

Case Report

Peripheral Neurectomy of Inferior Alveolar Nerve - A Treatment Option for Trigeminal Neuralgia: A Case Report

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Abstract: Trigeminal neuralgia (TN) is defined as sudden, usually unilateral, severe, brief, stabbing, lancinating, paroxysmal, recurring pain in the distribution of one or more branches of 5th cranial nerve. ‘Tic Douloureux’ and ‘Fothergill’s disease’ are the synonyms used to describe the same disease. In spite of the condition being known since centuries, it still continues to baffle the clinician and its pathogenesis remains an enigma to the medical profession. Multiple views have been hypothesized regarding its etiology generating nothing but confusion, and simultaneously opting for many different therapies in an effort to treat this ongoing condition. The purpose of this paper is to present a patient with a case of trigeminal neuralgia who was suffering from severe throbbing pain for 2 years and treated with Carbamazepine with no significant effect. The patient was treated and cured with peripheral neurectomy under general anesthesia.

Keywords: Inferior alveolar nerve, Local anaesthesia, Peripheral neurectomy, Trigeminal neuralgia

INTRODUCTION

Trigeminal neuralgia (TGN) is a disorder characterized by short paroxysms of high-intensity facial pain affecting the distribution of the trigeminal nerve [1]. In 1773, John Fothergill presented a paper to the Medical society of London with a full account of TGN. He gave a detailed description of the condition, which includes paroxysms of unilateral facial pain, evoked by eating or speaking or touch, starting or ending abruptly, and associated with anxiety [2].

Hence TGN is also called Fothergill’s disease. Nicolaus Andre is credited with the recognition of trigeminal neuralgia as a new clinical entity in 1756 and used the term ‘tic douloureux’ [1, 2].

According to ICHD II criteria, it is defined as “a unilateral disorder characterized by brief electric shock-like pain, abrupt in onset and termination, limited to the distribution of one or more divisions of trigeminal nerve, pain is commonly evoked by trivial stimuli including washing, shaving, and smoking, talking or brushing the teeth (trigger factors) and frequently occurs spontaneously” [3].

Different theories have been suggested on etiology of TGN, among which is that the painful paroxysms result from epileptic seizures in the brain stem trigeminal structures. Others include trigeminal root compression by arterial loops of cerebellar artery, or occasionally by tumors, cysts, arteriovenous malformations, or aneurysms. An older theory described a peripheral etiology [4].

Sweet’s criteria to diagnose trigeminal neuralgia are:

1. The pain is paroxysmal
2. The pain may be provoked by light touch to the face (trigger zone)
3. The pain is confined to trigeminal distribution
4. The pain is unilateral
5. The clinical sensory examination is normal [5].

There are 2 main treatment options for TGN, namely pharmacotherapy and neurosurgical procedures. Pharmacotherapy includes the use of antiepileptic

druglike carbamazepine, with secondary drug choices being baclofen, lamotrigine, oxcarbazepine, phenytoin, gabapentin, and sodium valproate. Surgical treatment is an alternative for patients who do not respond well to medical therapy or are severely affected by their side effects. Surgical approaches can be targeted either on the peripheral nerve or on the trigeminal ganglion. Microvascular decompression (MVD), which targets the trigeminal ganglion, is one of the most successful neurosurgical procedures in treating TN. Other central procedures include radiofrequency neurolysis, balloon compression procedures, and stereotactic gamma knife radiosurgery. Peripheral neurectomy, cryotherapy, botulinum toxin, and peripheral nerve injection with glycerol/alcohol or streptomycin are some other options that produce temporary relief and are useful for patients who are unfit to undergo major neurosurgery [4].

This case report presents a case of trigeminal neuralgia involving third division of the trigeminal nerve and the patient was treated by peripheral neurectomy of inferior alveolar nerve.

CASE REPORT

A 50-year-old male patient reported to the Department of Oral and Maxillofacial Surgery with a chief complaint of acute bouts of pain on right side of face, which was lancinating and electric shock type lasting for few minutes, triggered on washing face, talking and eating food since 2 year. The patient was not responding to carbamazepine. A detailed history was taken and comprehensive trigeminal nerve examination

and cranial nerves examination was carried out. Diagnostic block in inferior alveolar nerve region with 2% lignocaine with 1:80,000 adrenaline was given, which has relieved the symptoms for 2 hours. There was recurrence of the symptoms on touching the trigger zones when once the anaesthetic effect wore off. This confirmed the involvement of inferior alveolar nerve and was suggestive of trigeminal neuralgia involving inferior alveolar nerve.

All the reports were in the normal limits. The peripheral neurectomy of inferior alveolar nerve was planned under General Anaesthesia.

Inferior alveolar nerve was approached intra orally by Dr Ginwalla's incision; the nerve was identified and avulsed from the distal end (Fig-1).

Vestibular incision in premolar region was made; the mental nerve was identified & avulsed from the mental foramen and from the soft tissues (Fig-2).

The nerve was carefully separated from surrounding tissues and held with an artery forceps, the nerve was avulsed by winding around the artery forceps (Fig-3).

The remaining nerve remnants were cauterized deeply. Wound closure was done in two layers using 3-0 vicryl. The patient is asymptomatic for the past 4 years and on regular follow ups.



Fig-1: Tying a thread to inferior alveolar nerve



Fig-2: Detaching inferior alveolar nerve from canal



Fig-3: Avulsed nerve

CONCLUSION

Long term follow up is required to establish the effectiveness of peripheral neurectomy on trigeminal neuralgia.

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