Purpose: This study aimed to explore the efficacy of early MPFL repair versus nonoperative treatment on the rate of patellar redislocations and functional outcomes in patients with acute first-time patellar dislocations. Early MPFL repair resulted in a lower rate of redislocation, a higher Kujala score, and noninferior complication rates compared to nonoperative treatment. Data: This systematic review and meta-analysis explored the efficacy of early MPFL repair versus nonoperative rehabilitation treatment on the rate of patellar redislocation and functional outcomes in skeletally mature patients with traumatic, first-time patellar dislocations. Methods: MEDLINE, PubMed, and EMBASE were searched from database inception to May 2022 for studies examining the management options for acute first-time patellar dislocations. This study was conducted in accordance with PRISMA and R-AMSTAR guidelines. Data on redislocation rates, functional outcomes including the Kujala score for anterior knee pain, and complication rates were extracted. A meta-analysis was used to pool the mean postoperative Kujala score and calculate the proportion of patients sustaining redislocations using a random effects model. Quality assessment of included studies was performed for all included studies using the MINORS and Detsky scores. Results: This review included a total of 25 studies and 1361 patients. The pooled mean redislocation rate in 15 studies comprising 798 patients in the rehabilitation group was 30% (95% CI 25%-36%, I2 = 65%). Moreover, the pooled mean redislocation rate in 10 studies comprising 170 patients undergoing early MPFL repair was 7% (95% CI 3%-12%, I2 = 30%). The pooled mean postoperative Kujala anterior knee pain score in 8 studies comprising 396 patients in the rehabilitation group was 82.5 (95% CI 78.3-86.8, I2 = 91%), compared to a score of 88 (95% CI 87-90, I2 = 76%) in 3 studies comprising 94 patients in the repair group. Range of motion deficits were reported in 3.8% of 893 patients in the rehabilitation group and 2.0% of 205 patients in the repair group. Conclusion: Early MPFL repair resulted in a lower rate of redislocation, less knee pain, and non-inferiority with respect to range of motion deficits compared to nonoperative treatment for the management of acute first-time patellar dislocations. The paucity of high-level evidence warrants further investigation in this topic in the form of well-designed and high-powered RCTs to determine the optimal management of these patients.

Category: Knee - Patellofemoral
Trochlear Morphology and Cartilage Viability After Mini-Open Lateral Approach Trochleaplasty for Patellar Dislocation – 5 Year MRI Follow-Up Study

