Ulnar Impaction Syndrome in a Female Collegiate Cheerleader
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Background: We present a unique upper extremity orthopedic injury involving a competitive interscholastic gymnast turned intercollegiate cheerleader. A 22 year-old female intercollegiate cheerleader presented to the athletic trainer with chronic right wrist pain beginning at age 8 accompanied by unusual sensations of snapping and tremors in the right 4th and 5th metacarpals. The patient has a previous history of left posteroroulnar dislocation and UCL rupture with tight bilateral forearm compartments. Differential Diagnosis: Ulnar impaction syndrome, wrist tendonitis/strain, wrist sprain, TFCC tear, and ulnar nerve pathology. Treatment: The patient was initially referred for a physician evaluation and was diagnosed with extensor tendonitis of the wrist. Unhappy with this diagnosis and after consultation with the athletic trainer, the patient sought a second opinion from her family physician who ordered an MRI to rule out a TFCC tear. MRI results were unremarkable and the patient was referred to an orthopedic hand surgeon. The orthopedic hand surgeon ordered plain film radiographs. The radiographs identified an inferior ulnar translation and a gap between the ulna and radius leaving no room for the TFCC with ulnar deviation. To reduce the pain and inflammation, a cortisone injection was administered within the ulnar synovium. The cortisone injection failed to produce positive results upon returning to activity. When pharmacological intervention failed, the patient elected for surgical intervention. The initial arthroscopic surgery reduced scar tissue buildup around the ulnar aspect of the wrist, removed some synovium, resected the medial ligament of the TFCC, and included a carpal menisectomy. After completing a six month rehabilitation program, obtaining physician clearance, and returning to activity, the pain returned. After an unsuccessful second round of cortisone injections were administered, a second surgery was performed. The second surgical procedure consisted of a 3 mm ulnar osteotomy between the extensor and flexor carpi ulnaris. The ulna was realigned with a 7 hole plate attached to the ulna by 6 straight and 1 oblique screw through the osteotomy. The patient was placed in a monster splint for 1 week then in a long arm cast with slits for the swelling for 3 weeks. Radiographs were repeated at 5 days, and weeks 3, 6, and 9. During this time, the patient continued with rehabilitation. As the swelling in the wrist and forearm decreased, the patient was able to tolerate a wider variety of therapeutic exercises. During the rehabilitation process, the patient was able to achieve full strength, but the pain and tremors returned. Functional capacity was limited and the patient could not perform upper extremity weight bearing activities. Radiographs taken at 9 weeks demonstrated proper healing of the osteotomy, but new nerve related symptoms developed within the forearm while the patient slowly continued working on weight-bearing exercises and improving her functional capacity. Unfortunately, a positive outcome did not result because the patient was never able to return to competitive activities. Uniqueness: Few cases of ulnar impaction syndrome are reported in the literature. Ulnar impact syndrome can be hereditary or caused by repetitive stress to the upper-extremity. In this case, ulnar impaction syndrome was caused by the frequent and excessive upper-extremity weight-bearing activity required in gymnastics. An additional contributing factor was the patient’s age at which
gymnastics was started. The underlying cause was believed to be premature closing of the radial physes due to excessive upper extremity weight-bearing demands placed on the patient’s developing body. **Conclusions:** Due to the rareness of this injury, clinicians must be aware of a patient’s previous medical history, identify the mechanism of injury, and be able to recognize symptoms that may include tremors in conjunction with ulnar wrist pain. **Word Count:** 598