Synovial Hemangioma of the Knee with Recurrent Effusion and Pain: a Case Report

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Abstract- Synovial hemangioma is a rare benign malformation of the synovium. It presents frequently in the knee with pain, tenderness, intermittent swelling and recurrent hemarthrosis. MRI can be helpful in diagnosis of synovial hemangioma. In this paper, we present a 45-year-old lady with chronic symptoms and obscure clinical symptoms for 35 years which finally diagnosed and managed arthroscopically as synovial hemangioma of the knee. The patient`s complaints resolved efficiently with no recurrence after one year.

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Keywords: Knee joint; Synovial hemangioma; Recurrent knee hemarthrosis; Vascular malformation

Introduction

Synovial hemangioma is a rare benign malformation of synovium. Synovium may be involved in two ways, localized or diffuse. This tumor can be seen in early childhood or second decade of life (1,2). Synovial hemangioma is a rare cause of recurrent knee effusion. The symptoms include pain, swelling, limitation of motion, stiffness, recurrent hemarthrosis without any specific trauma, quadriceps atrophy and sometimes a palpable mass (1-4). Clinical symptoms, radiographic and laboratory findings are non-specific. Though the diagnosis is usually made late. In this case report, authors describe their experience in management of synovial hemangioma along with a review of the literature.

Case Report

A 45-year-old woman was referred to the department of orthopedic surgery with right knee pain and recurrent effusion since childhood. Her pain was aggravated during physical activity and cold weather. Previous history of knee hemarthrosis (two times) and knee aspiration without any trauma was reported by the patient.

During the physical examination, a 1×2 cm, movable, tender mass was palpated in the medial side of the patella. She had full range of motion in the knee joint.

Despite knee joint effusion, no hemarthrosis was observed in aspiration. Radiographs seemed to be normal (Figure 1). MRI study showed a mass with high signal intensity in the medial side of the knee, in T2 and low signal in T1 with intra-articular effusion (Figure 2). Laboratory findings were in normal range.

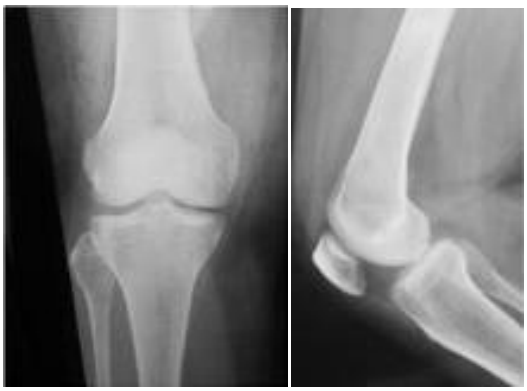

Figure 1. Preoperative radiographs were normal

Arthroscopic evaluation was performed for a patient under general anesthesia. There was a 2×2×3 cm mass like a grape cluster in the medial side of the knee (Figure 3), which was resected arthroscopically with shaver and electrocautery. In the pathologic assessment, a hyperplastic synovial lining overlying cavernous vascular channels separated by hyalinized stroma was reported (Figure 4). The patient's symptoms

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resolved postoperatively, and no recurrence found in the follow-up visit after one year.

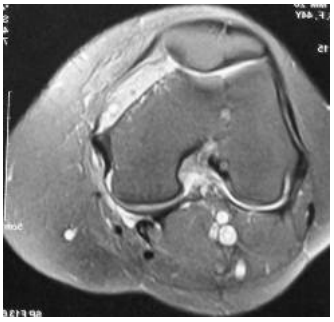

Figure 2. High-signal intensity in the superomedial margin of the patella in axial T2-weighted MRI

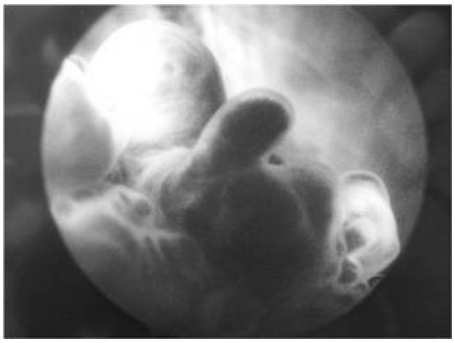

Figure 3. Grapelike clusters in arthroscopic view of the knee joint

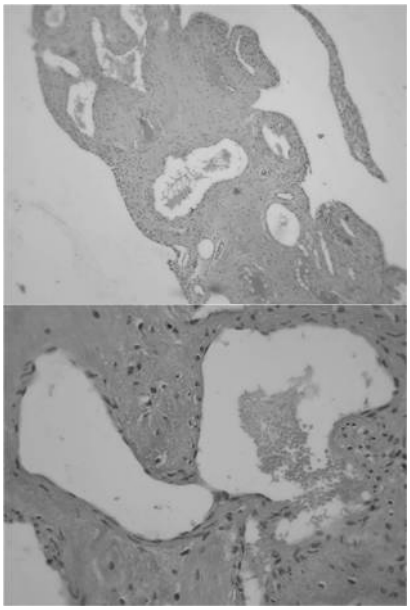

Figure 4. Hyperplastic synovial lining is overlying cavernous vascular channels separated by hyalinized stroma in microscopic examination of the tissue

Discussion

Synovial hemangioma was first described by Bouchut in 1856 (5). About two hundred and fifty cases have been reported in the literature till now (6). This rare tumor is more prevalent in the childhood and the second decade of life. The knee involvement is more frequent, although other joints may be involved including temporo- mandibular, elbow, wrist and ankle (2,7).

This tumor usually originates from the sub-synovial tissue and it seems to be a hamartoma or congenital vascular malformation than a true neoplasm (8). It can be seen in three forms including synovial, juxta-articular and intermediate. Few case reports of involvement of femur and vastus medialis are described (2). Synovial hemangioma is always unilateral. Spontaneous recurrent hemarthrosis should give the surgeon some clue to the diagnosis (3,8-10). Radiographic evaluation is normal in half of the patients. Phleboliths, soft tissue mass, periosteal thickening, advanced maturation of epiphysis, and arthritic changes are sometimes seen (1). Angiography is sometimes used to evaluate the vascular condition of the lesion, but it is not diagnostic (8). MRI can show a lobulated intra-articular lesion with low to intermediate signal in T1 and hyperintensity signal in T2, These findings in MRI are due to pooling of blood in the lesion (2,9). Differential diagnosis includes: meniscal tear, discoid meniscus, meniscal cyst, osteochondritis dissecant, hemophilia, sickle cell anemia and PVNS.

From the histologic point of view, the articular hemangioma is divided into three types: capillary, cavernous and telangectasia. Stout *et al.,* divided synovial hemangioma into four types: capillary, cavernous, mixed (cavernous and capillary) and venous. These lesions are hamartoma than a real neoplasm (1). Treatment should be started as soon as possible because the delay in diagnosis and treatment leads to Joint degeneration (9). The surgical management plan depends to localization and size. If the tumor is localized and pedunculated then arthroscopic intervention is possible (12,13) while, in the diffuse form, open surgery is usually advised (3). It is recommended to start the arthroscopic operation without any tourniquet and if the bleeding occurs then tourniquet inflates. Embolization is used in the diffuse forms (2,11). Other treatment options include: using sclerosing materials, cauterization, freezing, and arthroscopic ablation (8,15-17). Radiotherapy is effective in cases which cannot be resected with surgery (10).

This patient was managed arthroscopically; she was completely satisfied with the result, no recurrence through one year follow-up was observed. Although the long term follow-up was not available, but it seems that the arthroscopic operation is effective in the localized forms.

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