Intraarticular Synovial Hemangioma of the Knee: An Unusual Cause of Chronic Pain in a Sportsman

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INTRODUCTION

Intraarticular hemangiomas are rare benign tumors that essentially result from the formation of anomalous blood vessels located in the articular capsule or synovial membrane or in both. They typically affect the knee joint, and they usually involve the medial compartment. This causes hemorrhagic synovitis and arthropathy, probably as a result of recurrent episodes of intraarticular bleeding and mechanical irritation.[1,2] They may also be found in other joints, such as the elbows, hips, temporomandibular joint, and tendon sheath.[1,3] Intraarticular hemangiomas are a rare orthopedic condition. In fact, Akgun et al reported in 2003 that fewer than 200 synovial hemangiomas had been reported before the publication of their paper.[1] After extensively reviewing the current literature, we are aware of no more than 250 reports of intraarticular synovial hemangioma.[1–4]

The rarity of this condition makes an accurate diagnosis problematic. Treatment of these patients can be delayed as the clinical condition, the findings from imaging examinations are nonspecific, and the diagnosis is difficult. However, treatment should be started as early as possible, with the aim of obtaining diminished risk of joint damage.[2] This case report describes the examination, diagnosis, and treatment of a patient with a unique presentation of intraarticular hemangioma.

CASE REPORT

ECC is a 20-year-old male amateur soccer and tennis player. According to the patient's report, the pain in his right knee occurred as cyclic periods of worsening for a period of 6 months, which caused him to seek medical assistance from another physician. The patient was advised by the doctor to discontinue sports for 1 month, which improved the symptoms temporarily. When the patient sought our service for evaluation and treatment, the pain had returned in association with slight swelling of the knee. He had experienced the knee pain for approximately 1 year at our initial examination.

The only positive data from the clinical examination was slight joint effusion. Meniscal and ligament tests were negative. A suspected synovitis was the initial diagnosis, possibly due to his extensive involvement in athletic activities. At the time, 6 to 8 hours of his week were spent practicing soccer, and he participated in tennis once or twice a week as well.

Supplementary imaging exams were requested. Radiography was normal and magnetic resonance imaging (MRI) identified a cystic lesion measuring 5.0 cm × 2.0 cm × 1.0 cm. The lesion presented with a high signal in MRI T2-weighted and STIR sequences, and it was located in the superior medial synovial region of the knee, close to the medial synovial fold in the frontal plane views. Unfortunately, the diagnostic MRI study for this case was misplaced by the patient and not available for reproduction. However, in conjunction with the radiologists' opinion, we established a diagnosis of a nonspecific myxomatous lesion. The lesion was nonspecific, and the symptoms were incapacitating in relation to sports practice; therefore, we opted for surgical treatment to perform a biopsy in addition to a partial synovectomy.

During the arthroscopic inspection, we identified an intraarticular lesion that was friable and easy to remove (Figure 1). The lesion aspect was the same as a pigmented villonodular synovitis, and excisional biopsy was carried out at this time. Visual inspection of joint revealed no associated lesion. F1

Subsequent to the biopsy procedure, a partial synovectomy was performed.

Upon examining the biopsy, the microscopy revealed the presence of intraarticular hemangioma (Figure 2). F2

After the surgery, the patient improved movement and strength after an 8-week rehabilitation protocol. The patient returned to practicing sports 3 months after surgery without any symptoms. The patient did not return for a long-term follow-up examination; however, communication with the patient by telephone confirmed that he was playing soccer and tennis without pain and with no history of joint effusion 2 years after his surgery.

DISCUSSION

In the present study, a common complication of knee pain in an active athlete was found to be a result of a unique presentation of an intraarticular hemangioma. Thorough examination and diagnosis using MRI techniques, biopsy, and synovectomy permitted confirmation of this atypical cause of knee pain and successful treatment of the patient.

