Case conference

2010-09-30

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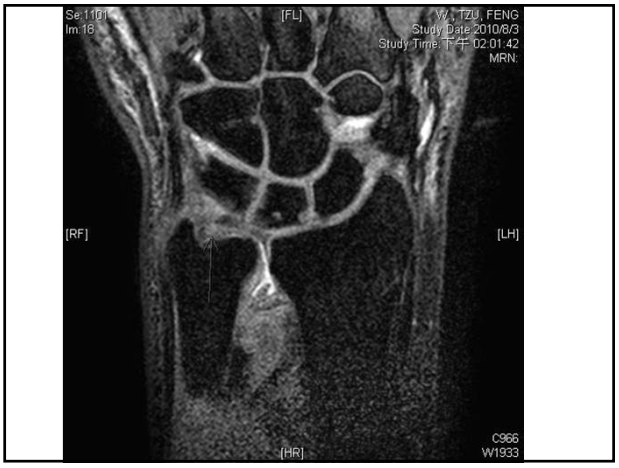
Dr陳昭宇

history

- 37 y/o male
- CC:
  - Right dorsal wrist pain over S-L interval for 2 months
  - Trauma Hx: wrist injury when using a hammer
- PE:
  - Fovea sign (+)
  - scaphoid shift test (Watson's maneuver) (+)
  - scapholunate ballotement test (+)



impression

- TFCC injury
- Scapholunate ligament tear

OP procedure

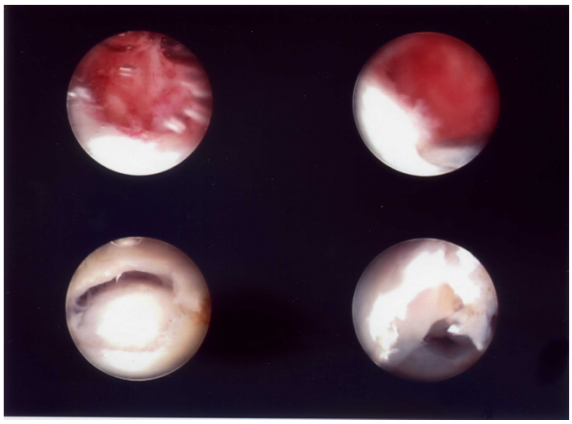
- OP Finding:
  OP arthroscoopic TFCC repair, scapholunate ligament repair

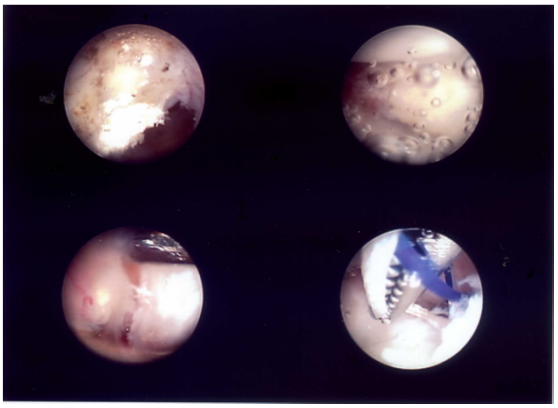
Intact articular cartilage, distal radius, scaphoid and lunate
Volar long and short radiocarpal ligaments

TFCC : central tear with intact ulnar head cartilage; IB peripheral tear with synovial hypertrophy, synovectomy and pull suture repair after ulnar sensory branch identified and protected

Triquetrum chondromalacia change ulnar-inferiorly, debridement, shaving, LT ligament intact

Scapho-lunate ligament tear from inferior and dorsal ligamentous portion with hypermobile SL
Open repair with 2.0 suture anchor (Smith Nephew) x 2





Discussion: TFCC injury

- TFCC: dorsal/palmar radioulnar ligament, ulnotriquetral ligament, ulnolunate ligament, triangular fibrocartilage

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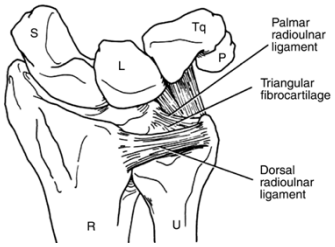

- Injury: pronation, ulnar deviation, ulnar positive variance
  - Acute: usually rotational injury
  - Degeneration
- Fracture of ulnar styloid can lead to instability of DRUJ, due to TFCC injury in fovea

