History

38 year old woman with 6 months of wrist pain following sports injury.
A, B: Right wrist in pronation and supination

C, D: Left wrist in pronation and supination
Coronal PD images through the volar aspect of the TFCC (Triangular Fibrocartilage Complex)
Coronal MPGR images through the volar and dorsal aspect of the TFCC
Findings

CT images demonstrate a dorsal positioning of the right ulna relative to the radius on the axial neutral images when comparing the right to left wrist. On the pronation images, the ulna appear almost symmetric, but on the supination images there is a persistent posterior positioning of the right ulna relative to the left ulna. MR images demonstrate a disruption of the proximal ulnar attachments of the TFCC centered at the ulnar styloid. The disruption involves the volar fibers to a greater degree than the dorsal fibers at the proximal ulnar attachment.
Dorsal positioning of the right ulna relative to the left. Lister’s tubercle (LT) can be utilized as a reference point.
Symmetric positioning with pronation

Persistent posterior position of right ulna on supination

A, B: Right wrist in pronation and supination

C, D: Left wrist in pronation and supination
Disruption at the proximal, ulnar attachments of the TFCC, along the volar aspect. Small DRUJ joint effusion containing synovitis (*)
More dorsal fibers of the proximal, ulnar attachment are intact.
Diagnosis

DRUJ (distal radioulnar joint) instability is a complex pathology related to the triangular fibrocartilage complex and particularly the volar and dorsal radioulnar ligaments (vruk and drul). With pronation, the drul will tighten with subsequent “dorsal displacement of the ulna” and with supination the vruk will tighten with subsequent “volar displacement of the ulna”. With hyperpronation, there is a checkrein via the vruk, but in extreme circumstances this will fail. Failure of the vruk will lead to a persistent posterior positioning of the ulna in a neutral position.

With pronation there may be exaggeration of the posterior positioning or as seen in this case, the loss of competency of the vruk prevents adequate tightening to have the ulna move volarly with supination. Subsequently, the ulna will remain somewhat more posteriorly positioned than the contralateral side. The same pathology, but involving the drul, would occur in a hypersupination injury. The vruk and drul converge at the proximal ulnar attachments and hence all of these structures must be evaluated when assessing for DRUJ instability.
Resources


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