Radiographic Incidence and Functional Outcomes of Distal Radius Fractures undergoing Volar Plate Fixation with Concomitant Scapho-Lunate Widening: A Prospective Analysis

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INTRODUCTION

• Scapholunate (SL) ligament injuries can occur concomitantly with distal radius fractures (DRF) and the management of acute SL injury in the setting of DRF remains controversial.
• Chronic SL instability is thought to initiate scapholunate advanced collapse (SLAC) and repair of an acute SL injury may theoretically prevent carpal instability and subsequent disease progression.
• The purpose of the study is to identify the radiographic incidence of SL widening in DRF treated with volar plate fixation and to determine the functional outcomes of DRF with concomitant radiographic SL-widening.

MATERIALS & METHODS

• One hundred and seventeen patients with DRF, with and without radiographic SL-widening, and treated with volar locked plating were prospectively enrolled.
• No SL ligament repairs or reconstructions were performed in any cases.
• Patients with DRF with radiographic criteria for SL widening were compared to those without. Patients were evaluated at 3 months and 1 year post-operatively with QDASH and PRWE questionnaires.
• Independent student t-test and analysis of variance (ANOVA) was used to compare differences in continuous variables between the two cohorts.

RESULTS

• Thirty-one (26.5%) patients were found to have radiographic evidence of SL widening.
• Patients with concomitant SL widening had less wrist extension at 3 months (52.4 degrees versus 60.8, p=0.034) and at 1 year (64.5 degrees versus 71.8, p=0.023).
• There were no differences in wrist flexion, supination, pronation, volar tilt, radial inclination, radial height, ulnar variance, PRWE scores, and Quick Dash scores at 3 months and 1 year.

CONCLUSION

• Radiographic SL-widening is a common finding associated with DRF undergoing surgical repair.
• No association with specific fracture pattern or SL injury type was identified.
• There are similar clinical outcomes between those with untreated SL widening compared to those without an SL widening at 1 year post-operatively.