Asymptomatic Meniscal Tear in Professional Soccer Player

Kahlia C. Williams, Jason C. Craddock, Shawn D. Felton

Florida Gulf Coast University, Department of Rehabilitation Sciences, Fort Myers, FL USA

Abstract

Background: Athlete was a 22-year-old (188cm and 83kg) male professional soccer player. Athlete has no previous history of knee injuries. Athlete was evaluated by head athletic trainer immediately following on-field injury. Athlete stated both feet were planted on the ground when he was hit from both the medial and lateral sides of the leg and experienced further contact to his ankle. Initial evaluation revealed no obvious deformities, no swelling of the left knee and moderate swelling over left anterolateral ankle. Athlete was point tenderness over distal medial collateral ligament (MCL) insertion, medial knee joint line, anterior talofibular ligament (ATF) and deltoid ligaments. Limited knee extension due to pain. Orthopedic clinical examination further included: (+) Valgus test for pain and soft end feel, (+) Varus test, (-) Lachman’s, (+) Anterior Drawer, (-) McMurray’s test. Ankle special test could not be performed due to pain.

Differential Diagnosis: Grade 1 MCL sprain, Proximalibia contusion, Meniscus tear, Syndesmotic ankle sprain, Lateral ankle sprain, Fibular fracture. Treatment: As part of the facility’s standard of care the athlete was referred to the team physician who ordered images of the injury. Three-view x-rays of left knee revealed no apparent fracture and a well-maintained joint space. Three-view x-ray of left ankle showed a fibular avulsion fracture. Due to the comorbid distal fibular avulsion fracture, athlete began conservative treatment with the athletic training staff for grade 1 MCL sprain without weight-bearing. After 2 weeks, athlete had no knee pain and no effusion, deficits of quadriceps or hamstrings. As the rehabilitation for the ankle fracture progressed to weight-bearing, in Week 3, the athlete’s knee had minimal to moderate swelling, but athlete complained of no pain. After 6 weeks of ankle rehabilitation, including cutting, lateral movements and jumps, the knee still had full range of motion, no pain, but moderate swelling. Athlete was sent back to team physician for fine images and to be cleared for training. MRI images revealed a meniscal meniscus handle tear. At the time of the MRI, the total damage of the meniscus was unknown. It was decided that the athlete would undergo surgery. However, it was unclear whether or not the athlete needed a meniscus repair or a meniscectomy.

Diagnoses cont.

Re-evaluation

Medical Meniscus Tear

- After weeks with residual swelling and increasing pain that originally subsided, the athlete returned to sports medicine physician and was diagnosed with bucket-handle meniscus tear.

Signs and Symptoms: residual swelling, range of motion: 5-130 degrees

MRI confirmed meniscal bucket handle tear.

Surgical Findings

Before surgery, the extent of the damage to the meniscus was unclear. After the athlete was briefed about a partial and total meniscectomy, it was decided that surgery would proceed based on the margins of the lesion. While the athlete was under anesthesia, it was noted that its range of motion was 5 to 120 degrees and stable during valgus stressing at 0 and 30 degrees. Upon visualization it was clear that the meniscus was frayed with a horizontal component as well as involving the white-white zone. Given that the meniscus did not appear to be extensible, the range of motion seemed to be limited due to involvement of the subchondral bone, and 100% of meniscus remaining within the body. In this case, the only symptom was swelling. Moreover, conservative rehabilitation led to a MCL sprain seemed to have been helpful; the athlete began to show improvements. After weeks of rehab, the athlete showed strength and range of motion gains. Nonetheless, swelling is the most basic sign of pathology. Without swelling, the pathology would not have been noticed. After 4 weeks, the athlete regained full range of motion and returned to normal daily living.

Patient Demographic

- Male
- Professional soccer player
- 22 years old
- 187.96 cm
- 83.01 kg
- Comorbid ankle avulsion fracture

Diagnoses

- Initial Evaluation
  - Grade 1 MCL Sprain
  - Initially the athlete was diagnosed with a grade I MCL sprain
  - Signs and symptoms consistent with MCL: Tenderness to palpation over medial joint line and femoral attachment, pain and soft end-feel with valgus stress, range of motion: 15-120 degrees.
  - Special test: (+) Valgus test for pain and soft end-feel, (+) Varus test, (-) Lachman’s, (-) Anterior Drawer, (-) McMurray’s test.
  - Three-view x-rays of left knee revealed: no apparent fracture, well maintained joint spaces.

Treatment and Rehabilitation

Post-surgery the athlete was treated conservatively after a partial meniscectomy. In the first phase of rehabilitation, the focus was to reduce swelling and increase range of motion. Seamlessly, rehabilitation progressed to strengthening of hamstrings and quadriceps, while maintaining cardiovascular endurance. After eight weeks, the athlete regained full range of motion and returned to normal daily living.

Implications

Smith et al., indicated “McMurray’s will diagnose 61% of people presenting with a meniscal tear, Thessaly’s better at 75% and [joint line tenderness] best at 83%. False-positive findings are likely to be approximately 20% for all three tests. However, these results should be used with caution, due to the low number of included studies. As a common injury in sport, and even more so, a frequent knee injury, it is imperative to diagnose meniscal lesions correctly. Usually, cases present with specific sign and symptoms that are often associated with meniscus tears. Usually meniscus tears present with joint line tenderness, audible clicking or popping, and positive special tests (McMurray’s, Thessaly’s). In this case, the only symptom was swelling. Moreover, conservative rehabilitation led to a MCL sprain seemed to have been helpful; the athlete began to show improvements. After weeks of rehab, the athlete showed strength and range of motion gains. Nonetheless, swelling is the most basic sign of pathology. Without swelling, the pathology would not have been noticed. And in the end, without an MRI the pathology would not have been confirmed. This imaging technology provide a conservative approach to visualizing inside the joint non-operatively.

References

- Crewesmith, A., & Hall, M. (2015). Magnetic Resonance Imaging confirm the inside the knee that led to the right diagnosis. A Magnetic Resonance Imaging confirm the presence of a medial meniscal tear. This case highlights the importance prioritizing swelling as a sign of pathology and using MRI as a diagnostic tool in finding meniscus tears.