Objective: Although standardized criteria for evaluating the distal radioulnar joint (DRUJ) instability have not been established, DRUJ ballottement test remains a key component of diagnosing peripheral tears of the triangular fibrocartilage complex (TFCC) at the ulnar foveal insertion (Fig1). This prospective cohort study investigated the reliability and diagnostic accuracy of the DRUJ ballottement test in detecting the TFCC foveal tears.

Methods: The study enrolled 50 consecutive patients with ulnar wrist pain (25 with foveal tears and 25 without tears, 27 men and 23 women, mean age was 41 years) and 25 healthy volunteers (mean age 36 years). Two observers independently performed the DRUJ ballottement test; the test was repeated by one observer (Fig 2). These data were used for reliability analysis. Interobserver and intraobserver reliability were analysed with Cohen’s kappa statistics. First time assessments during the initial hospital visit were used for analysis of diagnostic accuracy of the DRUJ ballottement test. DRUJ instability grade was assessed with Nakamura’s criteria (grade 0: stable DRUJ; grade 1: less stable than intact contralateral side; grade 2: absence of an endpoint in either the dorsal or palmar direction; grade 3: no endpoint in either direction).

Results: Regarding the 25 patients with foveal tears that had grade 2 instability, and 19 of the 25 patients without foveal tears had grade 0 or grade 1 instability. There were 23 volunteers in grade 0 (Table 1). Kappa values for intraobserver and interobserver reliability of the instability grade were 0.85 and 0.8, respectively. Regarding the accuracy analysis by comparing the test results between the 25 patients with and without TFCC foveal tears, the sensitivity and specificity of the DRUJ ballottement test were 96% and 40%, respectively, when a positive result was defined as grade 1. When a positive result was defined as grade 2 (absence of endpoint in either the dorsal or palmar direction), the sensitivity and accuracy specificity were 76% and 76% respectively (Table 2). The comparison between the 25 foveal tears patients and 25 healthy volunteers revealed that the sensitivity and specificity were 96% and 88%, respectively, when a positive result was defined as grade 1. When a positive result was defined as grade 2, the sensitivity and specificity were 76% and 100%, respectively (Table 3).

Conclusions: Comparing injured and contralateral wrists provided reasonable reliability and high sensitivity in detecting TFCC foveal tears. When the test result is grade 1 in a clinical setting, acquisition of imaging techniques would be recommended to diagnose tears of the radioulnar ligaments. We found perfect specificity when comparing patients with healthy volunteers, but the test was not specific in a population of patients with ulnar wrist pain. Because absence of endpoint alone is not a specific finding to diagnose radioulnar ligament tears, exclusion of other disorders with DRUJ instability such as ulnocarpal abutment syndrome is needed to confirm the foveal tears in patients with ulnar wrist pain.