Complex ligamentous and tendinous damage of the hand and wrist in a collegiate football player with minimal functional impairment: A case study


**Background:** A 19 yo male collegiate sprint football player complained of pain in right wrist following a hyperextension mechanism during a collision; his pain centered on triangulo-fibro cartilage complex (TFCC) and he c/o a 6/10 pain level. No observable abnormalities within the affected area were noted at TOI. Wrist extension strength was 4/5 with pain, and wrist extension PROM was painful, a positive Lift Off test with point tenderness along ulnar styloid & negative Scaphoid Shift were noted, but he denied pain in anatomical snuffbox.

**Differential Diagnosis:** Wrist sprain; TFCC sprain; carpal fracture, ulnar fracture.

**Treatment:** Cryotherapy to reduce pain and restore full, pain free ROM were initially used, followed by progressive strengthening of wrist and hand muscles. Prophylactic taping was utilized for wrist stability and pain control with functional activities. After 2 weeks, he had increased muscular strength, and decreased painful wrist extension; although his pain was present intermittently throughout the season. Post season, the athlete continued to report varying wrist pain; was then referred for diagnostic imaging. X-ray and MR arthrogram were negative for fracture, but positive for ligamentous sprain and possible TFCC damage. MR arthrogram revealed tears of scapholunate and radial collateral ligaments with associated capsular injury, partial tear of radioscapohocapitate ligament at radial styloid process, and injury to the ulnotriquetral ligament and extensor carpi ulnaris tendon. Debridement surgery for the TFCC tissue was initially performed, and the patient subsequently underwent the modified Blatt capsulodesis procedure to provide stability of scapholunate joint; a procedure known to compromise wrist mobility, and cause early arthritis pathogenesis.

**Uniqueness:** The presence of a grade 3 sprain with mild pain, yet absent edema or ecchymosis is extremely rare and unexpected; especially when 6 separate tissues were damaged in a small joint space. Our athlete continued to play a violent contact sport requiring repetitive load bearing forces into the hand and wrist, without noticeable functional deficits, and therapeutic exercises resulted in effective progression of function and comfort.

**Outcome:** The surgery was successful and continued to follow up postoperatively-12 weeks postoperative, extension/flexion ROM still limited, but free of crepitus or instability. Patient was cleared to play 5 months post surgery, but was advised to continue rehabilitation while avoiding Olympic lifting, and encouraged to brace the wrist until strength returned to normal. Athlete is currently playing in 2014-2015 football season without restrictions. **Conclusion:** This case highlights an inconsistent presentation of ligamentous and tendinous damage following acute injury. Due to the amount of damage and persistent pain, surgical intervention was needed for optimal recovery and return to competitive football and functional activities of daily living.

**Relevant Evidence:** 32-36% of uninjured population has painless positive scaphoid shift test (69% sensitivity and 66% specificity); thus patient history, pain, and feel of the movement are more telling then actual shift. The Blatt capsulodesis results in ~20 degree loss of wrist flexion and promises variable long-term prognosis and prevalent risk of early arthritis. Pending scapholunate stability and ROM loss, athletes are able to RTP following the procedure. **Word Count:** 512