CLAVICULAR AVULSION ASSOCIATED WITH AN ACROMIOCLAVICULAR JOINT SPRAIN IN A COLLEGIATE MENS ICE HOCKEY PLAYER
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Background: A 19-year-old (5ft 9in, 175lb) ice hockey player complained of acute pain localized over the distal right clavicle and acromioclavicular joint (AC) after being checked into the wall during practice. The force resulted in direct lateral compression to his right shoulder. The AC joint appeared only slightly more prominent on the affected side. Palpation revealed tenderness over the AC joint. Pain was noted with passive flexion and the cross-over chest maneuver. Shoulder internal rotation, external rotation, abduction, and flexion were full (5/5) strength. The Apprehension, Relocation, Sulcus Sign, Load-Shift, and O’Brien’s tests were negative, while the Neer’s Impingement test was positive. He presented with a normal neurovascular exam. The clavicle was deemed intact, with no evidence of fracture or dislocation by the team physician. The x-ray was also unremarkable with no obvious abnormalities. The athlete was diagnosed with a Grade I Acromioclavicular sprain with a likely AC joint meniscus tear. A MRI revealed only a contusion and associated edema over the injury site. Two months postinjury, full horizontal adduction was still painful, possibly a sign of posttraumatic AC joint arthritis or osteolysis of the distal clavicle. The pain continued, despite management of the injury, throughout the third month. X-rays were ordered again and were negative for osteolysis. The only difference was a 8mm AC separation in the right shoulder, as opposed to 6 mm in the left, which is still within normal limits of asymmetry. Four months post-injury, and still experiencing pain, the athlete had another right shoulder MRI, revealing a bony irregularity within the acromioclavicular joint consistent with an anterior avulsion of the distal clavicle, and a subchondral cyst. Differential Diagnoses: Trapezius strain, brachial plexus injury, coracoid injury, acromioclavicular joint sprain, osteolysis, and posttraumatic AC joint arthritis.

Treatment: While the injury, initially, was believed to only be a minor AC sprain, the athlete was withheld from participation for two weeks and given a rehabilitation exercise program including manual resistance exercises for internal rotation, external rotation, abduction, adduction, flexion, and extension; D1 and D2 PNF patterns, and shoulder stabs. He gradually returned to play with taping and a donut pad over the acromion process, although was still suffering from pain with activity. During the course of the 4 months in which the pain continued, the treatment program was designed to manage his pain, which was thought to be caused by arthritic changes to the shoulder, and to prevent further injury through prophylactic taping. The athlete once diagnosed with the clavicular avulsion underwent surgery to repair the lesion. Uniqueness: AC joint injuries are fairly common in ice hockey players with grade I sprains typically resolving quickly. However in this case, the symptoms, due to an unforeseen complication delayed resolution of pain. This athlete was examined by multiple medical professionals and went through a series of tests from clinical special tests, to x-rays and MRIs, yet the bony avulsion was able to elude detection for several months. Moreover, clavicular avulsions, typically present with AC joint injuries classified greater than III. Conclusion: Recent literature suggests regardless of treatment, athletes, suffering an AC joint injuries are more susceptible to arthritic changes in the joint, which might explain the prolongation of pain in most cases. It is important however, for athletic trainers when dealing with this type of injury or unresolved pain in general, to continue to seek second opinions and an open mind. Word Count: 563