Knee Pain in Collegiate Football Player

Armenti B, Reppe K, Rothbard M, Nelson C: Southern Connecticut State University, New Haven, Connecticut

Background: A 22 year old male defensive end reported sharp anteromedial left knee pain upon making a tackle during a game. Visual inspection during the on site evaluation revealed a lateral patellar dislocation. The team physician relocated the patella on the field. The patient was placed in a functional patellar stabilization brace, and was cleared to return to competition. Upon returning to the game, the patient demonstrated a positive antalgic gait. He limped off the field complaining of severe knee pain. A second examination on the sideline revealed positive edema and ecchymosis, medial joint tenderness, and limited active ROM. Valgus stress test was negative at 0°; however, at 30° a positive test elicited a soft end feel. The patellar apprehension and glide tests were positive for patellar instability. Medical history was not significant for traumatic injuries to the involved knee or surrounding area. Differential Diagnosis: patellar dislocation, patellar instability, patellar fracture, patellar tendon tear, medial patellofemoral ligament sprain, osteochondral lesion, femoral osteocondylar contusion, medial meniscal tear, and medial collateral ligament sprain. Treatment: The patient was iced, elevated, wrapped with a compression bandage, placed into a straight leg knee immobilizer, instructed to ambulate utilizing non-weight bearing crutch gait pattern, and diagnosed with a patellar dislocation and medial collateral ligament sprain by the team orthopedic surgeon. An MRI was ordered. The results indicated a lateral patellar dislocation, anterolateral distal femoral contusion with no osteochondral lesion of the patella, and a grade III medial patellofemoral ligament (MPFL) sprain. The patient was placed on a rehabilitation program prior to surgery consisting of thermal agents, ROM exercises, and massage to reduce pain and edema. Status post two weeks the patient underwent MPFL reconstruction. During surgery, a patellar bone fragment was discovered within the edema and removed. The initial post-operative rehabilitation program consisted of wound management, use of a rehabilitative patellar stabilization brace, electrotherapy, and therapeutic exercise program to decrease pain and edema, and increase neuromuscular coordination, proprioception and range of motion. Four weeks post-reconstruction, a more aggressive rehabilitation program was implemented to further improve proprioception and range of motion and restore muscular strength, endurance, and power. Thirteen weeks post-reconstruction, the patient progressed to jogging on a treadmill to restore cardiovascular endurance. Sixteen weeks post-reconstruction, the patient was functionally stable and was prescribed sport-specific activities that included team conditioning drills to restore speed, agility, and power. The patient was cleared by the team physician and fully returned to athletic activities approximately 24 weeks post-reconstruction. His return to activity did not elicit any pain or apprehension. Uniqueness: MPFL ruptures in conjunction with medial collateral ligament pathologies are unique in athletics. Specifically, in this case, the injury was difficult to diagnose on initial evaluation because the reported symptoms and obvious deformity overshadowed the Ligamentous involvement. Furthermore, the MRI did not reveal the displaced fragment of the patella, which would indicate the requirement of surgical intervention. Conclusion: Patellofemoral injuries are a common knee pathology and can affect prepubescent children through adults. The MPFL secures the patella to the medial aspect of the knee and is frequently injured as a result of a lateral subluxation. Predisposing factors relevant to this case included hypermobility caused by hamstring and iliotibial band tightness. Prompt recognition and management of acute patellofemoral pathologies are crucial for reducing further stress on other joint structures. Tearing of the MPFL can lead to decreased mechanical knee extensor mechanism efficiency, degrading of the femoral and patellar articular surfaces, and mechanical and anatomical instabilities. Surgical intervention reduces the risk of recurrence by over 30% and is usually indicated to diminish joint pathomechanical and functional limitations. Word Count: 598