiograph showing phlebolith on the medial infrapatellar area

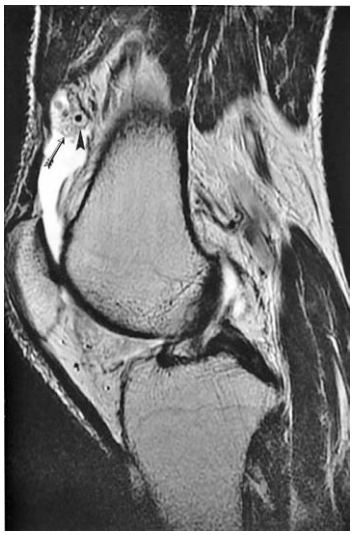

Figure 7: Sagittal fat-saturated T2-weighted MR image showed a nodule (arrow) of serpentine vascular structures with high signal intensity. A small calcification spot was noted in the larger nodule (arrowhead).

Soft tissue hemangiomas have special serpentine structure on contrast enhanced CT images and T2-weighted MR images. Synovial hemangiomas, similar to soft tissue hemangiomas, also have serpentine vascular structures best seen on T2-weighted MR images. MRI findings of synovial hemangiomas are frequently pathognomonic: serpentine intraarticular mass with specified signal intensity. The mass usually has intermediate signal intensity on T1-weighted images, and is marked hyperintensity on T2-weighted images reflecting pooling of blood in dilated vascular spaces. Low-signal-intensity linear structures on T2-weighted images are believed to represent fibrous septa or vascular channels.

Arthrography and arteriography are nonspecific. In the series by Devaney, three patients underwent arthrograms, none of which revealed a distinct intra-articular lesion. Synovial haemangioma are not sharply marginated and have no capsule, even though they are benign in nature. Their shapes usually follow the anatomic structure in which they are located.

According to the anatomic location, synovial hemangioma can be divided into intraarticular, which is situated inside the joint capsule; juxtra-articular, which is situated outside the joint capsule; and intermediate, which are intra-articular as well as extra-articular location. In 1939, Benett divided synovial hemangiomas into diffuse and circumscribed types: the diffuse type usually consisted of a cavernous hemangioma with typical intermittent pain and swelling of the joint; circumscribed hemangiomas were a pedunculated synovial tumor of the capillary type. Histologically, Stout classified synovial hemangiomas into 4 main categories: cavernous, capillary, mixed cavernous capillary and venous. Synovial hemangioma with simple capillary wall and different degree dilated capillary spaces was classified as cavernous, mixed and capillary hemangioma, respectively. If the vessels have thickening walls and contain smooth muscle cells, the tumor is called venous hemangioma.

A histologic diagnosis is obtained by biopsy either arthroscopically or through open surgery. There is no consensus on the best treatment, but localised and small lesions may be excised arthroscopically whereas diffuse lesions are best addressed with open resection. Pre-operative embolisation may be useful to reduce bleeding. Careful and complete excision must be performed to prevent recurrence, and although there are no reports of recurrence in the literature, one patient in the series reported by Devaney et al. underwent a second surgery due to initial subtotal resection. Open synovectomy is preferred to arthroscopic synovectomy because the former allows wide exposure and therefore a better chance at complete excision, aside from the concern that intraoperative bleeding can make arthroscopic excision difficult.

CONCLUSION

Synovial hemangioma should be included as a differential diagnosis of knee pain, swelling, mass or recurrent hemarthrosis in adolescents or young adults without history of trauma or coagulopathy. It has specific imaging characteristics with calcification or phlebolith on plain radiography and high signal serpentine vascular structures on T2-weighted MR images. We advocate open arthrotomy and excision. Early recognition and complete excision can help avoid potentially irreversible joint damage.

REFERENCES

1. Lopez-Oliva CLL, Wang EHM, Canal JPA, Synovial haemangioma of the knee: an under recognised condition. International Orthopaedics (SICOT) (2015) 39:2037–2040
2. Wang MT, Chen CKH, et al. Synovial Hemangioma of the Knee Joint: a case report. Chin J Radiol 2008; 34: 239-243