Management of Radiocarpal Fracture Dislocations

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Introduction

• Talk about a spectrum of pathology of distal radius fracture dislocations

• Not all dislocations are pure ligamentous injuries

• Some volar shearing fracture dislocations can behave like RC dislocations
• Rare injury $\rightarrow$ 0.2% of all wrist injuries
• Associated with high energy injuries
• Volar $>$ Dorsal $>$ Ulnar
Extrinsic Ligaments

- Palmar
- Radial column
  - RSC
- Intermediate column
  - SRL, LRL
- Ulnar
  - UL, UT, UC
Carpal Instability

• Dissociative instability (CID)
  - SL = DISI
  - LT = VISI

• Non-dissociative instability (CIND)
  - Mid-carpal,
  - Radio-carpal
  - Ulnar translation

• Adaptive instability-extrinsic causes:
Treatment Principles

- Concentric reduction
- Stable repair of osseous-ligamentous avulsions
- Additional fixation
  - Bridge plate
  - External fixation
  - RC pinning
Treatment Principles

- Vorsal approach
  - FDS and Ulnar nerve artery
  - Standard approach
- Dorsal approach
- Dorsal-Radial approach
  - SRN

- DRUJ may also be unstable
  - Open repair of TFCC/US
  - Supplemental k-wire fixation
Radial

ORIF vs Suture anchor repair

Intermediate

Stable; Cast in extension 6 wks

Unstable; BP, CRPP, Unable to repair, RL Fusion

Ulnar
Radio-carpal Dislocation

- Disruption of strong volar RC ligaments
- Rupture of extrinsic ligaments and capsule
- High energy injury
Radiocarpal Dislocation
Radiographic Evaluation

- Alignment of carpus
- Ulnar translation
- Disruption of Gilula’s Lines
- Small Styloid Fractures
Radiographic Evaluation

- Loss of ‘co-linearity’ of the lunate
- Marginal rim fractures
Reduction Radiographs
Comparison View
Stress Testing
Radiographic Evaluation

– CT Scan
  • Evaluation of fracture size
  • Alignment
  • Surgical planning
BEWARE OF THE ULNO-PALMAR DISTAL RADIAL FRAGMENT

E. APERGIS, S. DARMANIS, G. THEODORATOS and J. MARIS

From the Department of Orthopaedics, Red Cross Hospital, Athens, Greece
• 7 Loss of Articular Reduction
• 4 Radio-carpal subluxation
• 1 required external fixation for maintenance of reduction
• 1/5 radioscapoholunate arthrodesis
• Lunate facet projects out 3 mm
• This projection is 5 mm thick
• Less than 15 mm lunate facet
• Greater than 5 mm subsidence
• Recommend additional fixation
Outcomes

- Satisfactory outcomes
- Few large prospective studies
- 30-40% decrease in total arc of wrist flexion-extension
- Post-traumatic arthritis
- Persistent instability
LITERATURE

- Harness et al. Loss of fixation of the volar lunate facet fragment in fractures of the distal part of the radius. JBJS Am. 2004 Sep; 86-A(9): 1900-8.