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Title

Outcomes of Scaphoid Avascular Necrosis Treated with Plate Fixation and Autogenous Cancellous Graft: First Clinical Report

Purpose

Various techniques, often involving vascularized corticocancellous bone grafting, have been proposed to treat scaphoid AVN, 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 13 consecutive scaphoid AVN cases in 12 patients treated with volar 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

The average patient was 32 years old and treated an average of 18 months after initial injury, with mean follow-up was 19.5 months. Union was achieved in all patients, and average time to union was 17 weeks. Mean DASH score improved from 30.6 to 17.2. Mean visual analogue scale (VAS) improved from 7.5 to 3.1. All 11 employed patients returned to work, although 3 did not return to full capacity. Of the 7 patients who reported involvement in athletic activities, 5 returned to previous level of activity. Grip strength improved from 75.3% of the non-operative side pre-operatively, to 89.8% post-operatively. Flexion, extension, UD, and RD improved to 49, 40 28, and 16 degrees, respectively.

Conclusion

Scaphoid plate fixation and pure non-vascularized cancellous bone grafting for scaphoid AVN yields union rates and patient outcomes which are comparable or superior to those previously reported using other more complex techniques, such as vascularized bone grafting techniques.