

Unraveling the Celery Branch Sign: Understanding Mucoïd Degeneration of the Anterior Cruciate Ligament

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Abstract

Mucoïd degeneration of the anterior cruciate ligament (ACL) is a rare condition characterized by the infiltration of glycosaminoglycans between the ACL fibers, resulting in a poorly understood entity. We present the case of a 45-year-old male athlete with no previous pathological history who consulted for pain in the left knee. MRI revealed a thickened and poorly delineated aspect of the ACL with a hyper signal, realizing the Celery branch sign. The main differential diagnosis is rupture of the ligament.

Symptomatic patients may benefit from complete arthroscopic resection of the ligament. The present case highlights the importance of recognizing this rare condition and considering it in the differential diagnosis of knee pain.

Keywords: Mucoïd Degeneration; Anterior Cruciate Ligament; Celery Branch Sign; Knee Pain; Arthroscopic Resection

Case Presentation

A 45-year-old male athlete with no previous pathological history consulted for pain in the left knee located on the posterior side, of insidious onset, resistant to anti-inflammatory treatment, without any notion of trauma, with slight limitation of flexion. MRI of the knee revealed a thickened and poorly delineated aspect of the anterior cruciate ligament with normal orientation of its fibers, which are continuous from the tibial insertion to the femoral insertion, presenting as a DP hyper signal realizing the Celery branch sign (Figure A).

Discussion

Mucoïd degeneration of the anterior cruciate ligament is a poorly understood entity, resulting from infiltration of mucoïd like substance (glycosaminoglycans) between the ACL fibers. At a younger age, it may result from minimal trauma and constitute a degenerative disorder preceding osteoarthritis [1]. In older subjects, it develops in a degenerative context.

Most often asymptomatic and discovered by chance during imaging, this pathology may be revealed by pain localized in the majority of cases to the posterior side of the knee felt at the end of flexion [2,3], or more rarely by increased anterior pain during extension [4].

The diagnostic criteria defined on MRI by Bergin., *et al.* are: an increase in the overall volume of the anterior cruciate ligament with a global T1 and T2 hypersignal and ligament fibers that are clearly visible on T2 and continuous from the tibial insertion to the femoral insertion [5]. These criteria lead to the pathognomonic sign: Celery stem branch.

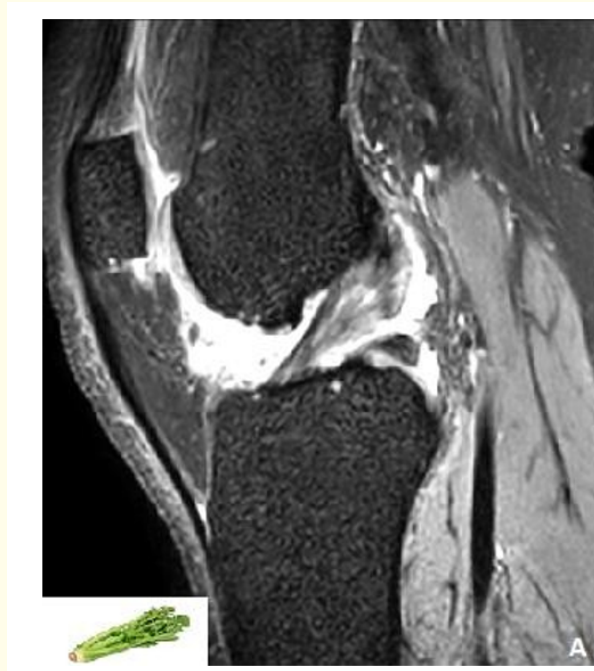


Figure A: MRI of the knee in sagittal DP section T2 showing mucoïd degeneration of the anterior cruciate ligament with a Celery stem appearance.

The main differential diagnosis of mucoïd degeneration of the anterior cruciate ligament is rupture of the ligament, which also presents as hypertrophy with a delimited aspect of the ligament but in this case with a loss of continuity of its fibers.

Several associated lesions have been described in the literature, namely meniscal lesions predominantly on the medial side, chondral lesions, anterior cruciate ligament lesions and intraosseous cysts.

Arthroscopy confirms the diagnosis by demonstrating a ligament that meets the diagnostic criteria defined by McIntyre., *et al.* a hypertrophy of the ligament, yellowish or buff in color with taut fibers lacking a synovial coating [6].

Symptomatic patients may benefit from complete arthroscopic resection of the ligament, which is the treatment of choice. Recourse to ligament reconstruction is rarely indicated.

Conclusion

Mucoïd degeneration of the anterior cruciate ligament is a little-known pathology, suspected in the presence of unusual posterior knee pain limiting flexion. The diagnosis is confirmed by MRI of the knee, which shows a typical Celery stem appearance, and by arthroscopy. Arthroscopic resection is the standard treatment in symptomatic cases.

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Conflict of Interest

All authors declare no conflict of interest relevant to this article.

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