Case Conference

9/21/2017

Dylan Simmons
62 yo female presenting with chronic wrist pain and clicking with ulnar deviation.
VISI: Volar intercalated segment instability

- Secondary to disruption of the lunotriquetral ligamentous complex.
- Lunate- Volar, Triquetrum- Dorsal

Instabilities may be:

- **Pre-dynamic**: Partial ligamentous tear. Soft tissue injury seen with MRI or arthroscopy only. No changes on plain radiographs.
- **Dynamic**: Abnormal changes in carpal alignment seen on stress radiographs. Plain radiographs are normal.
- **Static**: Abnormal changes in carpal alignment seen on non-stress radiographs.

- Scapholunate angle: < 30 degrees
- Radiolunate angle: >15 degrees
- Capitolunate angle: >15 degrees
Carpal Anatomy

- Scaphoid
- Lunate
- Triquetrum
- Pisiform
- Trapezium
- Trapezoid
- Capitate
- Hamate
Carpal Anatomy

- Proximal and distal “rows”– Complex articulations.

- Motion of the individual bones depends upon biomechanics of its neighbors and its ligamentous attachments (intrinsic and extrinsic ligaments).

- Ligamentous disruption or fracture can disrupt this equilibrium and set stage for subluxation, abnormal biomechanics, and advanced degenerative changes.
Proximal carpal row, the “intercalated segment”

- In between the proximal segment of the wrist (radius and ulna) and the distal segment (distal carpal row and metacarpals)
- Major intercarpal stabilizers are SLIL and LTIL
- No tendinous insertions
Intrinsic Ligaments
Lunotriquetral ligament

- Major intercarpal stabilizers are SLIL and LTIL
- Restraint to distraction, torsion, and translation
- Injured less frequently than scapholunate ligament.
- Volar fibers are the thickest and most important (Dorsal fibers most important for stability in SL ligament)
Opposing volar and dorsal forces

- **Scaphoid**: Volar rotation
- **Triquetrum**: Dorsal rotation
Tangent lines are easier to use and more reliable.

Scapholunate angle
Normal: 30°-60°

Capitolunate angle
Normal <30°

Volar Intercalated Segment Instability (Volarflexion Carpal Instability)

1. Volar tilt of lunate
2. Dorsal tilt of capitate
Dorsal Intercalated Segment Instability (Dorsiflexion Carpal Instability)

1. dorsal tilt of lunate
2. volar tilt of scaphoid
Dorsal: Dorsal intercalated segment instability

- Complete scapholunate ligament disruption & volar extrinsic rupture.
- Scapholunate diastasis (4mm)
- Scaphoid rotates volarly (rotary subluxation)
- Lunate rotates dorsally
- Capitate may sublux posteriorly

May develop Scapholunate Advanced Collapse (SLAC)
- Stage I: Radioscaphoid DJD
- Stage II: Proximal scaphoid facet
- Stage III: Capitolunate
- Stage IV: Radiolunate/Pancarpal DJD
