Isolated Grade II Posterolateral Corner Injury in a High School Football Player: A Case Report

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Background: We present the case of a conservatively treated isolated grade II posterolateral corner (PLC) injury in a high school football player. A previously healthy sixteen year old varsity running back with no prior history of lower extremity injury was tackled during a preseason scrimmage. When the tackle occurred, his right foot was planted on the ground, resulting in an external rotation and valgus force at the right knee. The athlete was able to limp off the field under his own power, however he presented to the certified athletic trainer with complaints of deep and aching pain (6/10) over the posterolateral aspect of his right knee. Physical examination revealed a mild joint effusion, decreased knee flexion, and point tenderness over the lateral tibial plateau, fibular head, and lateral collateral ligament. The patient’s pain increased with flexion, varus stress, and weight bearing. Moderate (2+) laxity was noted with the varus stress test at 30° of knee flexion, and increased external rotation was noted with the Dial test at 30° of knee flexion.

Differential Diagnosis: Lateral collateral ligament sprain, PLC injury, lateral meniscus tear, anterior/posterior cruciate ligament sprain, avulsion fracture of the fibular head, tibial plateau fracture.

Treatment: The patient was managed on site with ice and compression. He was placed in a straight leg immobilizer and was given crutches for non-weight bearing ambulation. The patient was evaluated by an orthopedic surgeon two days after the initial injury. Radiographs were negative for fracture, while magnetic resonance imaging (MRI) revealed a grade II sprain of the lateral collateral ligament and popliteofibular ligament, as well as a bone contusion within the posteromedial tibial plateau. The orthopedic surgeon recommended conservative treatment which included partial weight bearing for four weeks in a DonJoy T-ROM brace allowing for 30°-70° of knee flexion followed by a five week course of physical therapy with the goal of regaining normal range of motion, strength, and neuromuscular control.

Uniqueness: PLC injuries are relatively rare when compared to the other capsulo-ligamentous structures of the knee. These injuries are also rarely isolated (1.6%), and often occur with concomitant tibial plateau fractures (Segond fracture), avulsion fractures of the fibular head (arcuate sign), anterior and posterior cruciate ligament tears, peroneal nerve injuries, distal tears of the biceps femoris tendon, tears to the lateral head of the gastrocnemius, IT-Band tears, and knee dislocations. Injuries to the PLC are also commonly missed upon both physical examination and imaging, especially in the presence of concomitant injuries. Furthermore, although conservative treatment is often recommended for grade II PLC injuries, there is little published information on the long-term natural history, and there are no known reports on the natural history of isolated injury of individual components of the posterolateral complex.

Conclusions: It is crucial that clinicians proceed with a high degree of suspicion when dealing with possible PLC injuries, especially in the case of grade III injuries. After 2-3 weeks the tissue becomes necrotic, and a primary acute repair is no longer possible. Additionally, unrecognized injuries to the PLC have been associated with a high incidence of ACL and PCL graft failures, and chronic injury can result in a high degree of disability. In this case the patient was cleared to return to full participation approximately three months after the initial injury. He progressed through the start of basketball season without recurrence and only minimal symptoms. However, he still exhibits mild residual laxity with tibial external rotation. Although long term follow up is needed to fully assess the outcome, it appears that in this case, conservative treatment was successful in treating an isolated grade II PLC injury.

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