Urgent care peripheral nerve blocks for refractory trigeminal neuralgia☆

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1. Introduction

Trigeminal Neuralgia (TGN) is defined as sudden, unilateral, severe, brief, stabbing (lancinating), recurrent episodes of pain in the distribution of one or more branches of the trigeminal nerve (typical V2, 3) [1,2]. With similar TGN definitions by the International Association for the Study of Pain, the International Headache Society, the American Academy of Neurology and the European Federation of Neurological Societies, severe paraesthesia, pain and poor quality of life are considered typical [1,2]. The annual incidence of TGN is ~5 in 100,000 [1]. The first line treatment for classic trigeminal TGN is pharmacotherapy. Patients with refractory pain often seek more invasive therapies such as microvascular decompression, rhizotomy, radiosurgery and peripheral neurectomy [1,2]. Gasserian ganglion blocks have been utilized for the treatment of refractory TGN since the 1960s, but there is limited data on the efficacy of the procedure [3,4]. Other gasserian ganglion level procedures such as radiofrequency thermocoagulation, balloon compression and glycerol gangliolysis have also been utilized. Although many of these procedures have demonstrated some effectiveness, they require expert level technical skill and are neurodestructive by nature. Reported adverse effects include sensory loss and dysesthesia [2].

Peripheral nerve procedures such as peripheral neurectomy, cryotherapy, and glycerol injections have been performed in patients in which ganglion level procedures are contraindicated. These interventions tend to be safer, but their long term efficacy remains in question [2]. Peripheral trigeminal nerve blocks (PTNB) for TGN have also been reported, [5] and can help avoid opioid therapy in the urgent care setting. We report a series of nine patients (Table 1) with intractable primary TGN who underwent PTNB in the urgent care setting (Video 1), after failing conservative medical therapy.

2. Materials and methods

2.1. Study design

This was a retrospective case-series, where patients received PTNB for TGN that was not responding to medication trials. The Boston Medical Center Institutional Review Board approved the study design.

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2.2. Patients

Only urgent care patients that met the definition for “classic” trigeminal neuralgia were included (pain being reported as >8/10), where pain distribution was over V2 and V3 [1,2].

2.3. Setting

Cases were retrospectively collected over 2 years in urgent care at a large urban medical center.

2.4. Interventions

All patients had informed consent taken, risks including bleeding, infection, eye drop, and nerve damage were reviewed. Though the supraorbital nerve supplies V1, the intersection of V1–V2 (the eye) is a common area of complaint, and the supraorbital foramen was included in the PTNB. The supra/infrorbital foramens were palpated for orientation. After antiseptic skin preparation, a 30 g needle was inserted localizing to the supra and infraorbital foramens and advanced until the needle approached periosteum/bone. 0.5 mL of 0.25% bupivicaine:1% lidocaine (2 mL bupivicaine, 1 mL lidocaine) was injected (both sites) and another 0.5 mL in the area of the mental foramen. Also, 1 mL of the above was injected in the region of the auriculotemporal nerve. All injections were done on the side with TGN pain, by physicians with varying injection experience. The patients tolerated the procedure well, and appreciated immediate benefit. (Video 1).

2.5. Measure and outcomes

Patient demographics and medical history were recorded. Patients were followed clinically: subjective pain relief, medication changes, procedures, and surgeries were recorded.

2.6. Data analysis

Patient subjective pain reports and need for additional procedural or surgical interventions was analyzed. Statistical analysis was not performed.

3. Results

All nine patients experienced immediate (>50%) pain relief with 7 of 9 patient being pain free or just mild paresthesia; making TGN symptoms acutely managed. 6 of 9 patients achieved sustained pain relief lasting from 1 to 8 months. Of these six patients, three patients reported pain that was now tolerable with adjunct medication and two patients reported being completely pain free. The three patients who did not achieve benefit went on to Gasserian Ganglion balloon compression or surgical decompression for pain relief, but only one of the six patients who received benefit from PTNB required more invasive balloon compression (Table 1).

4. Discussion

The treatment paradigm for primary TGN remains unclear when a patient fails conservative medical therapy. Accordingly, it is important to tailor subsequent therapy to the patients’ needs. Patients who are averse to undergoing surgical procedures due to age or potential adverse effects may want to explore less invasive methods. PTNB require minimal expertise to perform and are fast and safe compared to invasive ganglion level procedures [2]. Furthermore, in the urgent care setting PTNB provide pain relief without use of opioid medication. No significant facial bleeding or scarring was seen in our case series. Physicians performing peripheral blocks had varying experience, and this did not appear to affect outcomes. No placebo or sham trials were performed.
and while all patients reported unilateral acute facial numbness, acute placebo effects and relating to sustained benefit (beyond the duration of bupivacaine) are certainly possible.

5. Conclusions

The treatment paradigm for TGN remains unclear when a patient fails conservative medical therapy. PTNB can provide acute pain relief in the urgent care setting, but may provide subacute pain relief as well. PTNB can be a simple safe alternative compared to the opioids, invasive ganglion level procedures, or surgery.

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Disclosures/competing interests

Drs. Perloff and Chung report no disclosures, no declarations, none.

Conflicts of interest

None.

Consent/ethics

Patient consent was taken for the video portion of the submission. Case series data was not collected, part of routine clinical care, IRB approval.

Author contributions

Both authors: study concept and design; analysis and interpretation of data; critical revision of manuscript for intellectual content.

References