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Knock-off Fracture in Track & Field Athlete

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Background: 19-year old collegiate track and field athlete. No previous history of serious ankle injuries. Patient was a pole-vaulter. When the athlete vaulted up he didn't make it all the way and got stuck and fell 15 feet onto the runway and tried to land on his feet. His right ankle was forced into inversion and dorsiflexion. Athlete immediately felt a sharp pain over his sinus tarsi and both the medial and lateral malleoli. No obvious deformity seen or felt. Athlete was able to walk with a limp from the runway to the turf to be evaluated. Upon initial evaluation swelling had already started forming over the medial and lateral malleoli. Athlete was tender to palpation over anterior talofibular ligament, calcaneofibular ligament, deltoid ligament, and just distal to the lateral malleolus. Because he was unable to bear full weight immediately and was tender around the malleolus, an x-ray was necessary following the Ottawa Ankle Rules. Bruising was present two days after initial evaluation over the medial and lateral malleoli. AROM: pain with plantarflexion and inversion. PROM: Pain with dorsiflexion, plantarflexion, and inversion. RROM: Full range of motion but 4/5 strength for dorsiflexion, plantarflexion, inversion and eversion. Negative Bump Test, negative Squeeze Test, positive Anterior Drawer Test, negative Talar Tilt, and negative Kleiger's Test.

Differential Diagnosis: Grade 2 right ankle sprain with possible knock-off fracture of inferior tip of lateral malleolus.

Treatment: Athlete was initially wrapped in an ACE wrap with horseshoe and non-weight bearing on crutches. Three days later the athlete returned the crutches and was put in a walking boot with an ACE wrap. He was instructed to RICE three times per day and begin NSAID regimen every 4-6 hours to decrease inflammation. Began strengthening and ROM exercises when pain and swelling decreased.

Uniqueness: This injury was unique because the athlete got an x-ray and revealed what seemed to be a knock-off fracture of the inferior tip of the lateral malleolus. However, the fragment could not be seen despite a defect in the lateral malleolus.

Conclusion: This case provided a good learning opportunity for the AT student. It was a unique mechanism of injury, which enabled the student to work with the athlete and take him through his rehabilitation. The possible knock-off fracture was unique, so it was treated differently for a week to see how the athlete responded to treatment and determine what to do. The athlete made a full recovery and returned to action about a month later.

Clinical Application: These findings can possibly be used in a clinical setting because there may be something else underlying the suspected injury. Even if the injury is something ordinary like an ankle sprain getting an x-ray may reveal other damage that may change the way you perform rehabilitation.

Key words: knock-off fracture, track & field