



Case Report

A Minimally Invasive Surgical Modality for the treatment of Trigeminal Neuralgia under Local Anaesthesia- A Case Report

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ABSTRACT

Trigeminal neuralgia is a commonly diagnosed facial pain syndrome. Also known as „Tic Douloureux“ or „Fothergill“s Disease“, it is more commonly seen in females with peak occurrence in the age group of above 50 years. Treatment option ranges from pharmacotherapy to invasive surgical procedures with Peripheral Neurectomy being the oldest, safest and the simplest method that can be followed under local anaesthesia with minimum complications and providing excellent pain relief to the patient. In this case report, we present a case of 58 years old male patient who has undergone Peripheral Neurectomy of the Infraorbital nerve under local anaesthesia.

Keywords: Trigeminal neuralgia. Pain,;Neurectomy;Infraorbital nerve

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INTRODUCTION

Trigeminal Neuralgia (TGN) is one of the most painful and debilitating craniofacial pain disorders¹. It is either idiopathic (primary) or secondary due to a structural lesion involving the trigeminal system, or associated with some other neurological process². The first detailed account of trigeminal neuralgia was given by John

Fothergill in 1773 when he presented a paper in the Medical Society of London. The pain usually manifests at 5th or 6th decade of life. It is more common in females than males. Right side of the face is more involved than the left side³. The second and third trigeminal divisions are more often involved⁴. Pain emanates from a specific trigger zone which may be evoked by speaking,

touching, eating; starting or ending abruptly and is associated with anxiety.⁵

Trigeminal Neuralgia 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“^{5,6}. A well detailed history is essential to make a correct diagnosis. The etiology of trigeminal neuralgia is widespread from no specific reason – known as “idiopathic form” to space occupying lesions within the posterior cranial fossa⁸. The diagnosis is made on the basis of typical history and exclusion of secondary cases⁹. Treatment of trigeminal neuralgia is both through pharmacotherapy and surgical interventions, with each one having its own merits and demerits. Pharmacotherapy includes the use of antiepileptic drugs like Carbamazepine, with secondary drug choices being Baclofen, Phenytoin and Gabapentin. Surgical treatment is an alternative for the patients who do not respond well to medical therapy. In places where facilities are not available or the patients are not fit for

major neurosurgical procedures like microvascular decompression or radiofrequency thermocoagulation or in elderly and poor patients who cannot afford these treatment, peripheral neurectomy proves to be an excellent pain buster for the patients who are suffering from trigeminal neuralgia⁷. This paper presents a case of trigeminal neuralgia involving second division of the trigeminal nerve i.e. Infraorbital nerve which was treated by peripheral neurectomy under local anaesthesia. The patient was followed regularly for a period of one and a half year and was found to be free from any kind of recurrence.

CASE REPORT

A 58 years old male patient reported to the Department of Oral and Maxillofacial Surgery with chief complaint of acute bouts of severe pain on left side of face lasting for few minutes, triggered on washing face, talking and eating food since 1½ year. Pain was lancinating and electric shock type lasting for a few minutes. Patient had undergone extraction of left upper canine, two years back. The patient was not responding to medical therapy (Tab Carbamazepine 200mg twice day). A detailed history was taken and comprehensive trigeminal nerve examination was carried out. An intra oral

examination revealed only absence of three teeth in the oral cavity 23, 47, 48 (FDI notation). The diagnosis was confirmed on a detailed clinical examination by giving a diagnostic test block in infraorbital nerve region with 2% lignocaine with 1:80,000 adrenaline. There was relief of symptoms for more than 2 hours. There was reoccurrence of pain as soon as the anaesthetic effect wore off. This confirmed the case of trigeminal neuralgia involving infraorbital nerve. Other sources for the pain were ruled out through a detailed intraoral examination of the oral cavity, oropharynx, salivary glands and associated oral structures. Considering the patient's age and his reluctance to undergo invasive procedures under general anaesthesia, treatment plan was advocated for peripheral neurectomy under local anaesthesia. All the pre-operative reports were in the normal limits. Patient was prepared with betadine solution on the surgical site (Fig.1). Infraorbital neurectomy was performed through upper vestibular incision in the left canine fossa region from 22 to 26 region under local anaesthesia with adrenaline (1:80,000) (Fig.2). Mucoperiosteal flap was reflected and infraorbital foramen was located and all the three branches of infra-orbital nerve were identified i.e. inferior palpebral, lateral nasal and supra labial branches. The dissection of all the three nerves were done from infra orbital canal and from the soft tissues (Fig.3). The nerve was carefully separated from the surrounding tissues and held with an artery forcep (Fig.4). The nerve at the exit point of the foramen was avulsed by reeling it around the haemostat and pulling it out (Fig.5). The foramen was occluded with bone wax. Wound closure was performed through simple interrupted sutures with 3-0 mersilk (Fig.6). Antibiotic (Cap.Amox 500mg 8 hourly for 3 days) and Anti-inflammatory (Tab Diclofenac Sodium 100mg TDS for 3 days) were prescribed to the patient post operatively and the patient was discharged on the same day. Follow up was scheduled after 3 days and then every month for the next one year. The patient was found to be asymptomatic for the next one and a half year.

