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Case Report

Cyclops Syndrome: A Rare Cause of Postoperative Knee Extension Loss

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Abstract

Cyclops syndrome is a postoperative complication of anterior cruciate ligament (ACL) reconstruction caused by a fibroproliferative nodule in the intercondylar notch that limits knee extension. We report a 27-year-old male athlete with anterior knee pain and loss of extension six months after ACL reconstruction. MRI showed a well-defined nodule anterior to the graft, consistent with a cyclops lesion. Arthroscopic excision confirmed a fibrous nodule, and full extension was restored after rehabilitation. Early MRI diagnosis and arthroscopic removal provide excellent outcomes and prevent long-term functional impairment.

Keywords: *Cyclops Syndrome; MRI; Arthroscopy*

Introduction

Cyclops syndrome is a well-recognized postoperative complication following anterior cruciate ligament (ACL) reconstruction, characterized by a fibroproliferative nodule within the intercondylar notch that mechanically blocks full knee extension. The lesion was first described by Jackson and Schaefer (1990), who coined the term “cyclops” based on its arthroscopic appearance resembling a single eye [2].

The incidence of cyclops lesions ranges from 1% to 10% of ACL reconstructions and up to 50% in asymptomatic cases detected on MRI [5]. The development of this lesion is thought to result from granulation tissue and fibrous proliferation at the anterior margin of the tibial tunnel. MRI is considered the imaging modality of choice, as it allows early and accurate identification of such nodules in the postoperative knee [1,5].

Case Report

A 27-year-old male athlete presented with progressive limitation of terminal knee extension and anterior knee discomfort six months after arthroscopic ACL reconstruction using a hamstring autograft. Clinical examination revealed a 10° loss of full extension with palpable crepitus during terminal extension. No joint effusion or instability was observed.

MRI demonstrated a well-circumscribed, rounded nodule of intermediate signal intensity on T1- and T2-weighted sequences, located anterior to the tibial insertion of the ACL graft, within the intercondylar notch. The graft appeared intact without tunnel enlargement. These findings were consistent with a cyclops lesion (Figure 1-3).

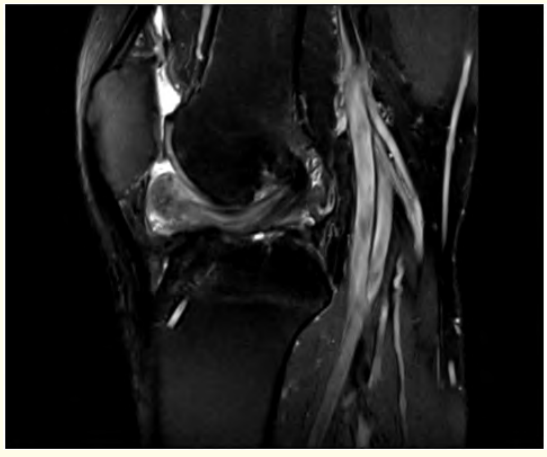

Figure 1: *Sagittal T2 FAT SAT: Heterogenous high signal intensity cyclops lesion anterior to the repaired ACL.*

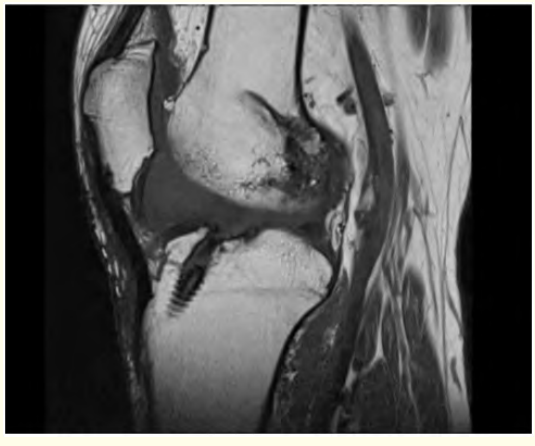

Figure 2: *Sagittal T1: Mild heterogeneous intermediate signal intensity cyclops lesion.*

Figure 3: *Coronal STIR revealed a cyclops lesion. The lesion had heterogeneous but mainly high signal intensity and a low signal intensity rim.*

Arthroscopic exploration confirmed a fibrous nodule measuring approximately 1 cm in diameter anterior to the graft. The lesion was excised arthroscopically, and the patient underwent a rehabilitation program emphasizing extension recovery. At the three-month follow-up, he had regained full range of motion without recurrence.

Discussion

Cyclops syndrome results from the formation of a localized fibrous or fibrocartilaginous nodule that impinges between the femur and tibia, preventing full extension. The pathogenesis is multifactorial, including graft impingement, debris from drilling, or microtrauma leading to localized fibrosis [3,5]. Histologically, these nodules are composed of dense fibrous tissue, sometimes with cartilaginous or ossified areas [3].

MRI is the diagnostic tool of choice. According to Vahey., *et al*. (1990), the lesion typically appears as a soft-tissue nodule of intermediate signal intensity on both T1- and T2-weighted images, located anterior to the ACL graft and posterior to Hoffa's fat pad [5]. McCauley (2005) emphasized the role of postoperative MRI in detecting complications such as graft impingement, tunnel widening, and cyclops lesions [1].

The differential diagnosis includes diffuse arthrofibrosis, graft malposition, or intra-articular loose bodies. However, unlike diffuse arthrofibrosis, the cyclops lesion is focal and nodular. Marzo., *et al*. (1992) described that surgical excision of the lesion, followed by early mobilization, leads to excellent functional recovery with minimal recurrence risk [3].

Preventive measures include meticulous debridement of graft remnants during surgery and ensuring appropriate tunnel positioning to minimize anterior graft impingement [4]. Early recognition and treatment are essential, as persistent extension deficits can lead to abnormal gait mechanics, quadriceps inhibition, and long-term degenerative changes.

Conclusion

Cyclops syndrome should be suspected in patients with persistent loss of terminal extension following ACL reconstruction. MRI provides a reliable, non-invasive diagnostic tool to identify the characteristic lesion. Arthroscopic removal of the fibrous nodule remains the standard treatment, yielding excellent outcomes. Awareness among orthopedic surgeons and radiologists is crucial for early diagnosis and management.

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