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- S/S:
  - pain in the ulnar wrist, when gripping and twisting
  - clicking or snapping when wrist use
- PE:
  - Usually no swelling, usually normal ROM
  - Ulnocarpal tenderness
  - Ballotement test (L-T instability)
  - Piano key sign (DRUJ instability)
  - Ulnocarpal stress test (compressive load, ulnar deviation, pronation)
  - Fovea sign (+)

Image study

- Plain film
  - ulnar variance; associated fracture, arthritis
- MRI
- arthroscopy

classification

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- Palmer classification

Class 1A: tear of the articular disk
Class 1B: ulnar
Class 1C: distal avulsion from the carpus
Class 1D: radial

Class 2A: fraying of the articular disk
Class 2B: fraying of the disk and chondromalacia of ulnar head, lunate, triquetrum
Class 2C: perforation of TFCC in center of the disk
Class 2D: cartilage of lunate, triquetrum, ulnar head
Class 2E: degenerative arthritis

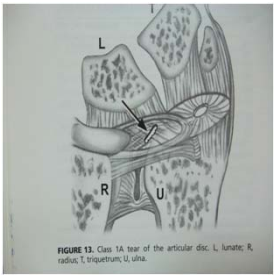

FIGURE 13. Class 1A tear of the articular disc. L, lunate; R, radius; T, triquetrum; U, ulna.

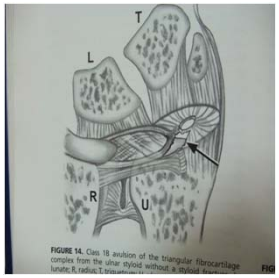

FIGURE 14. Class 1B avulsion of the triangular fibrocartilage complex from the ulnar styloid without a styloid fracture. L, lunate; R, radius; T, triquetrum;

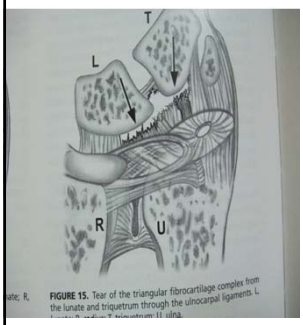

FIGURE 15. Tear of the triangular fibrocartilage complex from the lunate and triquetrum through the ulnocarpal ligaments. L,

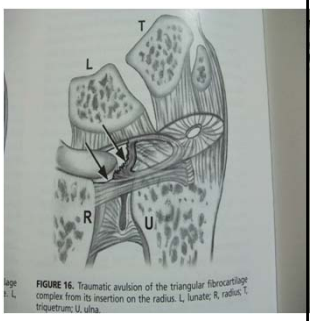

FIGURE 16. Traumatic avulsion of the triangular fibrocartilage complex from its insertion on the radius. L, lunate; R, radius; T, triquetrum; U, ulna.

Treatment

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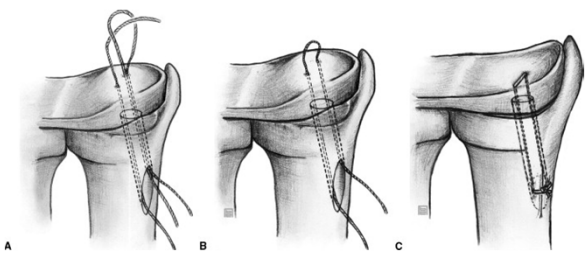
1A: arthroscopic debridement
1B: arthroscopic repair (greater healing potential)
1C: open repair
1D: arthroscopic repair

2A: conservative
2B: conservative/ open Wafer procedure
2C: arthroscopic Wafer procedure
2D: arthroscopic Wafer procedure/ ulnar shortening
2E: ulnar resection, Sauve-Kapandji



Discussion: Scapholunate ligament injury
(scapholunate dissociation)

Scapholunate dissociation

- Most frequent pattern of carpal instability
- Lead to arthritis if no treatment

- Synonyms: SL instability, rotatory subluxation of the scaphoid, dorsal intercalated segmental instability
- Anatomy
  - SLIL: dorsal (strongest), volar, proximal

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- S/S:
  - dorsoradial wrist pain after falling onto an outstretched hand
  - Swelling, tenderness over S-L interval
- PE:
  - Pain when palpating the S-L interval
  - scaphoid shift test (Watson's maneuver)

