

A 14-year-old with lateral knee pain and locking

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Diagnosis

Symptomatic popliteal sesamoid (cyamella)

Discussion

Sesamoid bones, the ossification of cartilage remnants within muscles and tendons, are quite common near joints, including the knee [1] and facilitate the biomechanical translation of tendons at sites of mechanical stress by reducing pressure over bones, redirecting force vectors at sites of tendon angulation, and reducing friction.

Often asymptomatic, sesamoid bones can also be the cause of considerable pathology, particularly in the lower extremity [2]. The popliteal sesamoid (cyamella, popliteal fibula, fabella distalis) is present in the majority of primates but is uncommon in humans [3]. It has been described as both within the popliteus muscle (distal to the knee joint line) and in the vicinity of the myotendinous junction (proximal to the

knee joint line). Recognition of this sesamoid is important so that it is not mistaken for a fracture, osteochondral fragment, heterotopic ossification, or tumor [4–6].

Isolated case reports have also described the popliteal sesamoid as a purported cause of lateral knee pain, swelling, and restricted range of motion [4, 7]. There has been a case report of a giant, hypertrophied popliteal sesamoid in an osteoarthritic knee, felt to cause locking [5].

Gur et al. described the radiographic, CT, and MR appearance of an incidentally occurring popliteal sesamoid that demonstrated a low signal periphery on T1 and T2 spin echo and T2* gradient echo imaging compatible with cortical bone and CT findings indicating marrow fat [6].

There have, to date, been two case reports of symptomatic popliteal sesamoids. Mishra et al. described a patient with lateral pain and inability to extend his knee following basketball injury. The authors proposed that the patient dislocated and subsequently spontaneously reduced his popliteus tendon and sesamoid. Arthroscopy confirmed an inflamed/thickened popliteus tendon within the femoral hiatus. The patient recovered without incident [7].

Benthien et al. described a recreational athlete who complained of several weeks of posterior, lateral knee pain and restricted extension in the absence of trauma. Radiographs demonstrated a popliteal sesamoid in the region of the popliteus myotendinous junction (above the joint line). MRI demonstrated normal marrow signal, without edema. The appearance of the popliteus tendon was not reported. The patient completely recovered following physical therapy and was asymptomatic at 1 year [4].

This case demonstrates MRI findings suggesting symptomatology: bone marrow edema-like signal within the sesamoid itself and the adjacent femoral condyle. Peritendinous soft tissue and subtendinous bone marrow edema-

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like signal in the ankle are findings frequently associated with tendon pathology [8]. Subcortical, focal bone marrow edema-like signal within the femoral condyle and tibial plateau is a well described secondary finding of meniscal tear [9]. Similarly, in our case, bone marrow edema-like signal within the popliteal sesamoid and lateral femoral condyle indicates that this is likely the cause of the patient's symptoms. Based upon the limited reports of symptomatic popliteal sesamoids, it is unclear whether our case represents repetitive micro-trauma/friction between the popliteal sesamoid and femoral condyle or transient dislocation of the popliteus tendon/sesamoid, which spontaneously reduced prior to MR evaluation.

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