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Title

Outcomes of Scaphoid Nonunion with Segmental Defect Treated with Plate Fixation and Autogenous Cancellous Graft: First Clinical Report

Purpose

Various techniques have been proposed to treat scaphoid nonunion with segmental defects, but outcomes have been inconsistent. Similar or perhaps better clinical and radiographic outcomes may be possible with a relatively simplified technique of volar locking plate fixation augmented with autogenous pure cancellous graft.

Methods

A retrospective chart review of 34 consecutive patients with scaphoid nonunion with segmental defects treated with locking plate fixation and pure cancellous bone grafting. Post-operative outcome measures included time to union based on computerized tomography, return to work and sports, patient-reported pain and disability scores, grip strength, and range of motion.

Results

34 patients with an average age of 31 years were treated with an average of 34 months after initial injury. 26 patients were treated for nonunion at the scaphoid waist, 7 at the proximal pole, and 1 at the distal pole. Mean final follow-up was 18.7 months. Union was achieved in all patients with average time to union was 63 days post-operatively. Mean DASH score improved from 27.1 to 11.8. Mean visual analogue scale (VAS) improved from 6.7 to 1.7. All employed patients returned to work, although 3 did not return to full capacity. Grip strength improved from 81.2% of the non-operative side pre-operatively, to 94.5% post-operatively. Flexion, extension, UD, and RD improved 128%, 168%, 115%, and 183%, respectively.

Conclusion

Scaphoid locking plate fixation and pure cancellous bone grafting for scaphoid nonunion with segmental defects yields reliable union rates and good patient outcomes as compared those reported for more technically demanding or morbid grafting procedures.