Available online at https://www.mmpubl.com/

International Journal of Cranio-Maxillofacial Surgery & Rehabilitation

Case Report

Minimally Invasive Procedure for treating Trigeminal Neuralgia - A Case Report

Jayaindhraeswaran J [1], Senthil Nathan P [2]

Postgraduate [1], Professor [2], Department of Oral and Maxillofacial Surgery, Saveetha Dental College And Hospitals, Saveetha Institute of Medical And Technical Sciences(SIMATS), Saveetha University, Chennai.

How to cite: *Jayaindhraeswaran J, Senthil Nathan P, Minimally Invasive Procedure for treating Trigeminal Neuralgia - A Case Report.Int J Cranio Maxillofac Surg Rehab Volume 2022, Article ID 22583205, 5 pages.*

Received:20/06/22 *Accepted:13/07/22* *Web Published:29/07/22*

Abstract

Trigeminal nerve is the largest of all the cranial nerves. Disease involving the nerve can cause Trigeminal neuralgia or loss of sensory or motor function in the distribution of the nerve. Trigeminal neuralgia (TN) is a sudden, sharp, severe, intermittent, lancinating, usually unilateral facial pain in the distribution of one or more divisions of the trigeminal nerve, lasting from a fraction of a second to minutes and is triggered by trivial cutaneous or intraoral stimuli. Trigeminal neuralgia is a commonly diagnosed neurosensory disease of head, neck and face region, involving 5th cranial nerve. Peripheral neurectomy has been reported as a successful treatment by many surgeons for the treatment of trigeminal neuralgia.

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

Address for Correspondence:
Jayaindhraeswaran. J
Post Graduate Student
Department of Oral and Maxillofacial Surgery
Saveetha Dental College And Hospitals,
Saveetha Institute of Medical And Technical Sciences (SIMATS),
Saveetha University, Chennai 600077.
Email: eshwaran.jjjj@gmail.com
Contact number: 7200500633

INTRODUCTION

Trigeminal nerve is the largest of all the cranial nerves. Disease involving the nerve can cause trigeminal neuralgia or loss of sensory or motor function in the distribution of the nerve [1]. The commonest cause is vascular compression by tortuous vessel (superior cerebellar artery). Trigeminal neuralgia is a neuropathic disorder characterized by episodes of intense pain in the face, originating from the trigeminal nerve. The mandibular branch of the trigeminal nerve is involved more commonly than the maxillary branch [2].

International Headache Society diagnostic criteria: [3]

1.Paroxysmal attacks of pain lasting from a fraction of a second to 2 min, affecting one or more divisions of trigeminal nerve and fulfilling criteria 2 and 3

2. Pain has at least one of the following characteristics

    a. Intense, sharp, superficial or stabbing

    b. Precipitated from trigger areas or by trigger factors

3. Attacks are stereotyped in the individual patient

4. There is no clinically evident neurological deficit

5. Not attributed to another disorders

Sweet's Criteria: [4]

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.

Carbamazapine is the drug of choice in the management of trigeminal neuralgia followed by Peripheral nerve blocks with alcohol or lidocaine in the branches of trigeminal nerve; or injecting botulinum toxin type A (Botox) into the trigger zone of trigeminal neuralgia. Surgical approaches can be targeted either on the peripheral nerve or Microvascular de compression [5].

Peripheral neurectomy is a simple surgical procedure with good success rates. This report presents a case of trigeminal neuralgia involving third division of the trigeminal nerve and the patient was treated successfully by peripheral neurectomy of inferior alveolar nerve [6].

CASE REPORT

A 65-year-old male patient reported to the Department of Oral and Maxillofacial Surgery with a chief complaint of pain in left lower tooth which was lancinating and electric shock type lasting for few minutes, triggered on washing face, travelling, eating food. The patient was not responding to carbamazepine. Diagnostic block in

inferior alveolar nerve region with 2% lignocaine with 1:80,000 adrenaline was given, the symptoms for relieved and the recurrence of the symptoms. This conformed the involvement of inferior alveolar nerve and suggestive of trigeminal neuralgia involving inferior alveolar nerve.

Under general anesthesia, Inferior alveolar nerve was approached intra orally by Dr. Ginwalla's incision and the nerve was identified (Figure 1), avulsed from the distal end. Vestibular incision in premolar region was taken; the mental nerve was identified (Figure 2) and avulsed from the mental foramen and from the soft tissues. Nerve was totally removed (Figure 3) and the wound was closed. During one year postoperative review, the patient was asymptomatic and quality of life had significantly improved.

