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Intra-articular haemangioma of the knee in the skeletally immature

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ABSTRACT Intra-articular haemangioma is a rare and uncommon condition that sometimes presents in infants. The lesion can be a diagnostic challenge, with misdiagnosis often leading to delayed diagnosis and treatment. It is essential to establish and treat the condition early, as intra-articular haemangioma can lead to destruction of the joint and secondary arthrosis. Herein, we report the case of a five-year-old boy who presented with intra-articular haemangioma and discuss the management of his condition.

Keywords: haemangioma, intra-articular, skeletally immature

INTRODUCTION

Intra-articular haemangiomas of the knee are very rare. It was first described by Bouchut in 1856.[1] Synovial haemangioma typically occurs in adolescents and young adults, with the average age of onset reported to be 10.9 years in girls and 12.5 years in boys.[2] Patients usually present with recurrent atraumatic knee swelling, with painful knee effusion. Intra-articular haemangioma of the knee in young children is rare, thus very few clinicians have experience in managing such lesions. Due to the rarity of the condition, it is often misdiagnosed, resulting in delayed diagnosis and treatment.[3] Herein, we report the case of a five-year-old boy who was diagnosed with intra-articular haemangioma at our centre and discuss the management of his condition.

CASE REPORT

A five-year-old boy presented with a two-year history of recurrent swelling and pain in the right knee in the absence of preceding trauma. The swelling, which occurred intermittently and was of varying sizes, would usually resolve spontaneously. It was associated with pain that affected the patient's gait and activity. He had no constitutional symptoms such as fever, weight loss or loss of appetite. The patient had sought treatment from several general practitioners prior to referral to our centre for further management.

Physical examination revealed fullness over the medial aspect of the knee, with no palpable soft tissue mass. There was no redness, warmth or effusion. The patient had full range of motion of the knee, and no tenderness was observed around the knee joint. There were also no signs to suggest meniscus or ligament injury. All other joints were found to be normal. Blood investigations did not reveal any haematological or immunological abnormalities. Magnetic resonance (MR) imaging showed an enhancing, lobulated, soft tissue mass, with high T2 signal intensity in the infrapatellar region, extending to the medial aspect of the knee joint and the suprapatellar space (Fig. 1). A radiological diagnosis of soft tissue haemangioma was made, with a differential diagnosis of alveolar soft tissue sarcoma.

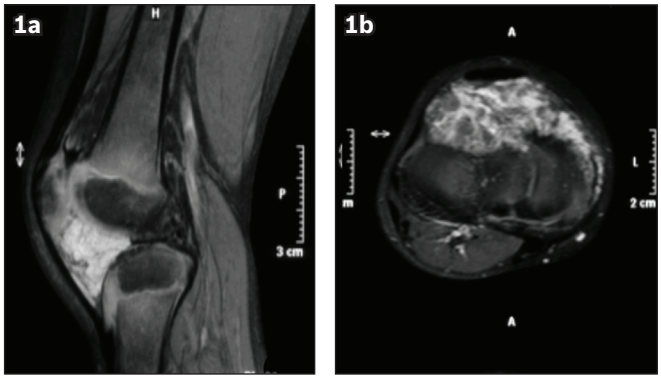

Fig. 1 (a) Sagittal T2-W MR image shows a soft tissue mass over the infrapatellar region. (b) Cross-sectional T2-W MR image shows an intra-articular mass.

Open excisional biopsy was performed using a medial parapatellar approach. Intraoperatively, a soft-tissue mass, measuring 3 cm × 2 cm, was found around the medial femoral condyle (Fig. 2). The surrounding synovial tissue appeared normal. Histopathological examination of the resected specimen revealed fibrofatty tissue in the containing thin wall and dilated blood vessels with a patchy distribution. The fibrous tissue was lined by proliferating synovium that formed villous-like structures (Fig. 3). Histopathological findings were in keeping with a haemangioma.

Postoperatively, the patient was well and had full range of motion of the right knee. At the latest follow-up 32 months after resection, the patient was disease free and had full function of the affected knee.

