Non-Contact Posterior Cruciate Ligament Rupture: A Case Study

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**Background:** A twenty one year old, right limb dominate, 6’1, 210 lb, Division III college male football player sustained a non-contact posterior cruciate ligament (PCL) rupture during a game in week 2 of the season. He had no history of injuries in either knee. The patient first indicated that while running down the field he felt a sharp pain in his left knee when stepping forward. He did not report the injury and continued to play. During the immediate play after, he indicated that his left knee hyper-extended while landing after jumping for a catch and heard a pop. The patient described the pain as sharp and numbing. Pain was presented over the anterior and posterior aspect of the knee, and moderate swelling was observed over the entire patella femoral joint. Initially, the Lachman’s, anterior drawer, and posterior drawer special tests were negative. The original diagnosis by the team physician was a patellar subluxation. The following day once some of the swelling was reduced and the patient was able to relax, the posterior drawer and posterior sag test were confirmed positive. MRI results concluded that the patient had ruptured his PCL. **Differential Diagnosis:** Differential diagnosis in this athlete include patellar subluxation, anterior cruciate ligament (ACL) sprain/rupture, osteochondral fracture/avulsion, meniscus tear, medial collateral ligament (MCL) sprain, and lateral collateral ligament (LCL) sprain. **Treatment:** Initially, the patient was iced and sent home with an ace-bandage and crutches. He was informed to ice again at home along with taking an anti-inflammatory (400mg of ibuprofen) before bed. The rehabilitation process began the following day with ROM exercises followed by icing using a sequential intermittent cold compression unit. Within a few days his ROM was within normal limits, and strengthening of the surrounding musculature was implemented into the rehabilitation. Effusion had also dissipated. Other rehabilitation techniques used included straight-leg-raises, double and single leg squats, isokinetic strengthening, neuromuscular/propropioception exercises, pulsed and thermal ultrasound, and electric stimulation for pain control. The goal of having the patient pain free and fully functional during activity was achieved by the second week. Taping to prevent hyperextension and/or functional instability has been successful in practices. The patient was cleared to play in games after three weeks. Patient will continue to perform rehabilitation for the remainder of the season. **Uniqueness:** A non-contact PCL rupture is unique because of the anatomy of the ligament. The ACL is thinner and weaker compared to the PCL, therefore being more commonly sprained or torn. Typically, the mechanism for a PCL sprain or rupture is extreme knee hyper-extension or landing directly on a flexed knee. What also makes this case unique is that the patient most likely sprained the PCL with the initial mechanism. The patient was able to continue, leading to a rupture during the following play. Due to muscle guarding and moderate swelling, the initial examination was not conclusive. **Conclusion:** The goal of having the patient pain free and fully functional during activity was quickly reached. This patient is generally asymptomatic, and has been demonstrating great improvements. He occasionally suffers from post-activity soreness in the patellar-femoral joint and at times mild effusion. This is effectively reduced with cryotherapy and rest. Post-season surgery options are still being discussed. The ability to return to play with a PCL deficient knee differentiates it from the ACL deficient for most patients. This illustrates the importance of the ACL versus the PCL in running and cutting activities. **Word Count:** 567.