Bouchut first reported on intraarticular hemangioma in 1856. This rare lesion has not been sufficiently defined in relation to its diagnosis and treatment. It generally affects children ages 10 to 13 years old, and around 75% of the

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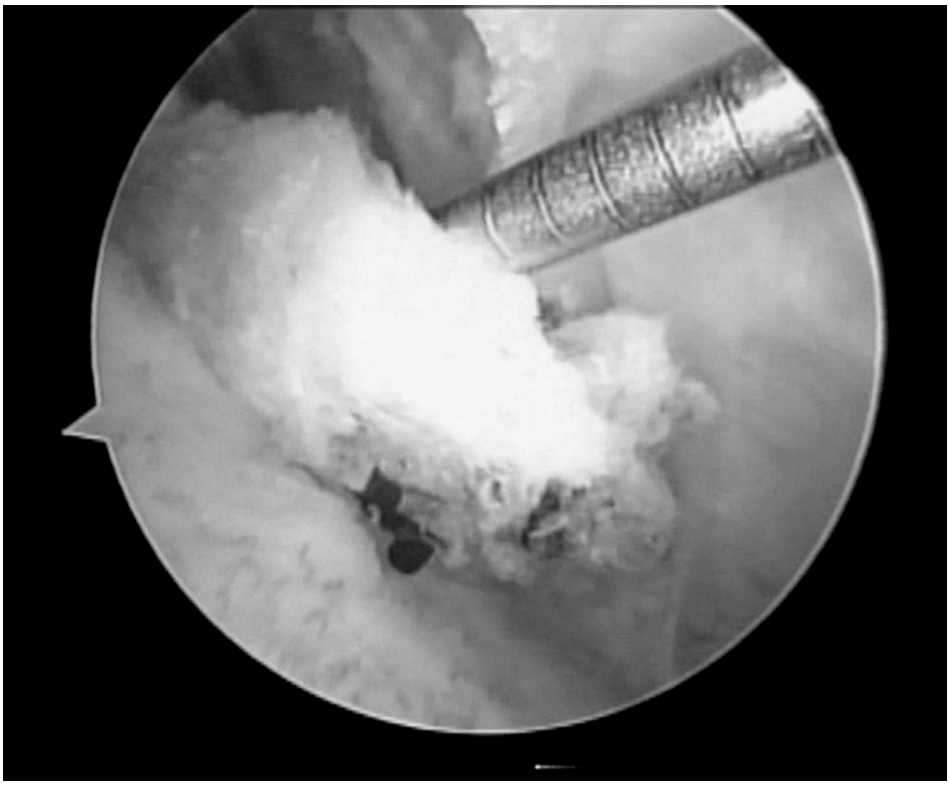

FIGURE 1. Arthroscopic view of the upper medial region of the knee joint showing the synovium hemangioma (macroscopic view).

patients are asymptomatic before the age of 16 years.[4] Few articles have reported on this disease, and practically all the studies found are case reports without clinical follow-up.[1] Until 1997, no more than 170 cases were reported in the literature.[1] To our knowledge, no more than 250 cases have been reported in the current literature.

