

## **Magnetic Resonance Imaging versus Diagnostic Arthroscopy to Identify Intra-articular Pathology**

### **Associated with Patellar Instability: A High Rate of Discordant Findings Altering Surgical Treatment.**

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**Background:** Acute traumatic patellar dislocations may cause intra-articular derangements of the knee in the setting of acute and chronic instability which may not always be appropriately identified on magnetic resonance imaging (MRI).

**Hypothesis/Purpose:** The purpose of this study is to determine the rates of coexisting intra-articular pathology in patients with patellar instability requiring MPFL reconstruction, and to report discordance between preoperative MRI findings and diagnostic arthroscopy findings.

**Study Design:** Retrospective Case Series

**Methods:** All patients undergoing MPFL reconstruction at a single institution between 2010 and 2023 were identified. Operative reports and preoperative MRI reports, defined as the most recent MRI to the date of surgery, were queried. Records without full MRI reports as read by a radiologist or cases in which a diagnostic arthroscopy was not conducted were excluded. All intra-articular pathology that was documented on MRI and confirmed by arthroscopy was documented. MRI findings were considered to be discordant from arthroscopic findings if a lesion was identified on diagnostic arthroscopy that was not present in the full MRI report and that lesion required additional surgical procedures.

**Results:** 508 patients were ultimately included who had 701 arthroscopic procedures conducted which included 331 patellar shaving chondroplasties, 180 loose body removals, and 95 osteochondral lesions treated via ORIF (26 cases), chondral allograft grafting (30 cases), osteochondral allograft transplantation (9 cases), and microfracture (30 cases), and 39 meniscus tears resulting in 33 partial meniscectomies and 6 meniscus repairs. However, among these 508 patients, 173 (34%) demonstrated discordance of preoperative MRI and arthroscopic findings which necessitated additional procedures. These arthroscopic findings resulted in 75 loose body removals, 93 shaving chondroplasties, 3 osteochondral fracture fixation procedures, 3 microfractures for full thickness cartilage loss, 16 partial meniscectomies and 2 meniscal repairs which would have been missed without diagnostic arthroscopy due to discordant MRI findings. Magnetic Resonance Imaging obtained greater than 90 days from the date of surgery had a statistically higher rate of discordant findings (40% 75/187) than those conducted within 90 days of the surgical date (31%, 98/321) ( $p=0.029$ ). However, MRIs obtained within 90 days of the date of surgery still had more than 30% rate of discordance.

**Conclusion:** Greater than 1/3 of patients who underwent diagnostic arthroscopy during patellar instability surgery had pathology identified which required surgical intervention that was not reported on a pre-operative MRI. The findings of this study highlight the importance of diagnostic arthroscopy in the treatment of patellar instability.