DISCUSSION

Trigeminal Neuralgia is a well-recognised disorder characterized by lancinating attacks of



Fig.1 Front Profile B. Upper Left Vestibular incision C. Dissection Of Infraorbital Nerve D. Separation Of Nerve from surrounding tissue E. Avulsed nerve F. wound closure

severe facial pain. It is the most frequently diagnosed form of neuralgia with mean incidence of 4 per 100,000 populations and mean age of 50 yrs at the time of examination. It is usually unilateral affecting the maxillary (35%), mandibular (30%), both (20%), ophthalmic and maxillary (10%), and ophthalmic (4%) and all branches together (1%) The diagnosis of Trigeminal Neuralgia is based primarily on a history of characteristic pain attacks and its duration that are consistent with specific, widely accepted research and clinical Sweets criteria for the diagnosis¹⁰ i.e. a. The pain is paroxysmal b. The pain may be provoked by light touch to the face (trigger zone) c. The pain is confined to trigeminal distribution d. The pain is unilateral e. The clinical sensory examination is normal 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 available surgical options include alcohol injections, cryotherapy, selective radiofrequency thermocoagulation, microvascular decompression (MVD), radiofrequency rhizotomy, retrogasserian glycerol rhizotomy, balloon compression of trigeminal nerve and Gamma knife radiation to the trigeminal root entry¹¹. Peripheral neurectomy is one of the oldest, simplest and safest minimally invasive surgical method, for treatment of trigeminal neuralgia¹². Few of the advantages of peripheral neurectomy include ease of performing the surgery and is also well tolerated by elderly patients. Patients can be sent home either on the day of surgery or on the following day. Most of the studies done for the neurectomy were published 20 to 50 years ago. **Murali R et al** reported a series of

40 patients who underwent surgical intervention for trigeminal neuralgia¹³. According to them, 79% had excellent pain relief lasting 5 years or more. **Quinnet al**¹⁴ also reported a retrospective caseseries of 63 patients with 112 neurectomies with follow up period of 0 to nine years and reported a pain relief of 24 to 32 months. **Shah S A et al**¹⁵ evaluated the role of peripheral neurectomies in the treatment trigeminal neuralgia in modern practise by analysing 50 patients. They reported that 70% of the patients had excellent pain relief for a period of 2 to 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 et al**¹⁶ in their study involving 55 patients who underwent neurectomy reported a pain relief of 0-5 years. In this case report, the patient was advised and treated by peripheral neurectomy as he had become refractory to medical treatment and was not indicated due to his old age, poor socioeconomic status and neither willing to undergo more invasive surgical procedures like microvascular decompression under general anaesthesia. He was devoid of pain post operatively over a follow up period of 1 ½ years without recurrence in any of the branches avulsed out. Thus peripheral neurectomy, though an old surgical technique provides an adequate pain relief and can be indicated in those patients who are not indicated for more invasive procedures.

CONCLUSION

Treatment of Trigeminal neuralgia is widespread and should be selected only on the basis of individual merits. Peripheral neurectomy is one of the oldest, safest and minimally invasive form of surgery. It is an ideal treatment of choice for patients who are refractory to pharmacotherapy, in elderly or aged patients and in those patients who are not indicated for invasive surgical procedures under general anaesthesia. However a constant follow up is mandatory for these patients.

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