Acute Traumatic Patella-Femoral Fracture and Dislocation in a High School Football Athlete
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**Background:** A 16 y.o. male high school football player with a negative reported history for knee injury or patella instability suffered a direct blow to the patella, causing him to twist and fall to the ground. Upon immediate observation the patella appeared laterally dislocated and he complained of acute and pronounced lateral knee pain. His patella was able to partially self reduce with active straightening of the leg, but the athlete was unable to weight bear and so immobilized and referred to ER for imaging.

**Differential Diagnosis:** Patella dislocation, patella fracture, femoral fracture, medial retinaculum tear, meniscus tear, ACL sprain, PCL sprain, LCL sprain. **Treatment:** MRI and X-ray reports indicated a consistency with recent patella dislocation with current lateral subluxation of patella. An avulsion fracture of the medial facet of the patella extending to the apex with full thickness cartilage loss in this region was evident, as were an impaction fracture of the lateral femoral condyle and a partial tear of the medial retinaculum. Imaging also showed multiple loose bodies in the joint capsule, suggesting a history of chronic subluxations. Also noted by the radiologist was a synovial plica in the medial suprapatellar bursa and a grade two signal abnormality in the body and posterior horn of the medial meniscus, however no occult meniscal tear was evident. The X-ray report indicated a possible fibrous dysplasia or endochondroma in the proximal tibial metaphysis, and that the athlete had shallow trochlear groove and lateralization of the tibial tuberosity. Surgery was required to wire the patella together and to repair the medial retinaculum. Athlete has attended 2 physical therapy appointments thus far, and has begun to partially weight bear, has achieved 20° of active knee flexion and is using electric-stimulation to help activate his VMO. Athlete is scheduled to continue with weekly physical therapy appointments.

**Uniqueness:** Imaging showed history of chronic patellar subluxations, even though our athlete denied prior episodes of instability or a history of knee pain. Acute traumatic patellar dislocations are rare and are increasingly rare when concomitant with associated patella and lateral femoral condyle fractures.

**Conclusions:** The athlete sustained an avulsion fracture to the medial facet of the patella and lateral femoral condyle fracture, a partial medial retinaculum tear and full thickness loss of cartilage on the medial border of the patella due to acute traumatic patellar fracture dislocation. Athlete also had two predisposing conditions such as a shallow trochlear groove and lateralization of the tibial tuberosity, leading to inherent patellar instability. Surgical correction was required to reattach the fractured piece of the patella as well as to reattach and repair the medial retinaculum. Post-surgical physical therapy is helping the athlete regain range of motion and begin to weight-bear. **Relevant Evidence:** According to multiple studies, a shallow trochlear groove and lateralization of the tibial tuberosity have been listed as predisposing factors for a LPD (lateral patella dislocation). Injury to the medial patellofemoral ligament is common with LPD. Acute Traumatic patellar dislocations account for 2-3% of all knee injuries and has a reported prevalence rate of 6 to 77 per 100,000 in adolescents. While lateral patellar dislocations are the leading cause of osteochondral fractures in young athletes, most of the time (66% of all patella dislocations in a collected study) the fracture only occurs at the medial facet of the patella. It is rare (21% of all patella dislocations in a collected study) to have both a medial facet fracture of the patella in addition to a lateral femoral condyle fracture. **Word Count:** 580