

## INTRODUCTION

- Trigeminal Neuralgia (TN) is a debilitating facial pain syndrome affecting one or more branches of the fifth cranial nerve.
- TN is characterized by episodes of electric shock-like pain which may arise spontaneously or be triggered by cutaneous stimuli, physical exercise, loud noises or emotional stress [1, 2].
- Various pharmacotherapies and neurosurgical procedures have been used for the management of paroxysmal facial pain caused by trigeminal neuralgia.
- Poorly-responsive or intolerant patients require alternative therapeutic approaches [3, 4].

## AIM

We describe the greater palatine block, a novel technique for management of V2 TN refractory to standard pharmacotherapy.

The clinical objective was to break the pain cycle thereby permitting subsequent discontinuation or reduction of analgesic medications.

## MATERIALS & METHODS

**Patients.** Three patients with unilateral refractory TN involving the maxillary nerve (V2) were treated at the Jewish General Hospital (JGH) in Montreal, Canada. These patients responded poorly to standard anti-neuralgia medications, including high doses of carbamazepine, gabapentin and pregabalin. The TN diagnostic criteria were those of the International Headache Society [1].

Written, informed consent approved by the JGH Ethics Committee was obtained from the participants.

**The V2 block.** A solution of 1.8 cc of 2% lidocaine with epinephrine 1:100,000 (Xylocaine® Dental; Dentsply Pharmaceutical, York, PA, USA) was injected using a 30-gauge needle (Monoject™; Covidien, Dublin, Ireland). The vasoconstrictor effects of epinephrine extend the duration of action of local anesthetics.

## MATERIALS & METHODS

**I.** The palatine block was performed through the greater palatine foramen ipsilateral to the side of the pain.

The palate was palpated with a cotton swab moving posteriorly from the 1<sup>st</sup> molar region to the 2<sup>nd</sup> molar until the foramen's depression was detected (Fig.1).



Figure 1. Area of insertion of the needle. Reproduced with permission from NYSORA (2006).

**II.** The surface tissue was cleaned and a topical anesthetic was applied (20% benzocaine; Topex®; Sultan Healthcare, York, PA, USA) for 2 minutes.

A 30-gauge needle was inserted approaching from the opposite side of the maxilla (Fig.2) and a small amount of anesthetic was injected into the soft tissue overlying the opening of the greater palatine canal to minimize discomfort.

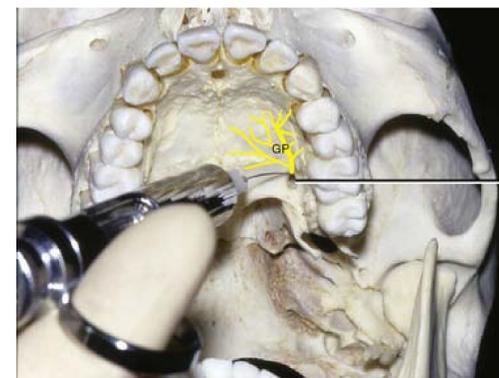


Figure 2. Location of the greater palatine foramen. Reproduced with permission from Pocket Dentistry (2015).

**III.** The needle was slowly advanced until the orifice of the greater palatine canal was located, and was then inserted approximately 2 cm into the canal. Aspiration was performed and, if negative, the anesthetic was injected (Fig.3).

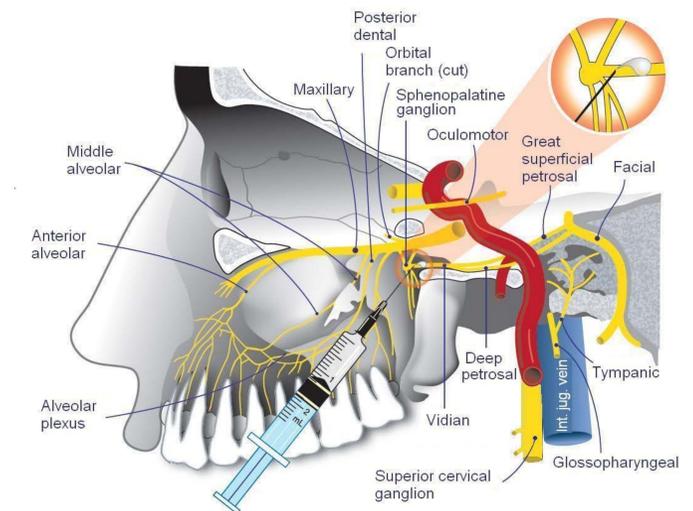


Figure 3. Location of the Gasserian ganglion.

## RESULTS

All three patients experienced rapid and fairly long-lasting pain relief, allowing for significant reduction in anti-neuralgia medications. Table 1 shows the patients' demographic and clinical data.

**Table 1: Summary of V2 TN cases treated with greater palatine block**

Case	Age (sex)	TN duration	Ethnicity	Previous medications	Date of GPB	Current medications	Outcome	Adverse events related to GPB
1	39 (F)	Newly diagnosed	Caucasian	Carbamazepine (1400 mg/day), gabapentin (300 mg/day)	March 2015	Carbamazepine (400 mg/day)	Total pain relief	None
2	57 (F)	Newly diagnosed	Caucasian	Carbamazepine (400 mg/day), pregabalin (75mg b.i.d.), aspirin (80 mg)	November 2014	Carbamazepine (200 mg/day), aspirin(80 mg)	Near-complete pain relief	None
3	66 (M)	17 years	Asian	Carbamazepine (800 mg/day), gabapentin (400 mg)	October 2002	Carbamazepine (400 mg/day)	Total pain relief	None

Abbreviations: F – Female; M – Male; GPB – Greater palatine block

## CONCLUSIONS

- Palatine block via the greater palatine foramen may be an effective treatment for medication-refractory V2 TN.
- The procedure is simple, safe and well-tolerated with few or no adverse effects.
- By interrupting the pain cycle, the palatine block may render the condition amenable to long-term control using diminished doses of standard anti-neuralgia pharmaceuticals.
- Randomized, controlled trials are required to confirm the utility of greater palatine block in managing V2 TN.

## REFERENCES

- [1] The International Classification of Headache Disorders, 3rd edition (beta version). *Cephalalgia* 33:629-808; 2013.
- [2] Maarbjerg, S.; Gozalov, A.; Olesen, J.; Bendtsen, L. Trigeminal neuralgia--a prospective systematic study of clinical characteristics in 158 patients. *Headache* 54:1574-1582; 2014.
- [3] Wiffen, P. J.; Derry, S.; Moore, R. A.; McQuay, H. J. Carbamazepine for acute and chronic pain in adults. *Cochrane Database Syst Rev*:CD005451; 2011.
- [4] Cruccu, G.; Truini, A. Refractory trigeminal neuralgia. Non-surgical treatment options. *CNS Drugs* 27:91-96; 2013.