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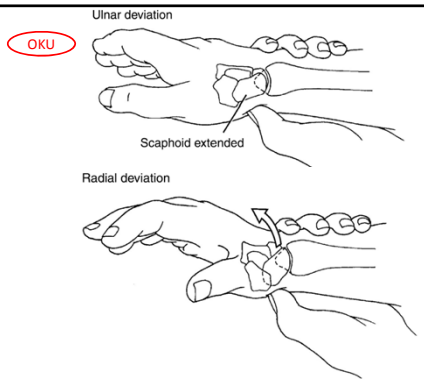

Scaphoid shift test
(Watson's maneuver)

- Static instability:
  - SL interval widening on plain X ray (>2-4 mm)
  - DSLIL and volar ligaments injury
- Dynamic instability:
  - abnormal carpal kinematics on PE; widening between S and L on stress radiographs or fluoroscopy
  - Isolated injury to DSLIL

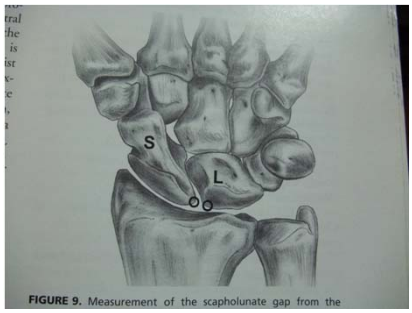

FIGURE 9. Measurement of the scapholunate gap from the

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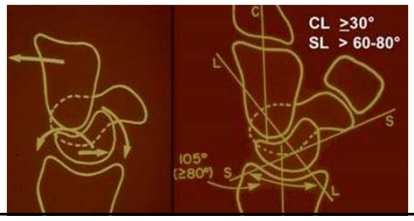
Dorsal intercalated segment instability

- SLIL injury
- Scaphoid: increasing flexion
- Lunate: increasing dorsiflexion
- Scapholunate angle > 70 degree



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Volar intercalated segment instability

- Lunotriquetral interosseous ligament injury
- Lunate: increasing flexion
- Scapholunate angle < 30 degree

Treatment of SL injury

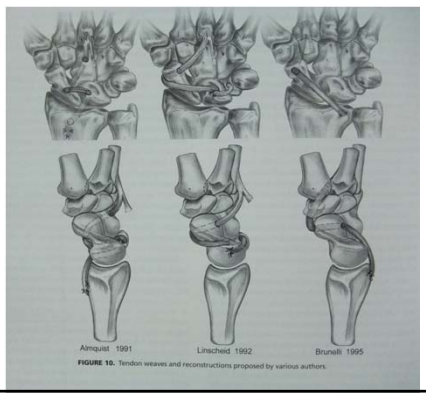
- No gold standard
- Chronicity: most important factor to determine Tx
- Acute
  - Closed reduction and cast: inadequate
  - Closed reduction and pinning
  - ORIF: palmar, dorsal (suture or suture anchor)

Treatment of acute scapholunate ligament injuries with bone anchor, Musculoskelet Surg. 2010 May

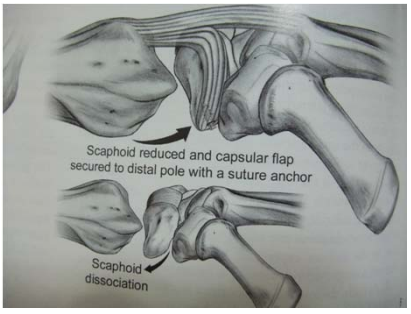
- 16 males and 2 females with an average age at the time of the trauma of 33.8 years old
- open reduction and direct ligament reinsertion through a minianchor MITEK
- follow-up of 32 months (range 9-68 months).
- 13 excellent results (Mayo score average 94,77), 3 good results (Mayo score average 84), 1 sufficient results (Wrist score 72) and 1 bad result (Wrist score 35)
- excellent or good functional outcomes were reported in 88% of the patients

- Chronic injury
  - Chronic? 3 weeks to 3 months after injury
  - Concern: ligament can be directly repaired? Joint is reducible? Arthritis?
  - Tx: Arthroscopic debridement, SLIL repair, repair with capsulodesis, repair with tendon weaves and bone-retinaculum-bone or bone-ligament-bone autografts, limited interarpal fusion

Tendon weaves



capsulodesis



Thank you