ELBOW TRAUMA TO A HIGH SCHOOL FOOTBALL PLAYER

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**Background:** A 17 y/o male football player with no previous history of left upper extremity injuries fell on an outstretched arm as an opposing player applied a blunt posterior-valgus force to distal humerus. The athlete felt a “pop,” but did not feel the elbow dislocate, his pain was 7/10 with no noticeable deformities. There was tenderness to palpation on the olecranon process, lateral and medial humeral epicondyles, radial head, distal biceps and triceps brachii tendon, and proximal tendon of the extensor group. The athlete had full range of motion (ROM) with increased pain; vascularization and neural screening were within normal limits. Strength was 4/5 in elbow flexion, extension, wrist flexion, extension secondary to pain; and all other motions of the upper extremity were within normal limits. 

**Differential Diagnosis:** Ulnar/radial collateral ligament sprain, dislocation, fracture of the ulna/radius, muscular strain (biceps, triceps, wrist extensors)

**Treatment:** Until fracture was ruled out, athlete was splinted with sling in 90° elbow flexion. After 5 minutes, athlete’s pain increased; upon re-evaluation the athlete was restricted to 85-110° of elbow motion and he was transported to the emergency room. Initial radiographs revealed fracture fragments in the athlete’s left elbow. Upon follow up with the physician, additional X-rays and a CAT scan revealed an anteromedial coronoid fracture with presence of fracture fragments within the humeroulnar joint, resulting from a suspected elbow dislocation. Surgical repair included subcutaneous transposition of the left ulnar nerve, open reduction-internal fixation of left coronoid, repair of left elbow common extensor tendon and lateral ligament complex. During surgery ~17 fracture fragments were identified as well as fat droplets at the fracture site. During surgical intervention, the athlete’s coronoid fracture was classified as type III using the Regan and Morrey classification system. Post surgery the athlete underwent single dose radiation treatment to prevent cellular differentiation into ectopic bone formation. The athlete was immobilized in a soft cast for two weeks.ROM/Strengthening rehabilitation was implemented as per doctor’s instructions. Four weeks status post (s/p) the athlete was placed in a hinged elbow brace. Four months s/p athlete was cleared to play provided he wore padding, however in his spring semester a rehabilitation protocol was reimplemented due to lost ROM. The athlete regained full ROM and was cleared for athletic competition. 

**Uniqueness:** Anteromedial coronoid fractures associated with humeroulnar dislocations are not commonly seen in athletics because of its unique mechanism of injury. Also, the complexity of the injury was not fully known until surgical intervention which revealed ~17 fracture fragments as well as fat droplets at fracture site. 

**Conclusion:** The extent of an elbow injury may not be fully revealed by diagnostic imaging as it was not until surgical repair that the full complexity of the injury was known. Associated with traumatic elbow injuries, multiple complications can result such as chronic instability, elbow stiffness, arthrosis, or heterotrophic ossification. Treatment for the disruption of the coronoid process, trochlear notch articulation, and capsuloligamentous structures still remains challenging; however surgical repair is essential for restoration of elbow stability. Determination as to whether the injury resulted from a compressive or tensile force is essential for application of appropriate diagnostic testing. It is important to note that compressive forces resulting in impaction fractures are sometimes missed on plain radiographs, as was the case for this
athlete. Despite difficulty in determining proper management, successful results have been shown following initial surgical repair of the articular and ligamentous structures as well as implementing an early ROM rehabilitation.

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