Flexor Pollicis Longus Attrition Rupture: A rate of 0.3% in 1687 Volar Plate Fixations of Distal Radius Fractures.

Larsen, L.P. MD and Madsen P.V. MD

Department of Orthopedic Surgery, Aalborg University Hospital, Aalborg, Denmark.

**Purpose:** To discover the rate of attrition rupture of the flexor pollicis longus tendon after volar plate fixation of distal radius fracture in our orthopedic unit and to identify risk factors involved in the development of this complication in order to determine whether our operative treatment needs to be adjusted.

**Methods:** We performed a systematic search of the University Hospital database containing data from four individual hospitals in our catchment area. We identified all cases of flexor tendon rupture operated from 2003 to 2013 and through examination of patient files we found a total of five cases of FPL attrition rupture due to volar plating of a distal radius fracture. Volar plating was performed in 1687 cases in the period from 2003 to 2013. In all cases of attrition rupture the volar plating had been performed in one of the four hospitals in the area.

**Results:** The rate of attrition rupture was 0.3%. Four were females, mean age was 69 years, median time between surgery and tendon rupture was eight months. Plate positioning was examined on postoperative x-rays. Four out of five cases were classified as Soong Grade 1 or 2. The postoperative volar tilt ranged from 14 degrees dorsal to 10 degrees volar angulation. Distal screw prominens and/or loosening was present in four cases. Repositioning of the pronator quadratus muscle was described in two out of five cases. No steroid treatment was identified and none of the case patients were smokers. Direct end-to-end suture of the FPL tendon was performed in four cases and one patient had a tendon transposition done. All received twelve weeks of hand therapy after tendon surgery. Three achieved full ROM in the thumb IP joint, one had 10 degrees extension defect and one achieved a ROM of 0 to 40 degrees. Re-rupture of the FPL was not seen.

**Conclusion:** FPL rupture is a rare complication after volar plating of the distal radius fracture in our unit. Risk factors seem to include plate positioning on or beyond the watershed line, prominent screw heads and increased dorsal tilt of the distal radius. Care should be taken to ensure positioning of the plate proximally to the watershed line in addition to achieving accurate anatomical reduction of the fracture. Routine removal of volar plates due to the risk of flexor pollicis longus tendon rupture seems unnecessary considering the low prevalence of this complication. In cases of recognized suboptimal plate positioning patients should be monitored closely for signs of tendon irritation and early removal of the plate as a preventive measure should be considered.