

Follow Up Study on Intra-Operative Glycerin Injection for Trigeminal Neuralgia

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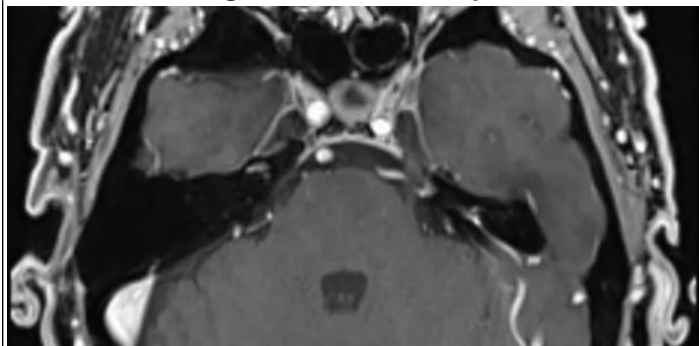
Introduction

- Trigeminal neuralgia is a devastating neuropathic pain condition that affects the fifth cranial nerve.
- Many patients continue to suffer from refractory pain despite conservative management, such as medications and glycerin rhizotomy.
- Other patients do not have adequate compression of the trigeminal nerve intra-operatively, rendering MVD alone as an unlikely modality for pain relief.
- We have previously demonstrated significant symptomatic improvement following direct intra-operative glycerin injection in 14 patients.
- We aim to present additional follow up data in patients treated with direct glycerin injection during MVD surgery.

Methods

- We retrospectively reviewed 464 patients with trigeminal neuralgia seen by the senior author between 08/2008 and 10/2016.
- Patients were offered MVD surgery if they demonstrated clinical symptoms and radiologic evidence of vascular compression.
- Those who received intra-operative glycerin injection during MVD surgery were identified.
- Demographic characteristics, baseline symptoms, and follow-up outcomes were reported.

Evidence of Trigeminal Nerve Compression on MRI

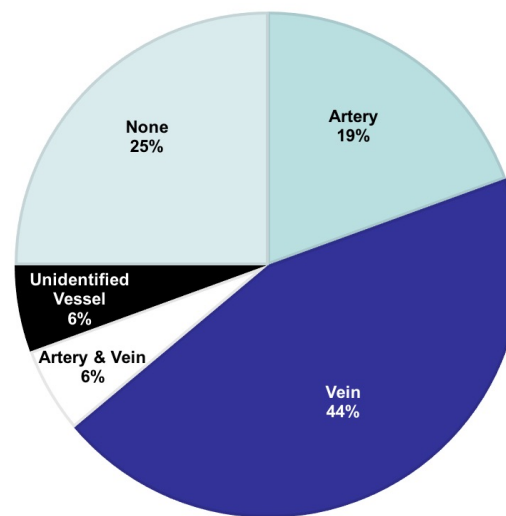


Radiographic evidence of vascular compression of the trigeminal nerve was used to evaluate patients for MVD surgery.

Results

- 36 patients underwent intra-operative glycerin injection, including 25 (69.4%) female patients.
- 41.7% of patients received previous interventions besides medications, including rhizotomy, radiation, and MVD surgery.
- The most common reason for receiving intra-op glycerin injection was venous compression only (44.4%), followed by unimpressive (27.8%) or no (25.0%) vascular contact.
- The average follow up duration was 8.63 ± 12.5 months, with 3 patients lost to follow up.
- Of those with follow up, 100% of patients experienced improvement at first follow up, and 75.8% remained pain free at last follow up.

Intra-Operative Vascular Contact



Intra-operative identification of the offending vessel demonstrates a predominate venous compression.

References

Goodwin CR, Yang JX, Bettegowda C, et al. "Glycerol rhizotomy via a retrosigmoid approach as an alternative treatment for trigeminal neuralgia." *Clin Neurol Neurosurg.* 2013;115(12):2454-2456. doi:10.1016/j.clineuro.2013.09.009.

Patient Outcomes Following Intra-Operative Glycerin Injection

Parameters	Intra-Op Glycerin (N=36)
Follow Up Duration, mean (sd)	8.63 (12.54)
Improvement at First Follow Up	
Better, n (%)	33 (91.7)
Unknown, n (%)	3 (8.3)
TN Pain at 1 Month Follow Up	
No, n (%)	32 (88.9)
Yes, n (%)	1 (2.8)
Unknown, n (%)	3 (8.3)
TN Pain at Last Follow Up	
No, n (%)	25 (69.4)
Yes, n (%)	8 (22.2)
Unknown, n (%)	3 (8.3)
Additional Procedures	2 (5.6)
Medication at Last Follow Up, n (%)	12 (33.3)

The majority of patients had significant pain relief following MVD with intra-operative glycerin injection.

Limitations

- Small sample size with short follow up duration.
- Treatment decision made without strict preset selection criteria.

Conclusions

- Intra-operative glycerin injection is an effective technique to treat trigeminal neuralgia, resulting in positive outcomes in all patients.
- Most common reason for requiring this treatment was insignificant vascular contact found during surgery.
- A third of patients still require medications for pain relief following this procedure.

Learning Objectives

- Recognize the option of intra-operative glycerin injection for trigeminal neuralgia
- Understand the indications for selecting this technique
- Appreciate the positive outcomes of this therapeutic strategy