

Locked Knee Caused by Lateral Meniscal Capsular Disruption: Verification by Magnetic Resonance Imaging and Arthroscopy

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Abstract

Locking of the knee is commonly reported in patients presenting to an orthopedic surgeon. This case report describes a rare cause of knee locking: subluxation of the lateral meniscus without an associated tear. This case highlights the importance of the popliteus recess in stability of the lateral meniscus. Injury to this area may lead to meniscal subluxation and knee locking.

Subluxation of the lateral meniscus is a very rare cause of mechanical locking of the knee.¹ Lateral meniscal subluxation without an associated tear has been described in several case reports.¹⁻³ Locking caused by lateral meniscal subluxation in an adult population may be seen with normal magnetic resonance imaging (MRI) findings.³ George and Wall² reported on a pediatric patient with knee locking caused by lateral meniscal subluxation in the absence of a meniscal tear seen on MRI and arthroscopy.

We report a case of a locked knee in an adult caused by a lateral meniscal subluxation secondary to meniscal capsular separation with both MRI and arthroscopic verification. The patient provided written informed consent for print and electronic publication of this case report.

Case Report

A 57-year-old man experienced a 10-day history of a locked right knee. He reported a several year history of right knee locking that spontaneously resolved without treatment. There was no history of trauma, and no specific incident occurred during this recent episode. Knee examination revealed range of motion from 10°-115°. His ligamentous examination was stable and he was neurovascularly intact. A preoperative MRI (Figure 1A-C) was performed and interpreted as a locked bucket handle tear of the lateral meniscus.

The patient underwent arthroscopy (Figure 2A). A normal patellofemoral joint, medial meniscus, and cruciate ligaments were noted; plica was not present. There was no tear in the lateral meniscus, but the patient had increased excursion anteriorly (Figure 2B). The meniscal capsular junction was not intact. Three meniscal arrows were placed into the meniscal

Figure 1. T2 weighted MRI sagittal (A, B), coronal (C) images read as lateral meniscus demonstrates a large flipped meniscal fragment involving most of the body and portions of the posterior horn within the intercondylar notch.



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Figure 2. Intact lateral meniscus (A). Lateral meniscal capsular junction disruption with increased excursion (B). Lateral meniscal capsular junction fixed with 3 meniscal arrows (C).

capsular junction. The lateral meniscus was reexamined and found to be stable (**Figure 2C**).

The knee was immobilized postoperatively for 3 weeks with a brace in extension. Weight-bearing was allowed as tolerated. At 6 weeks, the patient regained full range of motion with no sensation of locking found.

Discussion

Locking of the knee is commonly observed by orthopedic surgeons. Loose bodies, patellar subluxation, and meniscal tears are the most common diagnoses associated with a locked knee. There have been reports of intact meniscal subluxation causing locking. Garofalo and colleagues¹ reported a case of knee locking caused by a subluxation of the posterior horn of a normal lateral meniscus. No MRI was performed prior to arthroscopy in this case. George and Wall² reported a case of knee locking in a pediatric patient caused by a lateral meniscal subluxation without tear. In the study by George and Wall,² an MRI was performed in the locked position which revealed an anterior dislocation of the lateral meniscus. Arthroscopy verified hypermobility of the lateral meniscus with no discrete tear. Simonian and colleagues³ reported 3 patients with mechanical knee locking with initial MRI examinations interpreted as normal, which were found to have lateral meniscus instability during arthroscopy. To our knowledge, this is the first case in the literature to report on an adult with a locked knee caused by lateral meniscal subluxation secondary to meniscal capsular separation and confirmed by MRI and arthroscopic findings.

In a case report by Sussman and colleagues,³ the patient's

symptoms were consistent with an unstable, intrasubstance meniscal tear, which is commonly seen. The initial MRI was read as a locked bucket handle tear of the lateral meniscus. The posterior horn of the lateral meniscus is attached to the popliteus by the posterior superior and anterior inferior popliteomeniscal fascicles in the popliteus hiatus. Injury in the popliteus recess may lead to lateral meniscal subluxation and knee locking.

In conclusion, lateral meniscal subluxation may be the cause of knee locking in an adult. Injury to the area of the popliteus recess at the posterior meniscal capsular junction can lead to instability of the meniscus and subluxation.

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This paper will be judged for the Resident Writer's Award.