

## Effectiveness of Minimal Incision Surgical Decompression in Patients with Tarsal Tunnel Syndrome

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### Abstract

**Background:** Tarsal tunnel syndrome may occur from different causes, including fibrosis or thickening of osteofibrous structures in the tarsal canal. Surgical treatment mainly involves open decompression and release of the tibial nerve. Recently, minimal-incision decompression has been trending due to more advanced surgical techniques and aiming to provide good patient satisfaction scores.

**Objectives:** to evaluate the effectiveness of minimal incision surgical decompression in patients with tarsal tunnel syndrome and to explore different factors that affect postoperative pain scores.

**Methods:** All patients with tarsal tunnel syndrome indicated for surgery who underwent minimal incision decompression were included in the period between March 2018 till July 2022. The study was revised and approved by the Fayoum University Supreme Ethical Committee and conducted at the neurosurgery department, Fayoum University Hospital, Egypt. The pain was measured pre- and postoperatively by visual analog scale (VAS) from 0 to 10, where 10 is the maximum perceived pain. Complications were recorded, and correlation analyses were conducted to explore factors affecting postoperative pain.

**Results:** A total of 18 patients were included in this retrospective cohort study. The mean VAS preoperative burning pain in the sole was  $8.056 \pm 1.023$ , while the mean postoperative VAS score was  $4.11 \pm 1.31$ . We found a statistically significant difference between both the pre-operative and postoperative pain scores  $P < 0.001$ . The mean S-LANSS pain score was  $18.11 \pm 2.45$ , while the average duration of surgery was  $21.78 \pm 4.91$  minutes. Postoperative edema was noted in 33% of participants. Correlation analysis revealed a significant reduction in pain scores in younger patients compared with older patients and that older age is associated with increased postoperative VAS pain scores ( $r=0.803$ ,  $p<0.01$ ). Interestingly, we found that postoperative pain score is negatively correlated with the duration of surgery ( $r= -0.521$ ,  $p=0.03$ ).

**Conclusion:** Minimal incision surgical decompression provides a safe, effective, and reliable option for treating patients with TTS. Patients with younger age and no comorbidities experience better reductions in pain scores. Postoperative edema remains a complication that require