

Trans-Scaphoid, Trans-Ulnar Styloid, Lunate Dislocation With Ipsilateral Radius And Ulna Fracture – A Case Report

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INTRODUCTION:

Trans-scaphoid lunate dislocation with displacement of the trans-scaphoid-lunate unit volarly is a rare injury. We present a case of trans-scaphoid, volar dislocation of lunate with displacement of proximal fragment of scaphoid volarly and concomitant distal third fracture of radius and ulna, making our case even rarer.

REPORT:

A 20-year-old man presented with pain and swelling of right wrist and forearm following a motorvehicle accident. Clinical examination revealed a swollen and tender wrist and forearm with no numbness over median nerve distribution. Radiographs of the wrist showed a volar lunate dislocation, fracture of the scaphoid with protrusion of proximal fragment of scaphoid volarly and radial styloid fracture with concomitant radius and ulna fracture on the same limb. (Figure. 1), confirmed on computed tomography (CT). Surgery was performed via a Berger's ligament splitting dorsal capsulotomy. An extended volar carpal tunnel incision was also performed as the proximal scaphoid fragment had migrated proximally volarly (Figure 2). Lunate was reduced, then 3.5mm headless compression screw fixation done for scaphoid waist fracture. Lunotriquetral ligament was repaired, followed by repair of scapholunate ligament dorsally with suture anchor, and diamond K-wiring. Plating of radius and ulna was also done in same setting (Figure 3). Patient was immobilized on backslab and K-wires removed at 6 weeks.

Discussion

Perilunate fracture-dislocation injuries are divided into lesser and greater arc. Greater arc injuries involve fracture of the surrounding bones of the lunate, such as radius and ulnar styloid as the injury extends through a larger arc. Lesser arc injuries have purely ligamentous damage to the articulations immediately surrounding the lunate. Mayfield et al² divided this injury into stages, with volar lunate

dislocation considered stage 4. Herzberg et al³ further classified lunate dislocations into Stage IIA injuries, where there is partial subluxation of the lunate from its fossa with less than 90° of rotation, while stage IIB is defined as complete dislocation of the lunate from its fossa into the carpal canal with greater than 90° rotation. Surgical intervention is essential to restore carpal alignment and reduce likelihood of development of radio-carpal arthritis, carpal instability or avascular necrosis or non-union of scaphoid.



Figure 1 - "Piece-of-Pie" sign on Posteroanterior radiographs and "Spilled-teacup" sign on lateral radiographs with displacement of proximal scaphoid fragment with subsequent post operative radiograph.



Figure 2 – CT images showing volar lunate dislocation with a scaphoid fragment correlates with intraoperative findings.

REFERENCES:

1. Mayfield JK, Johnson RP, Kilcoyne RK. Carpal dislocations: pathomechanics and progressive perilunate instability. *J Hand Surg Am* 1980;5(3):226–41.
2. Herzberg G, Comtet JJ, Linscheid RL, Amadio PC, Cooney WP, Stalder J. Perilunate dislocations and fracture-dislocations: a multicenter study. *J Hand Surg Am* 1993;18(5):768–79.