



Correlating Intraoperative Vessel Notations with Pain Outcome: A Retrospective Study

Marshall Thomas Holland MD; Jennifer Noeller ARNP; Connie Pieper MD; Yasunori Nagahama MD; Wenzhuan He MD, MS;

Patrick W. Hitchon MD

University of Iowa, Iowa City, IA, USA



Introduction

The authors wished to correlate the intraoperative findings during microvascular decompression (MVD) in typical trigeminal neuralgia (TN) with post-operative pain relief. To this end a retrospective review of our experience with MVD since 2004 was undertaken.

Methods

Sixty-six patients with TN underwent MVD and were followed for an average of 20 months ($SD \pm 29$ mo). At follow-up, outcome was assessed as successful (pain free) or failed (persistent pain). The operative notes and intraoperative photographs were reviewed to identify the presence or absence of vascular compression, and whether it was arterial, venous, or none. These findings were then correlated in a retrospective fashion.

Results

Sixty-six patients (58% female) had a mean age of 56 ($SD \pm 14$ years). The right side was affected more frequently 40/26 (right/left). There were 10 failures requiring subsequent treatment. Seven require daily medication. Three patients required additional surgical intervention. One required a second MVD followed by stereotactic radiation (SRS), a second patient underwent two treatments of SRS and a third required three treatments of percutaneous rhizotomy. Among the patients with a successful pain free outcome, intraoperative photographs revealed arterial compression in 48, venous in 5, and no compression in 3. Among the patients with MVD failure arterial compression was noted in 5, venous in 3, and nothing in 2. Arterial compression noted at the time of operation was significantly more likely to be present in a successful outcome than in the failures. (Chi square 5/10 vs. 48/56 =6.8422, $P=0.008903$)

Conclusions

Pain relief with MVD is more likely when arterial compression on the trigeminal nerve is identified at the time of surgical intervention. Outcomes could potentially be predicted by the presence or absence of an arterial loop. This information is important for providers counseling patients about surgery.

Learning Objectives

By the conclusion of this session, participants should be able to:

1. Know the general epidemiology and burden of trigeminal neuralgia in the general population and indications for surgical intervention
2. Understand the positive correlation between arterial vascular compression and improved pain outcome.
3. Understand that practitioners could console patients after surgery about the increased chance of long-term success if an arterial compression is noted may use this.

References

- 1.Burchiel KJ: Microvascular decompression for trigeminal neuralgia. J Neurosurg 114:171; discussion 171, 2011
- 2.Burchiel KJ, Clarke H, Haglund M, Loeser JD: Long-term efficacy of microvascular decompression in trigeminal neuralgia. J Neurosurg 69:35-38, 1988
- 3.Elias WJ, Burchiel KJ: Microvascular decompression. Clin J Pain 18:35-41, 2002