# Distal Ulnar Volar Locking Plate Placement Prevents Postoperative Loss of Reduction in Intraarticular Smith Fractures

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INTRODUCTION:

Palmar displacement is a common complication following volar locking plate (VLP) fixation for intra-articular Smith fractures (IASFs). This retrospective study investigated the association between distal ulnar placement of the VLP and postoperative loss of reduction.

## METHODS:

Radiographs of 46 patients with ISFAs were examined immediately postoperatively after surgery postoperatively and at final follow-up. Radiographic measurements included the plate-to-fragment ratio (PFR, the ratio of the distal fragment length covered by the VLP) and ulnar distance (UD, the distance from the most ulnar aspect of the VLP to the ulnar border of the radius). Loss of reduction ( $\Delta$ ) was calculated based on radiographic parameters, including palmar tilt (PT), radial inclination (RI), and ulnar variance (UV). Correlations between PFR, UD, and  $\Delta$  were investigated.

### **RESULTS**:

Greater coverage of the long axis to the bone fragments and more ulnar placement were associated with less palmar displacement. Statistically significant correlations were observed between PFR and  $\Delta PT$  (r=-0.518, p<0.01) and between UD and  $\Delta PT$  (r=0.318, p<0.05).

### DISCUSSION AND CONCLUSION:

Distal and ulnar VLP placement can prevent postoperative palmar displacement.

#### Fig.1

The ratio of the distal fragment length covered by the VLP





The indicator of ulnar placement

UD : ulnar distance

The distance from the most ulnar aspect of the VLP

to the ulnar border of the radius (mm)

#### Fig.2 Correlation between PFR and $\Delta PT$ , UD and $\Delta PT$

