Does MPFL Ligament Repair on a First-Time Pediatric Patella Dislocation Decrease the Future Rate of Dislocation?

Greenberg I, MS1  Merrill H, MD1  Singh L, MD1  Pacicca D, MD1,2

1 University of Missouri- Kansas City School of Medicine, Kansas City, Missouri
2 Children’s Mercy Hospital, Kansas City, Missouri
Contact information: dmpacicca@cmh.edu

OBJECTIVES
The purpose of this study was to determine the incidence of instability and dislocation events amongst patients treated with surgery after a first-time patellar dislocation. Available literature suggest that Medial Patellofemoral ligament (MPFL) repair after a first-time patellar dislocation may reduce the risk of recurrence when compared to the re-dislocation rate of non-operatively treated patients with estimates ranging from 10%-50%. Additionally, the majority of these studies include a large variation in age range with a paucity of literature commenting on adolescent outcomes. Our hypothesis was that repair would decrease the dislocation rate compared to non-operative management or arthroscopic excision of loose body alone.

METHODS
The study, an IRB-approved, level 3 retrospective study, reviewed all patients between 10-18 years old treated at a tertiary referral center between Jan 1, 2003 and July 31, 2012 with first-time patellar dislocations. Exclusion criteria included less than 3 months of follow up, congenital disorders or previous dislocation, delay in presentation of greater than 2 weeks, and additional repair or reconstruction of the extensor mechanism. A group of patients who had a MPFL repair (while undergoing knee arthroscopy for loose body removal) and patients that underwent arthroscopy alone for loose body removal composed the operative study group. This was compared to patients who were treated with bracing and therapy alone. The primary outcome measured was the number of patients experiencing re-dislocation or overall instability, as defined by subluxation events plus frank re-dislocation, compared between our groups. Chi squared analysis was used to test our data for significance.

RESULTS
- 107 patients met inclusion and exclusion criteria with 71 patients in the bracing group, 20 patients in the arthroscopy for loose body removal with MPFL repair, and 15 patients in the arthroscopy group for loose body removal alone.
- Overall rate of dislocation and instability were 31% and 40%, respectively
- Between groups, non-operative treatment resulted in a dislocation rate of 39% vs 14% operatively (p<0.01).
- Rate of instability was 49% for non-operative treatment vs 22% for operative (p<0.01).
- At final follow up, there was noted weakness in 47% of non-operative patients vs 19% of operatively treated patients. (p<0.01).
- No significant difference between treatment groups regarding compliance with physical therapy.
- Analysis of all patients with recurrent instability showed an association with decreased PT compliance (p=0.05)
- Analysis of all patients with recurrent dislocation showed an association with weakness at final follow up (p=0.05) and decreased PT compliance (p=0.01)

CONCLUSIONS
- High rates of re-dislocation and instability amongst adolescent populations call into question conservative management for all first-time patellar dislocations.
- While operative treatment suggests some benefit, the exact mechanism is unclear with MPFL repair statistically equivalent to arthroscopy for loose body removal alone.
- Correlation of PT compliance and recurrent instability reinforce the principle of adjuvant physical therapy. Suggestive skew of the data within overall data set suggest that failure of non-operative treatment may be further improved without operative intervention.
- We attempted to find differences between operative subgroups and to measure available MRIs to correlate radiographic findings with clinical results, but due to low numbers could not generate statistical power. Prospective trials are necessary to provide recommendations. Our study suggests that attention to PT compliance is important. Further study of advanced imaging would be useful in determining whether structural abnormality can account for statistical equivalency of our MPFL repair group vs arthroscopic loose body removal alone.

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