Case Report

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Peripheral Neurectomy of Lingual Nerve of Right Side Under Local Anesthesia

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ABSTRACT

Background: Peripheral neurectomy is a simple and effective surgical method of procedure widely performed throughout the world for the treatment of trigeminal neuralgia. At the acute conditions of pain, we have a case who had underwent a peripheral neurectomy on the affected right side of the face. She had a history of pain particularly in the evening and morning session for the past 3 years and patient reported to the dental operatory with a pain on both right and left side of the face, which was a acute, spontaneous, intermittent, sharp shooting, lancinating & severe in nature that occurs on particular triggering points. She also gave history of taking medication i.e. carbamazepine i.e. Tegritol since 2.5 years. According to her history, initially pain was reduced by taking medication. But as time passes intensity & episodes were increased. With increasing in the dosage of medication there was no difference in the intensity or no. of episodes was noted. Therefore neurectomy was planned for the patient and treatment was done under local Anesthesia with adrenaline. Neuralgia is severe pain along the course of a nerve. The pain occurs because of a change in structure or function due to irritation or damage of a nerve. Neurectomy has been reported as a successful treatment by many surgeons for the treatment of trigeminal neuralgia.

Keywords: Trigeminal neuralgia, Lingual neurectomy.

INTRODUCTION

Trigeminal neuralgia also known as prosopalgia, Serivani *et al.* [1] suicide disease [2] or Fothergill disease [3] is a neuropathic disorder characterized by episodes of intense pain in the face, originating from the trigeminal nerve. It is also known as tic douloureux [4]. It has been described as among the most painful conditions known to mankind [5]. It is estimated that 1 in 15,000 or 20,000 people suffer from Trigeminal neuralgia, although the actual figure may be significantly higher due to frequent misdiagnosis. In a majority of cases, Trigeminal neuralgia symptoms appear more frequently over the age of 50, it is more common in females than males [6]. After all options of conservative management and injection treatment have been failed; various surgical methods are used in order to relieve the patient of excruciating pain. Numerous surgical procedures are advocated for the treatment of trigeminal neuralgia [7]. Neurectomy is also the most effective procedure among the many and it is the procedure of surgically cutting through or removal of a nerve or a section of a nerve. This procedure may be performed, rarely, in cases of chronic pain where other treatments have failed. Neurectomy may cause some degree of numbness. This paper highlights a typical case of idiopathic trigeminal neuralgia involving lingual nerve branch

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mandibular division of trigeminal nerve. Peripheral neurectomy was performed under local anesthesia for the same branch i.e., lingual nerve on right side. The patient was followed regularly for a 5 year period and was free of any recurrence.

CASE REPORT

A 53 year old female patient was referred to the dental operatory by a general dental practitioner with acute bouts of severe pain on the right side evoked by perioral triggers. She was under medical therapy (Tab. Carbamazepine 200 mg, twice daily) for the past 2.5 years. Diagnosis was confirmed at our center by asking the patient to stop carbamazepine for a period of 3 days and by giving diagnostic test blocks of local anesthesia. Comprehensive head and neck examination with special attention to the trigeminal sensory system and cranial nerves was also performed. There was no sensory deficit involved. Odontogenic or nonodontogenic source for the pain was ruled out through a detailed intraoral examination of the dentition, oral cavity, oropharynx, salivary glands, and associated oral structures. Considering the patient's age and her reluctance to undergo invasive neurosurgical procedures under general anesthesia, treatment plan was advocated for peripheral neurectomy under local anesthesia.

The lingual nerve was accessed through a vestibular incision and the identified nerve trunk was avulsed out from the inferior alveolar canal. 100% alcohol was injected into the inferior alveolar canal through Foramen to burn the remaining nerve segment in the canal. Lingual neurectomy was performed through a vestibular incision. Muco-periosteal flap was reflected & lingual nerve was dissected out from the infra alveolar canal. Closure was performed through simple interrupted sutures with 3-0 vicryl. There was minimal edema post-operatively.

