DRUJ INSTABILITY

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INTRODUCTION

- ANATOMY
- PRESENTATION
- IMAGING
- TREATMENT OPTION
ANATOMY

- In ulnar neutral wrist, the forces are transmitted at 80% radial, 20% ulnar

- 4 mm ulnar plus wrist ➔ 60% radial and 40% ulnar

- In an ulnar minus wrist 100% radial
ANATOMY

- The volar radioulnar ligament
  - Ulnolunate and ulnotriquetral
  - Resist dorsal displacement

- The dorsal radioulnar ligament

- The TFCC (articular disk)

- Synovial membrane

- ECU, PQ (dynamic stabilizer)
Clinical Presentation

- Pain, localized tenderness
- Decreased ROM
- Clicking, snapping, giving way
- **Piano key sign** is classic for instability
  - Prominent and ballottable distal ulna with full pronation of the forearm
- Compression may aggravate the pain
- Resisted Ulnar Deviation may cause snapping of the ECU
Diagnostic Imaging

- **X-RAYS**
  Zero rotational view allows assessment of ulnar variance
  show displaced # of distal part of radius & widened distal RU joint

- **CT scan** usually the best test ➔ comparison between neutral, pronation, supination bilateral wrists

- **MRI**

- Dynamic arthrography may also be helpful
MANAGEMENT
NONOPERATIVE TREATMENT

- R.I.C.E, anti-inflammatory, splints
- ECU Tendonitis may be treated with steroid injection
  immobilize in pronation for 2 to 4 weeks
- If DRUJ has multidirectional instability, it suggests a severe injury of joint structures and TFCC, and nonoperative management is difficult
ACUTE TREATMENT

- **DRUJ reduced and stable**
  - Splint 48 to 72 hours then mobilize

- **DRUJ reduced but unstable**
  - 4 weeks splint in stable position
  - Radioulnar pin (or screw) if no stable position found

- **DRUJ not reducible**
DRUJ pathology general TTT algorithm

Pathologic condition

Impingement

Instability

Incongruity

Yes

Rheumatoid Arthritis

Sauve-Kapandji

No

Partial resection or arthrodesis
Table 43.4. Impingement Lesions Treatment Algorithm

Impingement

- Ulno-carpal
  - Low demand pt. or concomitant wrist fusion
    - Yes
      - Darrach procedure
    - No
      - Ulnar (+) variance
        - < 4mm
          - Ulnar head recession (open or arthroscopic)
        - > 4mm
          - Ulnar shortening osteotomy
Table 43.5. Instability Lesions Treatment Algorithm

Instability

- Post-traumatic
  - Dynamic
    - Pronator quadratus advancement
  - Static
    - Reconstructible soft tissues?
      - Yes
        - Soft tissue stabilization
      - No
        - Sauve-Kapandji procedure
  - Post-Darrach procedure
  - Kleinman-Greenberg procedure
- TFCC instability
  - Central tear
    - Debridement
  - Peripheral tear
    - Possible repair (see Table 43.3)
Darrach's Procedure

first performed by Darrach in 1911 in New York City.

Indications
- for relief of pain following distal RU disruption and/or RU arthritis
- for symptomatic malunion of Colle's # in elderly pts, especially with stiffness

Procedure generally performed on elderly pts with low functional demand
COMPLICATIONS

- Increased ulnocarpal translocation
- Decreased grip strength
- Unstable rotation of radiocarpal joint
- Hard to salvage if painful instability after excessive resection of ulna
Sauve Kapandji Procedure

- **Indications**
  - Osteoarthritis with limitation of motion
  - Severe chondromalacia of DRUJ
  - Post-traumatic ulnocarpal impingement
  - Young RA Pts with ulnar translocation
  - Non-RA Pts with DRUJ subluxation or dislocation other option not feasible)
Sauve Kapandji Procedure

- Involves resection of a portion of distal ulna shaft and fusion of ulnar head to radius
- Maintains function of TFCC & maintains normal anatomic configuration of wrist
- The ECU tendon is maintained in a relatively normal position in relation to the carpus
- Procedure should restore forearm rotation
- Should not be performed with ulnar variance positive unless ulna shortened as part of procedure
Hemi-resection Arthroplasty

Bower’s

- Involves resection of ulnar articular head, leaving shaft and styloid relationship intact

- In cases of distal radial malunion a Bower's hemiarthroplasty may be indicated to restore passive pronation and supination of forearm

- This procedure should be considered before performing Darrah procedure

- Styloid-Carpal impaction ulnar translocation
Hemi-resection Arthroplasty
Bower’s

**INDICATION:**
- Early stage RA
- Osteoarthritis or post-traumatic DRUJ
- Ulnocarpal impaction
- Painful instability of RU joint
- Requires intact TFCC or reconstructible
An Anatomic Reconstruction of Distal RU Ligaments for Posttraumatic DRUJ Instability

Brian D. Adams, MD, J Hand Surg 2002

- 14 pts with posttraumatic DRUJ instability treated with reconstruction of the distal radioulnar ligaments.

- Anatomically accurate, reproducible, and requires less dissection

- Candidates had joint instability and an irreparable TFCC

- Restored stability and relieved symptoms in 12 of 14 pts at 1 to 4 years f/u evaluation, All patients attained near full pronation and supination

- One pt with a deficient sigmoid notch and one with ulnocarpal ligament injury did not achieve full stability.

- Effective treatment for an unstable DRUJ when its articular surfaces are intact and the other wrist ligaments are functional, and it can be used in combination with a distal radius corrective osteotomy.
THANK YOU