

Wrist Imaging: Ligaments and Triangular Fibrocartilage

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Magnetic resonance imaging (MRI) and MR arthrography are both effective means to evaluate the intrinsic and extrinsic ligaments of the wrist, as well as the triangular fibrocartilage (TFC) [1-6]. High resolution detail of the wrist can be achieved with a variety of magnet strengths, with 1.5 Tesla (T) and 3T being the most commonly utilized in current practice. Dedicated wrist coils are critical for acquiring high spatial resolution and high signal-to-noise ratios. Multiplanar and multisequence imaging is required, and 3D volumetric acquisition with infinite possibilities of plane reconstruction is becoming more commonplace.

There are multiple extrinsic ligaments of the wrist, which can be largely divided into dorsal and volar groups. The radioscaphocapitate, radiolunotriquetral, radioscapholunate, dorsal radiotriquetral, palmar scaphotriquetral, and dorsal scaphotriquetral ligaments are best evaluated in the axial plane [2]. The palmar and dorsal ulnotriquetral and ulnolunate ligaments are best visualized in the sagittal plane, and the radial collateral ligament is best evaluated in the coronal plane [2].

The accuracy of wrist MRI and MR arthrography varies in the literature. In a diagnostic comparison of 102 patients with ulnar-sided wrist pain undergoing both 1.5T and 3T preoperative wrist MRIs, there was a statistically significant increase in accuracy of interpretation of 3T studies, relative to arthroscopic results [3]. One series reported a 3T MRI sensitivity of 86% for the detection of triangular fibrocartilage complex (TFCC) tears, 89% for detection of scapholunate (SL) tears, 82% for the detection of lunatotriquetral tears and 100% specificity [4]. Injection of intraarticular contrast into the radiocarpal joint increases the accuracy of interpretation of the scapholunate and lunatotriquetral ligament and triangular fibrocartilage pathology, although it is minimally invasive. Studies have shown up to 100% sensitivity for the detection of ligament and TFCC tears [4].

References:

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