

Outcomes of Concomitant Open Reduction Internal Fixation and Endoscopic Carpal Tunnel Release for Treatment of Distal Radius Fractures with Carpal Tunnel Syndrome

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Objective

- To evaluate the clinical and functional outcomes of concomitant open reduction internal fixation (ORIF) of distal radius fractures (DRF) and endoscopic carpal tunnel release (ECTR) in patients with new or worsening carpal tunnel syndrome (CTS) symptoms following DRF

Methods

- Patients aged 18 years or older who underwent ORIF of a DRF with concomitant antegrade single portal ECTR under regional anesthesia performed by one of three fellowship trained orthopedic hand surgeons were identified
- Patients were indicated for concomitant ECTR if they had significant new or worsening dysesthesias or numbness in the median nerve distribution after DRF
- Electronic health records and radiographs were reviewed for demographics, injury & surgical data, clinical outcomes, and fracture healing
- Patients were contacted at 6 months minimum follow-up and interviewed regarding complications, return-to-work, postoperative satisfaction, and to complete the Boston Carpal Tunnel Questionnaire (BCTQ) and VAS-pain score questionnaire

Results

- Twelve (75.0%) of sixteen eligible patients, with mean age 57.7 ± 11.3 years, were successfully contacted
- Eleven patients (91.7%) were females and one (8.3%) was male
- Eight patients (66.7%) sustained their injuries from a low energy injury mechanism, while the remaining injuries were due to high energy trauma
- Six patients (50.0%) injured their dominant wrist
- Five patients (41.7%) reported chronic CTS symptoms prior to their fracture, but none had received prior CTS surgery
- Mean ASA class and operative time were 1.9 ± 0.7 and 60.5 ± 14.3 minutes, respectively
- Average follow up was 12.2 ± 6.8 months postoperatively (Table 1)
- There were no intra- or postoperative complications
- Average return-to-work time for the 8 patients who were employed was 21.7 ± 33.3 days
- All fractures achieved radiographic union
- Eleven patients (91.7%) reported being completely satisfied, and 1 (8.3%) somewhat satisfied, with their surgical outcome
- Mean total postoperative BCTQ score was 1.2 ± 0.2 out of 5
- BCTQ Symptom Severity and Functional Status subscores were 1.3 ± 0.3 and 1.1 ± 0.2 , respectively
- The mean postoperative VAS-pain score was 0.8 ± 0.8 out of 10

Conclusions

- Concomitant distal radius ORIF and ECTR is a safe and effective option to treat patients who sustain distal radius fractures with new or worsening CTS symptoms
- Future Prospective studies are required to compare this technique to open carpal tunnel release at the time of ORIF DRFs

Table 1. Clinical and Functional Outcomes	n = 12
Follow up (months \pm SD)	12.2 ± 6.8
Complications (%)	0 (%)
Return-to-work time (days \pm SD) (n = 8)	21.7 ± 33.3
Radiographic union (%)	12 (100%)
Satisfaction with Surgical Outcome	
Unsatisfied	0 (0%)
Somewhat Satisfied	1 (8.3%)
Completely Satisfied	11 (91.7%)
Total BCTQ Score (mean \pm SD)	1.2 ± 0.2
BCTQ Symptom Severity Subscore (mean \pm SD)	1.3 ± 0.3
BCTQ Functional Status Subscore (mean \pm SD)	1.1 ± 0.2
VAS-pain Score (mean \pm SD)	0.8 ± 0.8