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# Recurrent Lateral Patellar Dislocation after MPFL Repair with Subsequent Tibial Tubercle Anteromedialization and Concomitant MPFL Reconstruction

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## ABSTRACT

**Introduction:** Patellar instability is a common knee pathology, particularly among adolescents and young adults, with reported incidence rates ranging from 7 to 77 per 100,000 person-years. Following an initial patellar dislocation, recurrence rates have been reported as high as 86%, particularly in patients with underlying anatomic risk factors. Identification of the multifactorial contributors to patellar instability is critical to guide appropriate management and prevent recurrent episodes. Common pathoanatomic factors associated with recurrent instability include trochlear dysplasia, patella alta, lateralized tibial tubercle, coronal or torsional malalignment, and abnormal patellar shift. This case report describes a patient who presented with a chronic lateral patellar dislocation of the right knee four months following a prior medial patellofemoral ligament repair at an outside institution for a traumatic patellar dislocation. Despite surgical stabilization, the patient experienced recurrent instability and persistent lateral maltracking. Clinical examination demonstrated apprehension with lateral translation and an inability to maintain central patellar tracking. Advanced imaging was obtained to further evaluate underlying osseous and alignment abnormalities contributing to failure of the procedure. Magnetic resonance imaging (MRI) demonstrated a tibial tubercle-trochlear groove (TT-TG) distance of 27 mm, exceeding established thresholds for pathologic lateralization. Full-length standing radiographs revealed 7.5° of valgus coronal alignment. Lateral knee radiographs demonstrated patella alta with a Caton-Deschamps Index of 1.4, a value associated with increased risk of patellar instability. Collectively, these findings indicated that bony morphologic factors were significant contributors to the patient's recurrent instability, and that isolated soft-tissue stabilization was insufficient to restore normal patellofemoral tracking. Given the failure of prior MPFL repair and the presence of multiple anatomic risk factors, the patient underwent revision surgical management consisting of a tibial tubercle osteotomy with anteromedialization and concomitant MPFL reconstruction using allograft tissue. Postoperatively, the patient progressed through a structured rehabilitation program focused on restoring range of motion, quadriceps strength, and neuromuscular control. Radiographic follow-up demonstrated complete healing of the tibial tubercle osteotomy. Clinically, the patient achieved full knee range of motion, resolution of instability symptoms, and restoration of central patellar tracking without recurrent dislocation events. This case underscores the importance of comprehensive evaluation of bony alignment and morphologic risk factors in patients with patellar instability, particularly following failed surgical intervention. Failure to address underlying anatomic contributors may result in persistent maltracking and recurrent instability despite soft-tissue repair. Clinical Bottom Line Successful management of recurrent patellar instability requires individualized assessment of both soft tissue and osseous contributors. In patients with elevated TT-TG distance, patella alta, and coronal alignment, addressing bony morphology in conjunction with MPFL reconstruction may be necessary to restore patellofemoral stability and optimize clinical outcomes.

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