Figure 1. Exposure of inferior alveolar nerve

Figure 2. Exposure of mental nerve

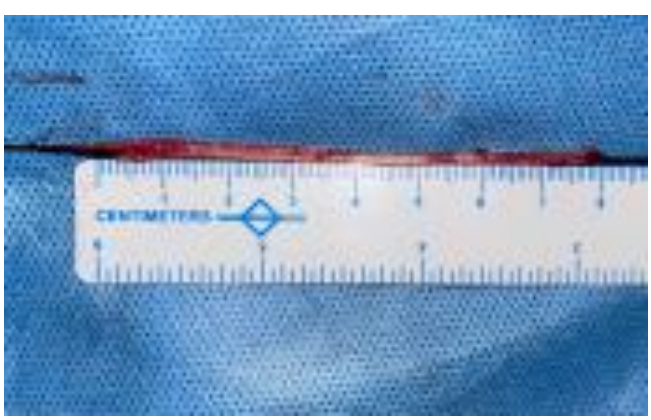

Figure 3. Avulsed nerve

DISCUSSION

Carbamazepine, is still found to be the drug of choice in the management of trigeminal neuralgia [7]. However, long term therapy with carbamazepine can lead to serious consequences like (i) hemopoietic depression (ii)

aplastic anemia (iii) abnormalities in liver functions [8]. Peripheral neurectomy is done by dividing or avulsing a peripheral branch of the trigeminal nerve, and thus the maxillofacial surgeon can achieve an exact, complete and long-lasting effect. Peripheral neurectomy can be done on the supraorbital and supratrochlear/ infratrochlear/lacrimal nerves, the infraorbital nerve and the inferior alveolar, lingual and mental nerves [9]. It is preferable in elderly and debilitated patients who are contraindicated for major neurosurgeries. Peripheral neurectomy is a preferred treatment modality for trigeminal neuralgia as it has a very minimum risk of morbidity [10].

CONCLUSION

Peripheral neurectomy provides short to medium-term good pain control. The preoperative severity of pain, anxiety, and depression levels improved markedly after the procedure. Minimal side-effects, faster postoperative recovery and good patient compliance was reported.

Financial support and sponsorship - Nil

Conflicts of interest - There are no conflicts of interest.

REFERENCES

1. Scrivani SJ, Mathews ES, Maciewicz RJ. Trigeminal neuralgia. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology. 2005 Nov 1;100(5):527-38.

2. Liu JK, Apfelbaum RI. Treatment of trigeminal neuralgia. Neurosurgery Clinics. 2004 Jul 1;15(3):319-34.

3. Zakrzewska JM. Insights, facts and stories behind trigeminal neuralgia. Trigeminal Neuralgia Association; 2006.

4. Gambeta E, Chichorro JG, Zamponi GW. Trigeminal neuralgia: An overview from pathophysiology to pharmacological treatments. Molecular pain. 2020 Jan;16:1744806920901890.

5. Ginwalla MS. Surgical treatment of trigeminal neuralgia of third division. Oral Surgery, Oral Medicine, Oral Pathology. 1961 Nov 1;14(11):1300-4.

6. Ong KS, Keng SB. Evaluation of surgical procedures for trigeminal neuralgia. Anesthesia progress. 2003;50(4):181.

7. Freemont AJ, Millac PA. The place of peripheral neurectomy in the management of trigeminal neuralgia. Postgraduate medical journal. 1981 Feb 1;57(664):75-6.

8. Syed Amjad S, Adnan K, Faisal Ali S, Zahid K. < The> role of peripheral neurectomies in the treatment of trigeminal neuralgia in modern practice.

9. Sung RR. Peripheral neurectomy as treatment for incipient trigeminal neuralgia. Oral Surgery, Oral Medicine, Oral Pathology. 1951 Mar 1;4(3):296-302.

10. Sahoo NK, Thakral A, Deb P, Roy ID. Histopathological evaluation of inferior alveolar neurovascular bundle in cases of trigeminal neuralgia. Journal of Maxillofacial and Oral Surgery. 2020 Mar;19(1):54-60.

Published by MM Publishers
https://www.mmpubl.com/ijcmsr