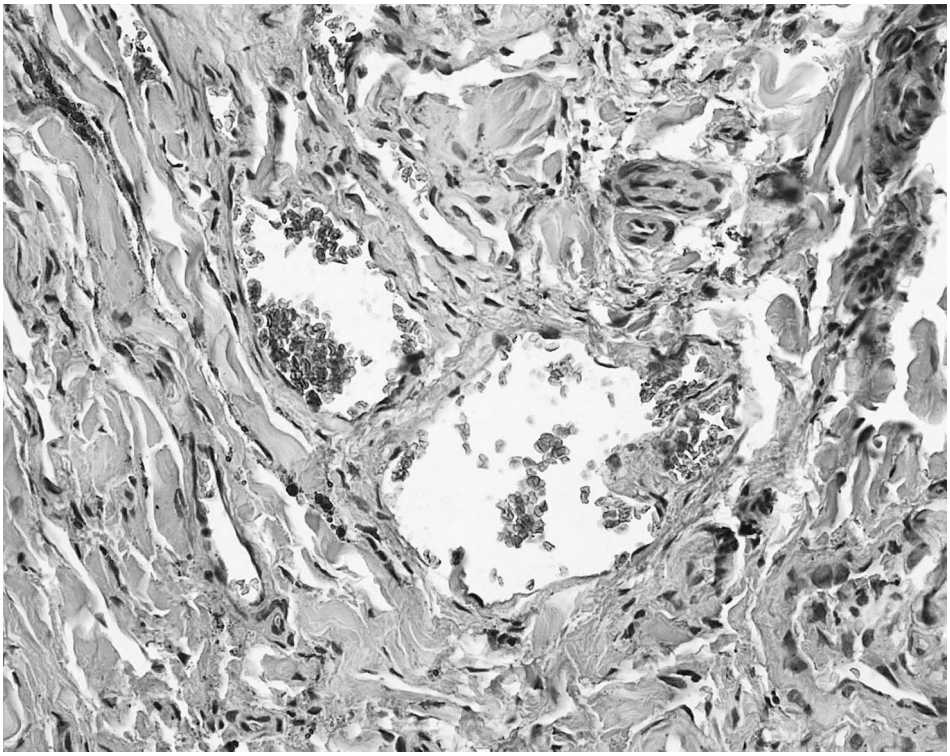

FIGURE 2. Microscopic exam of the tissue showing the vessels that comproved the hemangiona lesion.

Symptoms may include localized pain, recurrent hemarthrosis, stiffness, and loss of joint movement, and they may simulate a clinical condition of meniscus lesion or nonspecific synovitis.

Synovial hemangioma can be classified according to the joint extension as intraarticular, juxtaarticular, or intermediate, and it is frequently associated with other soft tissues lesions (skin, subcutaneous tissue, mucosa, and internal viscera).[3]

This condition is rarely diagnosed before surgery, as described by Devaney et al,[5] when only 22% of the cases were diagnosed preoperatively. The differential diagnoses are meniscus lesion, meniscal cyst, osteochondritis, juvenile rheumatoid arthritis, hemophilia, pigmented villonodular synovitis, lipoma, juxta-articular mixoma, unspecific synovitis, and synovial sarcoma.[2] Multiple episodes of intraarticular hemorrhage may predispose degenerative lesions as similar as hemophiliac arthropathy.

Several imaging methods have been used to identify intraarticular hemangioma, including radiography, arthrography, arteriography, venography, computer tomography (CT), and MRI.

MRI is the preferred imaging method for evaluating the presence of hemangioma. In T1-weighted sequences, a heterogeneous image of low signal strength is observed, and in T2-weighted sequences a hypersignal of lobular appearance is observed, with central areas between the lobes showing lower signal strength.[1] In chronic cases, the examination findings may be similar to those found in patients with hemophiliac arthropathy.[2] The final diagnosis of synovial hemangioma is only made after the microscopic evaluation of the lesion.

A limited number of papers involving the treatment of intraarticular hemangiomas of the knee have been reported in the literature.[1–6] The methods for treating synovial hemangioma include embolization, surgical resection, arthroscopic excision, and arthroscopic ablation surgery.

Advanced techniques can be performed to excise the hemangioma by arthroscopy, thereby minimizing the bleeding. Radiofrequency thermal coagulation resects the hemangioma and performs coagulation and synovectomy at the same time, minimizing the possibility of postoperative hemarthrosis.

Postoperatively, the patient followed an 8-week rehabilitation protocol, improving movement, muscle strength, and proprioception. The patient's return to athletic activities occurred 4 months after the surgery without further complaints.

Despite the fact that we were unable to obtain a proper long-term clinical examination of the patient, our opinion is that the arthroscopic surgery solved the problem. We hope that this report will establish a knowledge base to remind other physicians of this rare condition in sports medicine and orthopedic practices.

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