CARTILAGE VIABILITY AFTER MINI-OPEN LATERAL APPROACH TROCHLEAPLASTY FOR RECURRENT PATELLAR DISLOCATION: MRI ANALYSIS AND CLINICAL RESULTS

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DISCLOSURE

• Board memberships:
  - FAKA (Finnish Arthroscopy, Knee & Sports Medicine Association), chair
  - ESSKA Patellofemoral Committee, chair
  - ISAKOS Knee Sports & Preservation committee, member

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PURPOSE

• Patellofemoral instability is a common problem in adolescents and young adults
• Trochlear dysplasia increase the risk for recurrent dislocations.
• To stabilize the dislocating patella, trochleaplasty has become an accepted surgical management strategy.
• The 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 after trochleaplasty in a consecutive cohort of patients. The secondary purpose of this study was to analyze cartilage viability in MRI after mini-open lateral approach trochleaplasty.
METHODS

• From January 2009 to December 2015, 68 consecutive patients underwent a mini-open lateral approach trochleaplasty combined with medial patellofemoral ligament (MPFL) reconstruction for the diagnosis of recurrent lateral patellofemoral dislocation.

• Demographics and presence of risky pathoanatomies were collected prospectively. These included ages at first dislocation, degree of trochlear dysplasia, sulcus depth, sulcus angle, lateral inclination angle, condylar height and patello-trochlear index.

• Clinical results and subjective outcome were reported at follow-up visits and first 30 patients underwent a control MRI assessment of post-operative trochlear status.
SURGICAL TECHNIQUE
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METHODS

- Failures of trochleaplasty were defined as recurrent dislocation of the patella or postoperative clinical complication warranting revision surgery or other major subjective complaint on clinical examination.
- For patients with other major anatomical patellofemoral abnormalities than trochlear dysplasia, a surgical algorithm was used to correct patella alta, lateralized tibial tubercle, rotational or axial deformity all at the same surgery, no staged surgery was performed.
RESULTS

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• Mean age at the time of surgery was 16.9 years (SD 4.63). Majority of the patients were females (53/68, 78%)
• Patients reported a mean Kujala score 70.6 (SD 17.77 ) preoperatively and postoperatively Kujala score improved to mean 93.5 (SD 4.82)
• One patient had patellar re-dislocation after surgery and one symptomatic patellar maltracking
• In follow-up MRI’s, no significant cartilage lesions such as delamination or avascular necrosis were seen. The cartilaginous flap at the region where trochleaplasty was performed did not revealed any greater than ICRS grade I cartilage deterioration on control MRI and in majority of the knees no changes were detected.
• The most common postoperative trochlear shape was somewhat shallow, graded as type A according to Dejour classification - all study patients with type B and D dysplasia with bump deformity were corrected to normal shaped or type A trochlea.
RESULTS
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• Analysis for the two revision cases, one patient required subsequent tibial tubercle distalization after trochleaplasty due to subjective patellar maltracking symptoms near extension (patella alta).

• The patients that had one or more additional pathoanatomical factor surgically corrected at the time of trochleaplasty were not at greater risk for postoperative complications if compared to trochleaplasty and MPFL reconstruction alone.

• MRI analysis of 30 patients showed that the preoperative sulcus depth was mean 1,3mm (SD 0,93) and post-operative mean 3,1mm (SD 1,20) and sulcus angle improved from preoperative mean 162 (SD 9,72) to post-operative mean 149 (SD 5,14), indicating normal or nearly normal features of the patellofemoral joint.

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CONCLUSION

HOW DID TROCHLEAPLASTY SOLVE THE PROBLEM?

- Trochleaplasty is a safe procedure and has a low failure rate – one had recurrent patellar dislocation and 2.9% required revision surgery in this consecutive series of 68 patients.
- Cartilage viability is well preserved after – none had significant cartilage lesions such as delamination or avascular necrosis.
- Trochlea dysplasia can be corrected to normal or nearly normal trochlea by trochleaplasty, based on post operative MRI analysis.
- Satisfying subjective outcome can be expected for trochleaplasty and redislocation rate is low.
THANK YOU!

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