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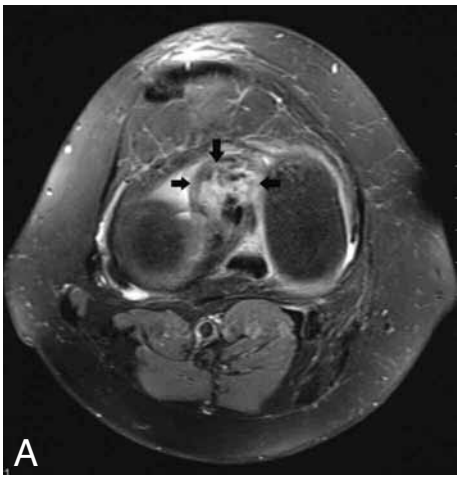
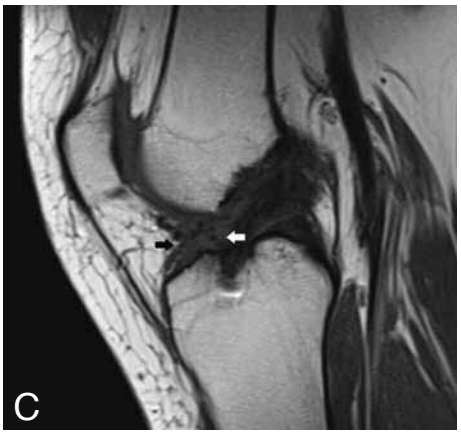
IMAGES IN CLINICAL RADIOLOGY





Cyclops lesion of the knee

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A 38-year-old patient had undergone Anterior Cruciate Ligament (ACL) reconstruction after severe ACL injury in the past. He presented with decreased range of motion, anterior knee pain and inability to fully extend the knee. Magnetic Resonance Imaging (MRI) was performed to assess the cause of extension loss.

A soft tissue lesion, outlined with small amount of joint effusion, was detected in the intercondylar notch anteriorly to the reconstructed ACL and attached to it (Fig. A, arrows). Sagittal fatsuppressed T2-Weighted Image (WI) clearly showed bulbous head- like appearance of the lesion (Fig. B). On axial and sagittal fatsuppressed T2-WI, the lesion appeared of heterogeneous signal intensity (Fig. A, B, arrows). The nodule was of low signal intensity on T1-WI, hardly distinguishable from synovial fluid (Fig. C, arrows). Based on the characteristic imaging findings, the diagnosis of a cyclops lesion ("eye ball") was made.

The nodule was arthroscopically confirmed and resected. Additional notch plasty was performed. Histopathologic examination of the specimen showed fibrocartilaginous tissue. The postoperative course was uneventful. Follow- up after few months showed uneventful recovery and full range of knee extension.

Comment

A cyclops lesion consists of a localized arthrofibrosis, complicating ACL reconstruction, that may lead to loss of knee extension. Morphologically, it looks like the central eye of the mythical "cyclops" monster, hence the name. The incidence rate of cyclops lesion ranges from 1% to 21%, generally not above 10%. It usually occurs soon after ACL reconstruction, with an average interval of 3 months. Different causative factors have been hypothesized in the etiopathogenesis, such as bone and cartilage residues remaining in the joint after tunnel drilling, remnants of the native ACL, broken graft fibers and inflammatory response caused by graft impingement.

MRI is the modality of choice for identifying cyclops nodules after ACL reconstruction. The characteristic imaging appearance is a nodule of localized arthrofibrosis in the intercondylar notch. A cyclops lesion is typically small and adjacent to the ACL. The lesion is usually of low signal intensity on both T1-WI and T2-WI, but can be variable on T2-WI.

The main differential diagnosis of focal low-signal-intensity nodule adjacent to the knee joint consists of pigmented villonodular synovitis (PVNS). The most useful imaging feature differentiating cyclops lesions is the intimate contact of the lesion with the ACL. A clinical history of postoperative extension loss is also helpful. In certain cases the imaging distinction can be difficult.

Treatment of choice for cyclops lesions is arthroscopic debridement. If the contact between neoligament and notch still exists after nodule removement, a notchplasty is required. Patient outcome is usually good, with possibility of full motion after nodule resection.

Reference

1. Wang J., Ao Y.: Analysis of different kinds of cyclops lesions with or without extension loss. *Arthroscopy*, 2009, 25: 626-631.

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