

Post-Traumatic Stress Disorder Associated with Trigeminal Neuralgia: A Post-Treatment Survey

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Abstract

Trigeminal neuralgia (TN) is a debilitating neuropathic pain disorder often requiring surgical intervention, such as microvascular decompression (MVD) or percutaneous glycerol rhizotomy, when medical therapy fails. While surgical outcomes focus on pain relief, psychological sequelae remain underexplored. Emerging evidence suggests post-traumatic stress disorder (PTSD) may occur in this population. In this study, 50 TN patients who underwent MVD (n=24) or glycerol rhizotomy (n=26) completed a telephone questionnaire based on the PTSD Checklist for DSM-5 (PCL-5). Probable PTSD was defined as a PCL-5 score ≥ 30 . Six patients (12%) met criteria for probable PTSD. Selective serotonin reuptake inhibitors (SSRIs) use was significantly higher among patients with probable PTSD compared to those without (83.3% vs. 15.9%, $p = 0.002$). Mean PTSD symptom severity was higher in the glycerol rhizotomy group compared with MVD, though overall PTSD prevalence did not differ. These findings highlight the importance of incorporating routine psychological screening and long-term psychiatric follow-up into the management of patients with TN.

Introduction

Trigeminal neuralgia (TN) is a chronic neuropathic pain disorder characterized by severe, episodic facial pain that significantly impairs quality of life. When pharmacologic therapy fails or is poorly tolerated, surgical interventions such as percutaneous glycerol rhizotomy and microvascular decompression (MVD) are commonly employed and are well established for pain relief.

While surgical outcomes for TN have been extensively studied with respect to pain control and complication rates, the psychosocial consequences of TN and its treatment remain poorly characterized. The severe and unpredictable nature of TN pain, along with repeated medical and surgical interventions, may predispose patients to long-term psychological distress. Emerging evidence suggests that post-traumatic stress disorder (PTSD) may represent an underrecognized outcome in this population, even following successful surgical management.

This study evaluates the prevalence of PTSD among patients with trigeminal neuralgia following glycerol rhizotomy or microvascular decompression, highlighting the importance of addressing mental health outcomes alongside traditional measures of surgical success.

Methods and Materials

Patients with a prior clinical diagnosis of trigeminal neuralgia who had previously undergone percutaneous glycerol rhizotomy or microvascular decompression were identified for inclusion in this study. All participants provided verbal informed consent prior to survey administration, and all identifiable features were removed.

PTSD symptoms were assessed using a telephone-administered questionnaire based on the PTSD Checklist for DSM-5 (PCL-5), a validated self-report instrument. A total of 100 patients were contacted, of whom 50 agreed to participate in the survey. Participants were classified as having *probable PTSD* using a predefined cutoff score of ≥ 30 on the PCL-5.

Descriptive statistics were used to summarize demographic and clinical characteristics. Group comparisons were performed using independent-samples *t*-tests for continuous variables and Fisher's exact tests for categorical variables, with odds ratios calculated to estimate effect sizes. Statistical analyses were conducted to evaluate associations between surgical treatment type and PTSD symptom burden.

Table 1. Number of Patients with Probable PTSD vs Sub-threshold values

	PTSD	Sub-threshold	Total
Glycerol Rhizotomy	4	22	26
MVD	2	22	24
Total	6	44	50

Percentages	PTSD	Sub-threshold
Glycerol Rhizotomy	15.38%	84.62%
MVD	8.33%	91.67%

Results

A total of 50 patients participated in the study (66.0% female; mean age 64.0 ± 10.4 years). Of these, 24 patients (48.0%) underwent microvascular decompression and 26 (52.0%) underwent percutaneous glycerol rhizotomy. Thirty-three patients (66.0%) reported purely paroxysmal pain, and none had a documented history of PTSD prior to TN diagnosis or surgical intervention.

Overall, 6 patients (12.0%) met criteria for *probable PTSD* based on a PCL-5 score ≥ 30 . Thirteen patients (26.0%) reported current use of medications commonly prescribed for PTSD-related symptoms. Use of SSRIs was significantly higher among patients meeting criteria for probable PTSD compared with those without PTSD (83.3% vs. 15.9%, $p = 0.002$).

Mean PTSD symptom severity scores differed significantly by surgical modality, with higher scores observed in patients treated with glycerol rhizotomy compared to those undergoing microvascular decompression (15.9 ± 14.5 vs. 8.67 ± 8.88 , $p = 0.037$). However, the overall prevalence of probable PTSD did not differ significantly between the glycerol rhizotomy and MVD groups (15.4% vs. 8.3%, $p = 0.67$). Similarly, the odds of developing PTSD were comparable between surgical groups (OR = 2.00, 95% CI [0.42–11.2], $p = 0.67$).

Estimation Plot

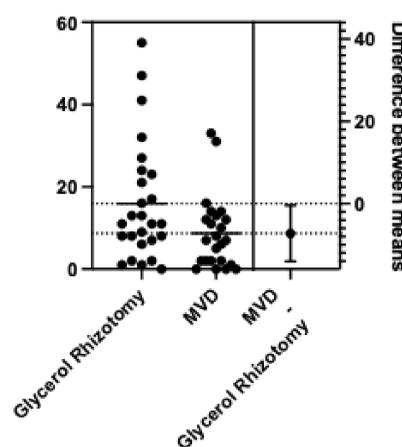


Chart 1. Mean PTSD score, $p = 0.037$

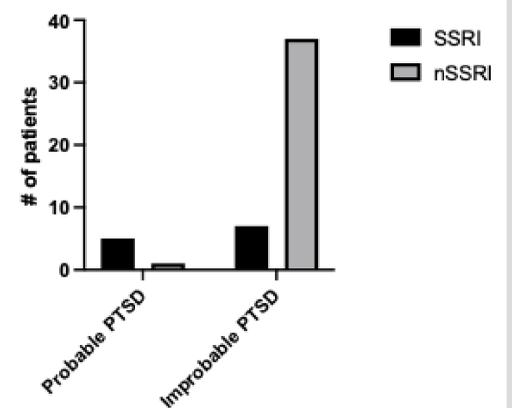


Chart 2. Use of SSRI per PTSD condition, $p = 0.002$.

Discussion

A subset of patients with surgically treated trigeminal neuralgia met criteria for probable PTSD despite no prior diagnosis, highlighting an underrecognized psychological burden in this population. Although PTSD prevalence did not differ significantly between microvascular decompression and glycerol rhizotomy, patients undergoing glycerol rhizotomy demonstrated higher PTSD symptom severity, suggesting potential differences in perioperative or postoperative stress experiences.

The strong association between probable PTSD and SSRI use supports the clinical relevance of these findings and indicates that psychological symptoms may already be treated without formal diagnosis.

While limited by sample size and self-reported measures, these results emphasize the importance of incorporating psychosocial outcomes into assessments of surgical success and support further longitudinal investigation into PTSD following trigeminal neuralgia treatment.

Conclusions

Patients undergoing glycerol rhizotomy for trigeminal neuralgia demonstrated greater PTSD symptom severity compared to those treated with microvascular decompression, although the overall incidence of probable PTSD did not differ between groups. These findings highlight the importance of integrating routine psychological and psychiatric assessment into long-term follow-up care for patients with trigeminal neuralgia.

Contact

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