Posterior Impingement Syndrome in a Collegiate High Jumper
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Background: Posterior impingement syndrome is a condition commonly reported in ballet dancers and soccer players due to repetitive bouts of plantar flexion. Changes occur in the posterior portion of the talus creating a bony prominence called an os trigonum leading to impingement of soft tissue structures. Key features include, posterior ankle pain that subsides with rest, and stiffness of the posterior ankle and overpressure with passive foot plantar flexion.

Case Presentation
Patient: A senior female Division III high jumper reported to the Athletic Training Clinic at the start of outdoor track season with posterolateral heel pain and chronic ankle instability (CAI) of her trail leg that had begun during her indoor season. She had been treated for achilles tendinopathy until the season ended, and proceeded to rest before the start of the outdoor season. Shortly after her return, she felt similar retrocalcaneal pain, specifically over the bursa and point tender pain over the extensor hallucis brevis (EHB) tendon. She also presented with a trendelenburg gait and inability to maintain a proper base of support during an active heel raise.

Intervention: Treatment began for EHB tendonitis and retrocalcaneal bursitis through hip and foot intrinsic strengthening exercises to promote stabilization. Eleven days later the patient reported that her EHB pain had resolved but her retrocalcaneal pain had increased dramatically when high jumping, and was now tender to the touch. Her pain was most notably reproduced in the end ranges of passive dorsiflexion. The patient was referred to the team physician and x ray imaging revealed an os trigonum on the posterior aspect of the talus and she underwent an ultrasound guided cortisone injection the next day. She continued practicing as tolerated and therapeutic exercises to correct stabilization issues. Fourteen days later, she returned stating her pain had returned significantly and felt as if the injection had worn off. She was referred to the team physician again for an MRI, which ruled out a fracture of the os trigonum and practiced as tolerated until the end of the season with conservative treatment and activity modification.

Comparative Outcomes: Patients presenting with an os trigonum will typically be referred for injection to decrease inflammation, though for many the results may be temporary, which was the case for this patient. If pain persists it is important to rule out a fracture because surgical excision would be warranted.

Conclusion: Although os trigonum hasn’t been reported as a common injury with high jumpers, and the mechanism of injury is even less common in the trail leg, they are at risk for this pathology due to the plantar flexion demands of the sport. Os trigonum syndrome usually presents in conjunction with flexor hallucis longus tendinopathies, due to the compression that occurs during plantar flexion, not an extensor tendinopathy like the athlete in this case. We concluded that she had an EHB tendon issue due to her inability to properly stabilize in plantar flexion. Similarly, the end range of passive plantar flexion usually reproduces the patient’s signs and symptoms, not overpressure with passive dorsiflexion as found during this evaluation.

Clinical Bottom Line: It is important for clinicians to be aware of the potential uncommon injuries with atypical presentations. The signs and symptoms presented followed the typical pattern of retrocalcaneal bursitis and achilles tendinopathy, both of which the athlete had previously experienced. Also, passive plantar flexion pain and FHL tendinopathy are key features of posterior impingement syndrome, which were absent. While the key features were not apparent, knowledge of this particular pathology can help lead athletic trainers to the proper diagnosis, especially with a recalcitrant injury that is not responding to the proper treatment.

Word Count: 600