Volar Plating in Distal Radius Fractures: A Prospective Clinical Study on Efficacy of Dorsal Tangential Views (AKA Lleyton Hewitt View) to Avoid Dorsal Screw Penetration

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Purpose: Delayed ruptures of the extensor tendons secondary to the use of volar locking plates for distal radial fractures is an avoidable iatrogenic complication. Although common practice in South Australia, the efficacy of dorsal tangential views (DTVs) has not been evaluated accurately. The purpose of this prospective cohort study is to evaluate the efficacy of DTVs.

Methods: At 1 Level I trauma center, we prospectively included 42 females and 13 males with an average age of 59 years (range, 56 to 89 years) undergoing volar plating for 19 extra-articular (AO Type A), 22 simple articular (AO Type B), and 14 complex articular fractures (AO type C). Variable-angle locking compression plates (VA-LCP, Synthes) with 4 distal holes were used in 43 cases, and 5 distal holes in 12 cases, including 7 volar rim plates. All DTVs--including fluoroscopy views that included protruding screws--were saved to our digital archiving system.

Results: Efficacy (defined as change of screws) of DTVs after volar plating of distal radius fractures is 29%. DTVs revealed dorsal cortex protrusion in 12 of 55 included fractures (22%) with an average screw length of 20.8 mm (range, 24 to 12 mm) changed to 18.1 mm (range, 22 to 10 mm): 7 radial styloid screws, 2 second from radial, 2 second from ulnar, and 1 ulnar-sided screw was changed. Treating surgeons decided to change to longer screws in 4 cases with lengths from 17.3 mm (range, 20 to 14 mm) to 20 mm (range 22 to 16 mm). One patient had an extensor pollicis longus (EPL) rupture, which may have been caused by either a protruding screw that was not identified on DTV, or the fracture spica obscuring the obtained view as identified on CT.

Conclusion: The results are consistent with previously preclinical work: obtaining the DTVs is efficient in addition to AP and lateral views as it reveals dorsally protruding screws in over 35%, and leads to change in practice in order to avoid iatrogenic extensor tendon rupture after volar plating for distal radius fractures.

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.