Abstract ID# 23259
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Summary: Trochleaplasty is a safe procedure – none had significant cartilage lesions such as delamination or avascular necrosis and trochlea dysplasia can be corrected to normal or nearly normal trochlea by mini-open trochleaplasty, based on post operative MRI analysis. Data: Background Patellofemoral instability is a common problem in adolescents and anatomical patellofemoral abnormalities, especially trochlear dysplasia, increase the risk for recurrent dislocations. To stabilize the dislocating patella, trochleaplasty has become an accepted surgical management strategy. The post-operative changes of trochlear morphology and the cartilage viability after trochleaplasty are poorly understood. The purpose of this study was to analyse the changes in cartilaginous shape of the trochlea and articular cartilage viability after mini-open lateral approach trochleaplasty. The five-year MRI follow-up data after mini-open lateral approach trochleaplasty was presented. Methods From January 2010 to December 2016, 109 patients underwent a mini-open lateral approach trochleaplasty combined with medial patellofemoral ligament (MPFL) reconstruction for the diagnosis of recurrent lateral patellofemoral dislocation. Additionally, if no overlapping of patellar and trochlear cartilage was present intraoperatively, indicating abnormal patello-trochlear index, distalizing tibial tubercle osteotomy (DTTO) was performed to correct patellar height. Demographics and presence of MRI variables included ages at time of surgery, degree of trochlear dysplasia, sulcus depth, sulcus angle, lateral inclination angle, condylar height and patello-trochlear index. Thirty patients underwent a control MRI assessment of post-operative trochlear status at a minimum 5 year post-operatively. Results Mean age at the time of surgery was 16.9 years (SD 4.63). Majority of the patients were females (23/30, 77%). In follow-up MRI’s, at minimum 5 year post-operatively (range 5 to 8 years), no significant cartilage lesions such as delamination or avascular necrosis were seen. The articulating cartilage at the region where trochleaplasty was performed did not reveal any greater than ICRS grade I cartilage deterioration in control MRI and in majority of the knees (21/30, 70%), no changes were detected. The most common post-operative trochlear shape was somewhat shallow, graded as type A according to Dejour classification - all study patients with grade B and D dysplasia with bump deformity were corrected to normal shaped or grade A trochlea. The preoperative sulcus depth was mean 1.3mm (SD 0.53) and post-operatively mean 3.9mm (SD 1.20). Sulcus angle improved from preoperative mean 162° (SD 9.72) to post-operative mean 149° (SD 5.14) and lateral trochlear inclination angle changed from preoperative mean 4° (SD 3.92) to post-operative mean 137° (SD 1.38). Trochleaplasties combined with additional DTTO (9/30, 30%) were not associated with increased cartilage lesion deterioration. Preoperatively, 83% of patients (25/30) had some articular cartilage damage on the patella, primarily on the medial facet of the patella. Patellar lesions remained comparable with preoperative status at 5-year follow-up MRI. Conclusion Trochleaplasty is a safe procedure – in a minimum 5 year MRI follow-up, none had significant cartilage lesions such as delamination or avascular necrosis. Trochlea dysplasia can be corrected to normal or nearly normal trochlea with mini-open lateral approach trochleaplasty, based on post operative MRI analysis. Satisfying subjective long-term outcome can be expected for trochleaplasty.

Category: Knee - Patellofemoral
Feasibility of Return to Sports Readiness Assessment at 6 months after Surgery for Recurrent Patellar Instability

Abstract ID# 21734
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Summary: Evaluation of a functional return to sport assessment at six months after surgery for recurrent patellar instability. Data: Purpose To evaluate the feasibility of functional test battery in assessing readiness for return to sport (RTS) six months after surgery for recurrent patellar dislocation with an “a la carte” approach. Methods A prospective cohort of 57 patients who underwent surgery for recurrent patellar instability were assessed at six months follow-up. The RTS test battery included Lower Quarter Y-Balance Test (YBT-LQ), single-legged hop tests and isokinetic strength tests. Banff Patellofemoral Instability Instrument (BPII) 2.0 and Norwich Patellar Instability score (NPI) were also utilized. RTS clearance criteria were defined as: ≤4 cm YBT-LQ anterior reach difference between limbs and Leg Symmetry Index (LSI) =95% in the YBT-LQ composite score. LSI =85% for all single-leg hop tasks and LSI =90% in quadriceps strength. Results All patients were able to complete the YBT-LQ and strength tests. Fifty-two (91%) completed all hop tests. For the YBT-LQ test, 69% achieved an anterior reach asymmetry ≤4 cm, and 65% had a LSI =95% in composite score. Mean LSI of all four hop tests was 91% and 61% had an LSI =85%. For the isokinetic strength test, 22% passed criteria for LSI peak torque quadriceps strength at 60°/s. Nine (16%) patients were deemed ready to RTS, passing all criteria. Mean BPII 2.0
and NPI score was 67.4 (19.6) and 9.9 (10.8) respectively. A long duration from first dislocation to operation and age >20 years was associated with a worse performance on the hop tests. The extent of surgery did not affect neither performance on functional tests nor the PROM scores. Conclusion Although only a minority of patients were deemed ready (by conventional standards) for RTS, most patients were able to complete all tests in the current study. A functional test battery, such as the current, therefore seems feasible to conduct six months after patellar instability surgery. But more knowledge on cut-offs for readiness clearance, and the ideal timing of such assessment, is needed. Also, it could be argued that patients with recurrent patellar instability might be better off with a return to activity rather than return to sports assessment given the heterogeneity in their activity participation.