THE 13th INTERNATIONAL CONGRESS ON MRI &
30th ANNUAL SCIENTIFIC MEETING OF KSMRM &
7th ANNUAL MEETING OF ASMRM

ICMRI & ASMRM 2025

Illuminating the Invisible: Advances in MRI
OCTOBER 31 - NOVEMBER 1, 2025
Grand Walkerhill Seoul, Seoul, Korea
https://icmri.ksmrm.org/2025m/

MSK 1

SY03-1

MRI of the TFCC: Anatomical Perspectives and Practical Challenges in Injury Assessment

Saya Horiuchi

St. Luke's International Hospital, Japan

The triangular fibrocartilage complex (TFCC) is indispensable for maintaining the stability of the distal radioulnar joint. Traumatic and degenerative TFCC injuries are well-recognized causes of ulnar-sided wrist pain and limitation of forearm rotation. The TFCC is composed of several interconnected soft-tissue components, including the articular disc, radioulnar ligaments, dorsal and volar capsules, and the meniscus homologue. Because of its complex and delicate anatomy, reliable depiction and interpretation on MRI remain challenging. Anatomical understanding is essential for accurate identification, and in some cases, overlapping structures due to forearm position can further complicate interpretation.

MRI is a useful, non-invasive modality for evaluating TFCC injuries, and recent advances in high-resolution 3.0T scanners and isotropic 3D imaging have improved visualization of its components. Central disc perforations, ulnar-sided attachment injuries, and volar fiber abnormalities, in particular, can be evaluated more precisely when careful attention is paid to slice orientation, thickness, and multiplanar reconstruction. However, diagnostic pitfalls remain: certain sites may show mild high signal intensity as a normal variant, slit-like joint fluid can mimic central perforation, and age-related changes may resemble pathology. In such cases, differentiation on imaging alone is often difficult, and correlation with clinical findings is required.

Recent anatomical studies have highlighted that the orientation of radioulnar ligament fibers is not simply symmetric between the palmar and dorsal aspects. Instead, the fibers gradually shift direction and cross as they attach to the ulnar styloid. Awareness of this structural pattern can assist radiologists in interpreting MRI findings and in distinguishing normal variation from true injury.

This lecture will summarize anatomical insights relevant to TFCC imaging, highlight technical considerations in slice selection, review common pitfalls, and discuss how newer imaging approaches can support accurate diagnosis in daily practice.

Keywords: *MRI, Wrist, TFCC, Radioulnar ligament*