Osteochondritis Dissecans and Chondromalacia of the Talus in Male College Soccer Player

Stanley Octavius, Shawn D. Felton, Alyssa Rosasco, Jason C. Craddock
Florida Gulf Coast University, Department of Rehabilitation Sciences, Fort Myers, FL, USA

Abstract

Background: This Level 4 Case report presents a 22 year-old (180.34 cm and 87.5 kg) collegiate male soccer player. The athlete has a history of lateral ankle pain which started two years ago. The mechanism of the injury involved a twisting motion of the talocrural joint with persistent exacerbation of symptoms. Athlete was referred to the team physician for further evaluations. Differential diagnosis: Chronic healing of the articular cartilage of the ankle often impedes the healing process (

Case Report

Patient: Athlete was a 22 year-old (180.34 cm and 87.5 kg) collegiate male soccer player. Athlete has a history of lateral ankle pain which started two years ago. The mechanism of injury involved a twisting motion of the talocrural joint with persistent exacerbation of symptoms. The athlete has also sustained multiple lateral ankle injuries, but returned to play without being fully recovered. Over time, the injury progressively worsened and affected the athlete’s gait. This would ultimately increase the force load and its dissipation at the talocrural joint.

Mechanism of injury: The mechanism of injury involved a twisting motion of the talocrural joint with persistent exacerbation of symptoms. The athlete has also sustained multiple lateral ankle injuries, but returned to play without being fully recovered. Over time, the injury progressively worsened and affected the athlete’s gait. This would ultimately increase the force load and its dissipation at the talocrural joint.

Clinical Examination: One of the major difficulties clinicians face is the arthroscopic visualization of the lateral talus, OCD lesions however, the results are not as favorable mainly due to the poor healing properties of the articular surface of the ankle. As a result, operative treatment such as micro-fracture, drilling, and bone marrow stimulation for smaller lesions are usually indicated. Currently, the most effective treatment for symptomatic osteochondral lesions of the talus involved osteochondral transplantation, bone marrow stimulation, and autologous chondrocyte implantation with a success rate of 87, 85, and 73 percent respectively.

An osteochondral defect (OD) of the talus is a lesion involving the talar articular cartilage and its subchondral bone. It is most caused by a single or multiple trauma in simulation but idiopathic OD of the ankle might occur (Dijk et al., 2010). The defect initially may consist only of cartilage damage caused by shearing stresses, with the subchondral bone intact. However, it is also possible that even mild relative inflammation involving the distal tendon shear. Treatments involved right ankle arthroscopy, right ankle osteochondral defect drilling, right autologous platelet concentrate grafting. The procedure also required an anterior-medial arthroscopy for the retrieval of fragments including the cartilage fragments, infiltrating the subchondral platelet rich plasma in liquid form. Uniqueness (Level 4 clinical case study): It was reported that osteochondritis dissecans can be present in about 50 to 73 percent of individuals suffering from chronic ankle injuries, only a small portion of those individuals benefit from conservative treatments. As a result, this condition often requires more invasive treatments which occur in the field mainly due to the varying perspectives of the underlying cause of the pain that the affected individuals usually experienced. Many healthcare professionals believe that the pain with injury primarily coming from the lesion in the cartilage. However, others believe that the pain is most probably caused by repetitive high fluid pressure during walking, which results in stress on the highly innervated subchondral bone underneath the cartilage defect (Dijk et al., 2010). They come to this conclusion because during loading of walking, compressive forces can be transmitted into the micro fractured subchondral bone, leading to a localized high increased flow and pressure of fluid in the subchondral bone (Dijk et al., 2010).

Rehabilitation and Results

In a study comparing arthroscopy with magnetic resonance imaging (MRI), abnormalities of the anterior talofibular ligament were found in 100 percent of patients with intra-articular lesions. MRI is the most commonly used tool to diagnose intra-articular lesion. However, its sensitivity and inter-observer reliability are very low.

Phase 1: This phase last 6 weeks. The athlete had to use crutches to avoid putting too much stress in the area throughout the healing process. The main emphasis was on active range of motion exercises, stretching the gastrocnemius and soleus muscle group, and using modalities to control pain and inflammation.

Phase 2: During this phase, the emphasis was on strengthening and introducing the athlete to various low level functional exercises. We worked on range of regaining normal range of motion, strengthening lower extremity musculature, and gait/functional training.

Radiographic Findings: - Long and short axis fat and water-weighted images were performed. The findings revealed ossous edema which involves the talus for which acute contusion or acute on chronic contusion is favored. Chronic osteochondral defect involves the talar articulation cartilage area, approximately 7x1.25 cm. Regions of chronic contusion also involve the distal fibula and medial malleolus.

Anatomy: - Talocrural joint: Is a uniaxial, modified synovial joint formed by the articulation of the trochlea (dome) of the talus and the medial and lateral talar malleoli.

Conclusion and Recommendations

There is currently a wide range of procedures to manage OCD and chondromalacia of the talus. Non-operative treatment is the primary recommendation for individual with this injury. However, the slow healing property of the articular cartilage in the ankle often impedes the healing process (Rungrai, 2017). Due to this reason, the slow healing process, operative treatment still remains the most effective approach to manage osteochondral lesions. In Clinical and functional outcomes following arthroscopic management of anterior impingement, the majority of the studies are focused on the specific postoperative rehabilitation and time to return to activity (Gianakos et al., 2017). However, this procedure is safe, effective, and cost-efficient. Other interventions such as microfracture, drilling and bone marrow stimulation have obtained favorable rating as well.

References