Anatomic physeal-sparing MPFL reconstruction in skeletally immature patients shows favorable outcomes at a minimum of 24-month follow-up.

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INTRODUCTION: Patellar dislocation is a prevalent orthopedic issue among pediatric and adolescent populations. Conventional treatment options are often suboptimal for skeletally immature individuals. This retrospective study aims to clarify the outcomes of MPFL reconstruction in skeletally immature patients with open physis. METHODS:

This case series included 24 patients, with a mean age of 13 years (9-16 years), who underwent anatomic MPFL reconstruction with a physeal-sparing technique. All subjects have had more than three episodes of true patellar dislocations. The described technique includes the use of semitendinosus autograft, mini open patella gliding tunnel and femoral tunnel placement under fluoroscopic guidance with the use of a hand reamer, targeting the Schottle point. The cohort was followed for a mean duration of 38.66 months (24-86 months). RESULTS:

The mean time from injury to surgery was 1.5 months. Preoperatively, 67% of patients reported instability during daily activities, while 33% experienced instability only during sports. Loose bodies were present in 25% of cases, and cartilage damage was observed in 67% on the medial patella and 25% on the lateral femoral condyle. No growth arrest, limb-length discrepancies, or angular deformities were observed postoperatively during the whole follow-up period. Average Kujala score improved significantly from 64.67(44-81) preoperatively to 87.58(77-100) postoperatively. Average Pedi-IKCD also increased significantly from 58.81(34.80-77.70) preoperatively to 90.64(70.70-100) post-operatively. The vast majority of patients (87.5%) returned to their pre-injury activity level.

DISCUSSION AND CONCLUSION:

Physeal-sparing MPFL reconstruction in children and adolescents is a safe surgical procedure. The surgical technique and preoperative planning make the potential complications predictable and therefore avoidable. Recurrent patellar instability should then be addressed also in the skeletally immature. The patients reported no major perioperative complications and a high rate of return to pre-injury activity levels.