

Treatment of Unstable Dorsal Distal Radius Fractures: The Dorsal Plate Revisited*Adam Driesman, BA¹; Nader Paksima, DO, MPH¹; Julie Johnson, MD²;**Christopher Kim, BS¹; Kenneth Egol, MD¹**¹New York University Hospital for Joint Diseases, New York, New York, USA;**²University of Pittsburgh, Pittsburgh, Pennsylvania, USA*

Purpose: Dorsal distal radius plates have provided stable internal fixation of displaced fractures of the wrist. However, a significant number of extensor tendon problems have been reported in the first-generation designs. Newer, lower-profile dorsally applied plates have been developed to try to address these complications. The purpose of this study is to determine the functional outcome and complication rate following next-generation, low-profile dorsal plating for unstable fractures of the distal radius.

Methods: A standard protocol and approach to the treatment of distal radius fractures was agreed upon by 2 surgeons. Those indicated for surgery were treated with either a volar locked plate or a dorsal locked plate based upon fracture pattern. Radiographic and clinical examination findings were gathered for initial presentation and follow-up visits after surgery. Those with less than 6 months' clinical follow-up, incomplete radiographic follow-up, and any other concomitant fixation of the distal radius with the exception of Kirschner wires were excluded. Outcomes were evaluated at the time of latest follow-up with use of the QuickDASH, an abbreviated version of the Disabilities of the Arm, Shoulder and Hand (DASH) questionnaire, 10-point visual analog scale (VAS), range of motion, and osteoarthritis (OA) scale for arthritis.

Results: Of the 799 open reduction and internal fixations of the distal radius from 2007 to 2015, 34 fractures in 33 patients (4%) were treated with a low-profile dorsal locking plate (DP) by two orthopaedic surgeons. The mean age of the population was 44 years and average time to follow-up was 13.4 months. All fractures in the DP group united by an average of 3.7 months. There were no instances of loss of reduction, infection, malunion, or nonunion. The mean score of the QuickDASH questionnaire was 38 points. Average visual analog scale (VAS) pain score at latest follow-up was 2.2/10. Nine patients (26%) required hardware removal, one of which was due to extensor tendon rupture (3%).

Conclusion: Dorsal locked plating of distal radius fractures with newer low-profile implants is a viable option for a small subset of patients with unique fracture types, such as the dorsal rim shear type fractures. Surgeons should not fear the use of the dorsal distal radius plate. When called for, these implants provide excellent fixation but are at an increased risk for tendon irritation that may require removal.