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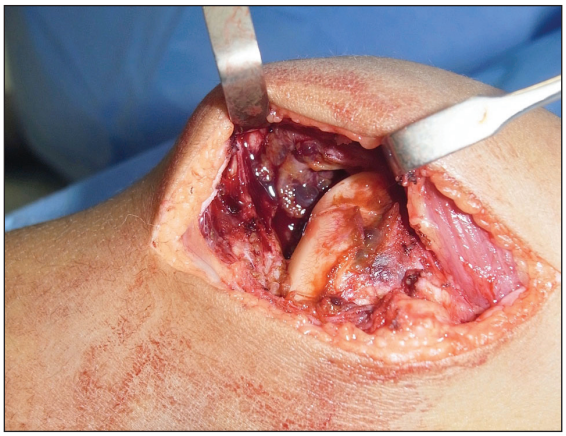

Fig. 2 Intraoperative photograph shows a haemangioma adjacent to the femoral condyle.

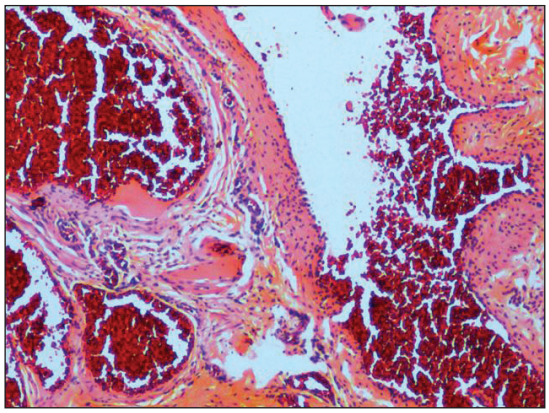

Fig. 3 Photomicrograph shows dilated vascular channels of varying sizes. The vascular channels' lumens contain blood (Haematoxylin & eosin, × 40).

DISCUSSION

Synovial haemangioma of the knee was first described by Bouchut in 1856;[1] it occurs mostly in adolescents and young adults. Typical presentation includes swelling, pain, recurrent haemarthrosis, stiffness and a palpable mass.[2] Traumatic events prior to the onset of symptoms was reported in 35% of patients.[2,4] The average age of onset is 10.9 years for girls and 12.5 years for boys, and 75% of patients are symptomatic prior to the age of 16 years.[2] Intra-articular haemangioma of the knee in young children is very rare, resulting in an average delay of 8.7 years in the diagnosis and treatment of the condition.[3] In the present case, the patient was referred for further management only after a two-year delay following the onset of symptoms, despite numerous medical consultations. Other disease entities that should be included in the differential diagnosis are pigmented villonodular synovitis, synovial sarcoma, juvenile idiopathic arthritis, haemophilia and sickle cell disease.[5]

MR imaging is the preferred imaging modality if an intra-articular vascular lesion such as synovium haemangioma is suspected.[6] The lesion will have a low to moderate signal intensity on T1-weighted images, but have high signal intensity on T2-weighted images.[7] MR imaging also allows visualisation of the extent of the lesion, as well as the presence of any chondral degeneration.[8] In our patient, the MR images clearly showed an enhancing lesion with high T2 signal intensity over the infrapatellar region. However, no chondral degeneration was seen.

Treatment of intra-articular haemangioma should be commenced as soon as possible to prevent degenerative changes of the cartilage.[9] Treatment modalities include open surgical resection, arthroscopic excision or arthroscopic ablation. However, arthroscopic excision may be complicated due to excessive bleeding or difficulty in complete resection of the haemangioma, and open surgical resection may result in limited range of motion of the knee secondary to fibrosis and scarring. In the present case, our patient was treated with open surgical excision, and neither excessive bleeding nor limitation in the range of motion of the knee occurred postoperatively. As the recurrence of intra-articular haemangioma following open resection has been reported,[10] we continue to follow up on our patient to monitor for any recurrence of symptoms. At 32 months following the initial resection of the haemangioma, our patient remained disease free.

To summarise, we report the case of a five-year-old boy, with a two-year history of recurrent swelling and pain in the right knee in the absence of preceding trauma, who was diagnosed with intra-articular haemangioma and treated with open surgical excision. As misdiagnosis is common, intra-articular haemangioma should be considered in skeletally immature patients who present with recurrent swelling and pain in the knee. Clinicians should exercise a high index of suspicion, as prompt diagnosis and treatment can prevent progressive arthropathic changes in the joint. MR imaging is essential for definitive diagnosis. Following treatment, extended follow-up with regular biopsies should be undertaken for early detection of any recurrence.

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