FIBULAR STRESS FRACTURE IN A COLLEGIATE JUMPING ATHLETE: A CASE REPORT

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Background: A 19-year-old collegiate male triple, high, and long jumper presented with pain in his left lower leg. He had continued to compete despite moderate pain in the area and reported for evaluation when the pain prevented activity. Pain was elicited with full weight bearing on his left leg, and palpation over the distal fibula. Ankle and toe range of motion (ROM) was equal bilaterally, and strength was a normal with slight pain.

Differential Diagnosis: Contusion of the lower leg, peroneal tendonitis, stress fracture of the distal left fibula.

Treatment: Initially, the injury was treated as a lower leg contusion with cryotherapy and compression. After a week of conservative treatment with no improvement, X-rays were ordered. Radiographs revealed a distal fibular fracture at the site of pain. The athlete was treated conservatively with a walking boot for three weeks to create a good basis for bone healing and then was progressed to a long Air-cast® ankle brace. At this point, the jumper began a rehabilitation program. Because bilateral ankle ROM was within normal limits, the focus of initial rehabilitation was on lower leg strengthening exercises. Exercises included calf raises, manual ankle resistance in four directions, weight bearing proprioception on a foam mat, towel swipes, and flexibility maintenance. After three weeks of strengthening exercises, X-rays showed bone healing and agility exercises were indicated. The subject was not experiencing pain with walking or non weight bearing exercise. Controlled jumping exercises were added to his rehabilitation regimen, which started to re-create his pain in the first 3-5 days. His strength progressed well, but there was tenderness over the fracture site. The longer in duration the impact exercises were performed, the more the subject complained of pain. X-rays taken two weeks later and showed that his fibula was fully healed even though the athlete was experiencing pain. After another four weeks of rehabilitation and rest for much of the summer, the subject returned to school without pain. At nine months post-injury, he was able to return to full activity without limitation.

Uniqueness: Fibular stress fractures rarely occur because the tibia is the weight bearing bone of the lower leg. When too much stress is placed on the lower leg, the fibula can contribute to stress absorption. In this case, the repetitive movements involved with the triple, high and long jump led to excessive stress on the fibula, causing a stress fracture. It is unique because despite X-ray evidence of complete bone healing, the athlete still experienced pain when jumping exercises were re-introduced.

Conclusion: Fibular stress fractures are uncommon injuries, and athletic trainers need to be aware of when radiographs or bone scans are necessary to assure the patient is structurally sound. In this case, athletic trainers could have missed the stress fracture due to the low frequency of structural damage to the fibula. It is imperative to keep these types of cases in mind when evaluating lower extremity injuries to maintain an open mind regarding atypical mechanisms of injury.