Incidence of Extensor Pollicis Longus Damage Occurring at the Time of Acute Distal Radius Fracture

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INTRODUCTION:

Extensor pollicis longus (EPL) rupture is described as a complication after volar plate fixation of distal radius fractures. Although protrusion of screw tips through the dorsal cortex of the distal radius is likely the cause of a substantial proportion of EPL ruptures, it is probably not the sole cause for EPL rupture after distal radius fracture. The purpose of this study was to evaluate computed tomography (CT) scans of distal radius fractures to evaluate if there is evidence of preoperative EPL damage.

METHODS:

This retrospective study included adults (≥18 years) with surgically treated distal radius fracture and available preoperative CT within two weeks of injury between January 1, 2017 and July 31, 2018. The cohort consisted of 96 wrists in 95 patients. The median age was 54 (IQR 38-64), 68% (65/95) female, and median follow up was 56 months (IQR 22-61).

RESULTS:

The fracture involved Lister's Tubercle in 75 % (72/96) of fractures. Of these 72 fractures, 13 had an EPL tendon entrapped by fracture fragments (13/72, 18%). Within the cohort, two EPL injuries manifested clinically, both of which appeared to not involve prominent hardware.

DISCUSSION AND CONCLUSION:

We present evidence that not all EPL ruptures after open reduction internal fixation of the distal radius are related to prominent dorsal screws. EPL entrapment in Lister's tubercle fracture fragments is relatively frequent and may be a potential cause for tendon rupture. When a CT scan is obtained for the treatment of distal radius fractures, attention to the EPL and its relation to Lister's tubercle may be helpful to characterize the risk of late rupture.

Table 1. Outcomes CT evaluation

Variable	n=96	%	Agreement % (95% CI)	Brennan & Prediger coefficient (95% CI)	Gwet's AC1 AC1 (95% CI)
EPL damage	1	1%	99% (98-100%)	0.99 (0.96-1.00)	0.99 (0.98-1.00)
EPL trapped	11	11%	83% (77-89%)	0.65 (0.53-0.77)	0.77 (0.67-0.86)
Lister's tubercle involved	72	75%	90% (85-95%)	0.81 (0.71-0.90)	0.85 (0.76-0.93)
Bifid Lister's tubercle	29	30%	69% (62-76%)	0.38 (0.24-0.51)	0.44 (0.29-0.58)
AO classification*			76% (69-82%)	0.64 (0.53-0.74)	0.72 (0.63-0.81)
A	2	2%			
B	3	3%			
C	89	95%			

Data are shown as n(%), as %(SE), or as coefficient(95% CI)
* For AO classification two variables were defined as unknown based on three different gradings
AC1, agreement coefficient 1; AO, Arbeitsgemeinschaft für Osteosynthesefragen; CI, confidence interval; CT, computed tomography; EPL, extensor pollicis longus