The patient was prescribed antibiotics (Cap. Amoxicillin 8 hourly for 3 days) and analgesics (Tab. Diclofenac Sodium 100mg – thrice daily – 3 days) and was discharged on the same day. Follow up was scheduled after 3 days and then every month for the next one year and every 3 months for the next 4 years. The patient was free of neuralgic pain symptoms all along the follow–up period.

Fig 1: Lingual neurectomy performed.

DISCUSSION

Trigeminal neuralgia is a well-recognized disorder characterized by lancinating attacks of severe facial pain. The diagnosis of trigeminal neuralgia is based primarily on a history of characteristic pain attacks that are consistent with specific, widely accepted research and clinical criteria for the diagnosis [1]. The cause of this disorder is widely unknown with various factors and pathogenesis put forward in the literature. Although, the pathogenesis of trigeminal neuralgia has not been fully elucidated, various invasive procedures have been described over the years. Few of the invasive surgical modalities include percutaneous stereotactic radiofrequency thermal lesioning of the trigeminal ganglion and/or root, Posterior fossa exploration and microvascular decompression (MVD) of the trigeminal root and Gamma Knife radiation to the trigeminal root entry (GKR).

Tatli M et al [8], conducted an analysis to report the long-term outcomes of surgical options of trigeminal neuralgia since the development of electronic databases. Twenty – eight studies mostly including microvascular decompression and radiofrequency thermorhizotomy were included in their analysis and all the studies had a minimum 5 years or more mean duration of follow-up. According to them, recurrence of pain affects at least 19% of patients undergoing any surgical treatment for trigeminal neuralgia.

Neurectomy is the oldest of all procedures [9]. This is one of the simplest surgical method for treatment of trigeminal neuralgia [2]. Few of the advantages of peripheral neurectomy include ease of performing the surgery, well tolerated by elderly or debilitated patients. The patient can be sent home either the day of surgery or the following day.

Murali R et al. [10], reported a series of 40 patients who underwent surgical intervention for trigeminal neuralgia. Peripheral neurectomy was performed in 12 patients as a primary procedure and as a secondary procedure following radiofrequency thermo coagulation in 28 patients [10]. According to them, 79% had excellent pain relief lasting 5 years or more. Shah SA [8] et al., evaluated the role of peripheral neurectomies in the treatment of trigeminal neuralgia in modern practice by analyzing 50 patients. They reported that 70% of the patients had excellent pain relief for a period of 2-5 years and concluded that peripheral neurectomy may be done in the elderly and microvascular decompression should be preferred for younger patients unless there is a specific reason for neurectomy. Grantham EG [11] et al., in their study involving 55 patients who underwent neurectomy reported a pain relief of 0-5 years.

In this case report, the patient had involvement of all the branches of lingual nerve which is rare. Jannetta in 1996 reported in his extensive study involving 1204 patients that only 12.3% are affected by trigeminal neuralgia with all the three branches of infra-orbital nerve i.e., a) inferior palpebral, b) lateral nasal and c) supralabial branches being simultaneously involved [12]. The patient in this case report was advised and treated by peripheral neurectomy of right lingual nerve as she had become refractory to medical treatment and was not indicated (due to his old age) and neither willing to undergo more invasive surgical procedures like microvascular decompression under general anesthesia. The pain relief over a follow-up period of 5 years was excellent without recurrence in any of the branches avulsed out. Thus peripheral neurectomy, though an old surgical technique gives adequate pain relief and can be advocated in patients who are not indicated for more invasive procedures.

CONCLUSION

Trigeminal neuralgia is the most common neuralgic cause of facial pain. The first step is to make correct diagnosis. Initial therapy should be low dose carbamazepine, with upward titration of the dose to relief pain. Surgery is advised for the patients whose pain is refractory to drug therapy or adverse effect sufficient to mandate drug cessation. Treatment for is widespread and should be selected based on individual merits. There is no ideal surgical treatment which is minimally invasive and acceptable to the patient, lacks complications and has no side effects or recurrences. Peripheral neurectomy procedures seem to be associated with recurrence rate and the loss of sensation along the branch of the trigeminal nerve. Still they can be useful when pain doesn't respond to the medical treatment or in elderly patients with limited life span.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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