

## Tarsal Tunnel Release: Medium-Term Outcomes and Complications

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**Introduction/Purpose:** Tarsal tunnel release is a standard surgical treatment for patients who have tarsal tunnel syndrome and failure of conservative treatment. However, there remains little evidence demonstrating the medium-term of functional outcomes and complications of tarsal tunnel release. The purpose of this study was to report functional outcomes and complications of tarsal tunnel release.

**Methods:** Retrospective chart review with prospectively collected data of 79 consecutive patients with 87 feet (primary surgery = 74/80 and revision surgery = 5/5) who were diagnosed with tarsal tunnel syndrome and underwent tarsal tunnel release between 2008 and 2014. Diagnosis bases on history and physical examination. All patients were failure of conservative treatment at least 6 weeks and the minimum follow up to be included in the study was 12 months (mean, 32.2 months; range, 12 to 80 months). The primary outcome was visual analogue scale (VAS), Short Form-36 (SF-36); physical and mental component scores, and Foot Function Index (FFI); pain, disability, activity limitation, and total score. Pre- and post-operative SF-36, and Foot Functional Index (FFI), pain (Visual Analog Scale) were obtained and compared using pair t-test. The secondary outcomes were operative time, time to return to activity of daily living and work, and complications. Mann-Whitney U-test was used to compare non-parametric data and Wilcoxon signed ranks test was used to compare parametric data.

**Results:** The VAS was significantly decrease from 7.6 to 2.0 ( $p = 0.001$ ) and SF-36 was significantly improved from 33.2 to 40.2, for PCS ( $p = 0.001$ ) and 47.7 to 49.7 for MCS ( $p = 0.005$ ). The FFI was significantly decreased from 63.0 to 36.0, 61.9 to 35, 72.5 to 34.9, and 65.8 to 35.3 for pain, disability, activity limitations, and total scores ( $p = 0.001$ , all). Mean operative time was 36.1 minutes for primary surgery and 54.8 minutes for the revision surgery. There 45 of 87 feet (51.7%) had positive Tinel test pre-operatively and 9 of 87 feet (10.3%) post-operatively. Revision surgery demonstrated significantly worse outcomes (VAS, SF-36, and FFI) compared to primary surgery ( $p < 0.05$ ) but duration  $> 12$  months and Tinel sign did not affect the outcomes compared to duration  $> 12$  months and Tinel sign negative ( $p > 0.05$  all). An average time to return to activity of daily living and work was 8.1 and 9.5 weeks. Complications were painful scar (14.9%), wound infection (6.9%), CRPS (2.3%), and paresthesia on the foot (20.7%).

**Conclusion:** Tarsal tunnel release demonstrated significant improvement of functional outcomes and pain relief in medium-term follow-up as measured with SF-36, FFI, and VAS. Revision surgery demonstrated less favorable outcomes while pre-operative Tinel test and duration of symptom more than 12 months did not affect the outcome. This procedure was effective and feasible for tarsal tunnel syndrome with minor complications.

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