Wrist pain in a Female Intercollegiate Javelin Thrower

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Background: A 20 year-old, 64cm, 72.6kg female javelin thrower presented with right, dull, radiating mid-forearm pain with crepitus secondary to repetitive stress. She reported being able to perform ADL, but unable to perform unrestricted sport activities. Pain quotient was 5/10 at rest, 8/10 with activity, and 6/10 after activity. Pain was alleviated by rest and aggravated by wrist flexion and extension. Initial examination revealed posterolateral wrist and forearm swelling and palpable tenderness. ROM was WNL, but forearm pronation and wrist and thumb extension were painful. MMT revealed pronation and wrist and thumb extension at 4/5. Special tests demonstrated no ligamentous, vascular, or neurological pathology. The patient's previous medical history was significant for right wrist sprains at 11 and 14 years old, and a fractured right ulna at 13 years old. At age 18, she reported dull pain, crepitus, and swelling in her wrist, and a noticeable forearm deformity, but was non-compliant to treatment. Related history also included an unknown elbow and forearm pathology with similar symptoms in the forearm, which were treated with rest, cryotherapy, and therapeutic exercises. The elbow pathology resolved, but the forearm pain persisted. The patient self referred to a chiropractor twice per week and was treated with Graston tools, which caused swelling, bruising, and pain. She was referred from the chiropractor to an orthopedist who ordered radiographs, which were unremarkable, and a corticosteroid injection that did not provide relief. Differential Diagnosis: inflamed extensor reticulum, radial stress fracture, radial neuritis, extensor carpi ulnaris tendinopathy, pronator teres tendinopathy, De Quervain tenosynovitis, and intersection syndrome. Treatment: After initial evaluation, the patient received conservative treatment encompassing massage and a wrist orthosis limiting wrist and thumb extension and was referred to the team orthopedist. The team orthopedist definitively diagnosed the patient with intersection syndrome. Based on his clinical examination, he recommended she remain in the orthoses and take two months off from throwing. He also prescribed cryotherapy, compression, elevation, and NSAID therapy for seven days. Status-post one week, the patient began a rehabilitation program emphasizing further pain and swelling reduction and restoring soft tissue mobility and strength of the wrist and thumb. The rehabilitation program consisted of physical agents to decrease inflammation and therapeutic exercises focusing on fine motor control and dexterity, and eccentric strengthening to increase grip and twisting strength. Status-post eight weeks, the patient was cleared for conference championships and was able to throw with minimal discomfort. She continues to manage any post-activity inflammation with cryotherapy. Uniqueness: Intersection syndrome is unusual with an incidence rate of less than 1% of all forearm, wrist, and hand injuries. The condition is primarily seen in individuals who perform repetitive wrist actions during occupational activities such as raking and shoveling where excessive grasping, wringing, and twisting of the wrist occur. Intersection syndrome is rarely studied in athletic training education curricula. Conclusions: Intersection syndrome is an inflammatory condition that occurs at the intersection or crossover point of the first extensor (extensor pollicis brevis, extensor carpi radialis longus) and the second extensor (extensor carpi radialis longus, brevis) compartment and can easily be clinically misdiagnosed. The condition is caused by excessive friction between the two compartments or entrapment from stenosis. It presents with pain, swelling, and crepitus in the distal dorsoradial forearm. Intersection syndrome responds favorably to conservative management within eight weeks. This includes modifying sport activities to decrease stress on the wrist and forearm, physical agents, and therapeutic exercises to reduce pain and swelling, which improve tendon gliding between compartments. Word Count: 575