

# Progressively growing paediatric knee swelling: synovial haemangioma

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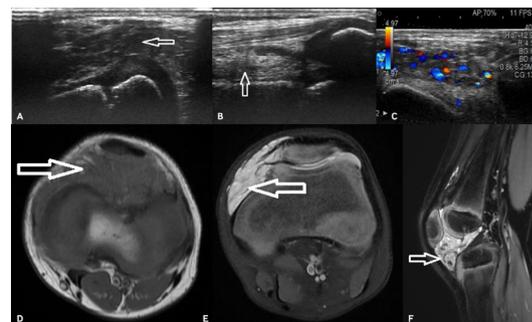
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## DESCRIPTION

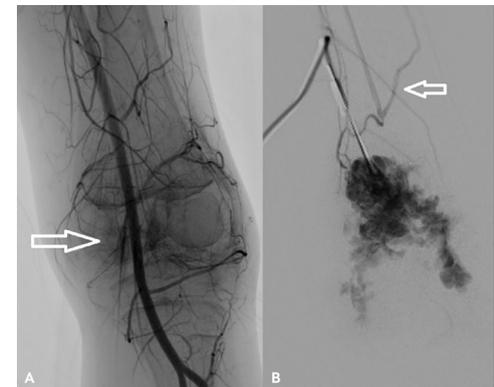
A 7-year-old boy presented to the orthopaedics outpatient department with a swelling of his left knee, which had been first noticed a year ago, and had been progressively growing since. This was associated with occasional pain, tenderness and restriction of range of movement. There was no history of trauma or fever, or similar swellings elsewhere. On examination, there was fullness of the left knee, with mild tenderness over its medial aspect, and restricted active and passive range of motion. The left femoral pulse was asymmetrically prominent. With a clinical suspicion of septic/ tuberculous arthritis, the patient underwent ultrasound of the knee.

Ultrasound revealed a lobulated, vascular isohyperechogenic mass (figure 1A–C) within the suprapatellar and medial joint spaces. No calcification was seen. On MRI, an extensive T1W isointense/T2W hyperintense intra-articular lesion was seen, which showed multiple flow voids within. This lesion showed an extra-articular extension over the medial aspect of the knee, extending across the medial patellofemoral ligament (figure 1D–F). A provisional diagnosis of synovial haemangioma or venolymphatic malformation was given. Digital subtraction angiography was performed for the same, which revealed an ill-defined contrast blush around the knee, and early draining deep veins within the thigh. Sclerotherapy (figure 2A,B) was performed subsequently, after which the size of blush diminished. Surgical excision was done, and pathology confirmed the diagnosis of cavernous synovial haemangioma.

Soft-tissue haemangiomas may be categorised according to their site of origin as cutaneous,



**Figure 1** (A–E) (A,B) Isohyperechogenic mass within the suprapatellar pouch and within the medial joint space (arrows), (C) showing vascularity within on colour Doppler; (D) axial T1W image of knee shows a lobulated isohypointense lesion within the anterior knee joint space (arrow), (E, F) same lesion appears T2W hyperintense with flow voids within (arrow).



**Figure 2** (A) Angiography shows an ill-defined contrast blush around the knee (arrow); (B) sclerotherapy with contrast agent shows dye within the lesion with early venous return (arrow).

subcutaneous, intramuscular, synovial or subsynovial.<sup>1</sup> Synovial haemangiomas are rare, benign vascular neoplasms that most commonly involve the knee, but may also be found in the wrist, elbow, ankle and tendon sheaths.<sup>1 2</sup> Commonly adolescent in onset, presentation may occur earlier in event of painful haemorrhage, either spontaneous or after trivial trauma.<sup>3 4</sup> Involvement of a joint can be focal or diffuse; and may be juxta-articular (just superficial to the joint capsule with no intra-articular extension), intra-articular or intermediate types.<sup>2 3</sup> Radiographs and CT suggest joint effusion, with possible phleboliths.<sup>5–7</sup> MR shows the classic fluid-intensity lesion, contained flow voids and its extent.<sup>2–4</sup> Uncommonly, angiography may be done to identify feeders (and thus enable embolisation or preoperative devascularisation), localise the lesion and define extent.<sup>8 9</sup> Treatment options include embolisation, sclerotherapy, cautery, arthroscopic ablation/excision or surgical resection. Follow-up may be done via cross-sectional imaging, ultrasound or angiography.<sup>10</sup>

## Learning points

- ▶ Synovial haemangiomas are the most common around the knee, and commonly present before the age of 16 with progressive swelling, pain and restriction of joint movement.
- ▶ The investigation of choice is MR, supplemented by ultrasound. Angiography can serve as a diagnostic and therapeutic tool by enabling embolisation of feeders in the same sitting.
- ▶ Treatment options include surgical resection, embolisation and sclerotherapy.



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