MRI of the Wrist: TFCC and Ligaments

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MRI Protocol

- 8-10 cm FOV
- Dedicated wrist coil
- 2-3 mm slices
- 288 x 192 matrix; paired T1 and T2-weighted images
- Thin slice 3D for TFCC and ligaments
- “Superman” position better for imaging but worse for motion
- Hand by side: STIR or IDEAL for fat sat
Routine MRI wrist:
- Tendon pathology
- Carpal tunnel syndrome
- Ganglion cyst
- Acute trauma
- Osteoarthritis
- AVN

MRI wrist with IV contrast:
- Mass
- Infection
- Inflammatory arthropathy

MR arthrogram:
- Ligament tear
3.0T Protocol

Coronal T1

Coronal T2

2 mm slices, 288x192 matrix, 8 cm FOV
8-channel phased array coil
New Sequence:
3D FSE Cube
3D FSE CUBE Wrist at 1.5T

Coronal Reformat

Sagittal Source

0.5 mm isotropic resolution
Ligament tear

- Intrinsic ligaments
- Scapholunate
- Lunotriquetral
- Triangular fibrocartilage complex
  - central (radial aspect)
  - peripheral (ulnar side)
- MR arthrography
  - Increases accuracy for dx of tear
Intrinsic Ligaments of Wrist

- Scapholunate Ligament
  - Volar, central, dorsal (most important)
  - Central may have asymptomatic perforation
  - Tears lead to dorsal intercalated segmental instability (DISI)
- Lunotriquetral Ligament
  - Smaller
  - Tears lead to volar intercalated segmental instability (VISI)
Intercarpal ligaments

Primal Pictures
Scapholunate ligament tear
-Lunotriquetral ligament tear
Ulnar collateral ligament tear
Stener lesion
"Yo-yo" sign of a Stener lesion
Located in unlar-carpal space
Attaches to the fovea at the base of the ulnar styloid process
Attaches to the ulnar aspect of the lunate fossae of the radius
Hyaline cartilage interposed between the TFCC and radius
Meniscus homologue
- Thickening on ulnar side of joint capsule
- Inconsistently present

Ulna collateral ligament
- Thickening of joint capsule
- Extends from ulna styloid to triquetrum

Sheath of ECU tendon on dorsal Ulna
TFCC tear arthrogram

Note Lunate and Ulnar cartilage touching
TFCC radial tear
Perforations may not be clinically significant
Central TFCC Tear
Meniscal homologue
Meniscal homologue
Peripheral TFCC tear
Ulno-lunate Abutment
- Positive ulnar variance
- Cystic change in lunate
- TFCC tear