

Retrospective Analysis of Distal Ulna Fractures Associated with Distal Radius Fractures in Women 50 Years and Older: Clinical, Radiographic, and Patient-Related Outcomes

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Purpose: The effect of distal ulna fracture (DUF) on outcomes of distal radius fracture (DRF) is not known. Previous studies noted trends in outcomes but did not reach statistical significance. The purpose of this analysis was to determine the incidence of DUF associated with DRF in a discrete group (women 50 years and older), to classify and describe the incidence of DUF by location, and to determine whether the presence, location, or union of DUF influences the radiographic, clinical, and patients' self-reported outcome measures in DRF treatment.

Methods: Data for 781 women 50 years and older who had sustained a displaced, isolated DRF were collected prospectively. Clinical outcomes of grip strength and range of motion (ROM) (dorsiflexion, palmar flexion, supination, and pronation), and Patient-Rated Wrist Evaluation (PRWE) scores were measured at 9, 12, 26, and 52 weeks post fracture. Radial inclination (RI), ulnar variance (UV), and radial tilt (RT) were measured up to 12 weeks post fracture from serial radiographs that were also retrospectively reviewed to determine the frequency, type, and union of associated DUFs.

Results: The rate of DUF associated with DRF was 74%. DUFs were classified by location: 19% were Type 1A (styloid apex), 39% Type 1B (styloid body), 33% Type 2T (transverse - proximal to fovea), 11% Type 2O (oblique - proximal to fovea), 0.3% Type 3 (head), and 10% Type 4 (periphyseal and distal shaft). DUF rates did not vary with age, although the type of fracture did. The DUF union rate was 35%, influenced by fracture type and age. Significant associations included: Type 1A with younger age (50-60 years), lower union rates, and a higher final RI; Type 1B with lower union rates; Type 2T with lower RI; Type 2O with older age group (81 years+), higher union rates, and lower RI; Type 4 with older age groups (81 years+), higher union rates, and higher RI; and united DUFs with significantly higher RI. PRWE scores were higher at 9 and 12 weeks post fracture in those with DUFs (not significant [NS]), higher in ununited DUFs (NS), but not at 6 and 12 months post fracture. DUFs had no effect on grip strength or ROM.

Conclusion: Rates of DUF associated with DRF were higher than those previously reported. We have classified DUFs based on location with each type and subtype having significant distinct features. The rate of DUF union was low but was more likely in older age groups and resulted in improved radiographic outcomes. The presence and type of DUF was not associated with differences in ROM or PRWE scores. Recognizing the presence of a DUF and identifying its type helps predict the behavior of not only the healing of the DUF, but also the DRF.