Infra-Orbital Neuralgia and Surgical Management

Dr. Ravi S. Patil*, Dr. Snehalata Patil**

*Assistant Professor, **Endodontist, Satvik Dental & Implant Specialty Clinic, 1st Floor, Shankar Gouda Amarked Hospital Complex Dr Zakhir Hussain Chowk, Ek-Minar, Raichur, Karnataka

Abstract: Trigeminal Neuralgia (TN) is characterized by excruciating, paroxysmal, shock like pain attacks located in the somatosensory distribution of the trigeminal nerve. It is also called Tic Douloreux and is a debilitating syndrome consisting mainly of unilateral short bursts of lancinating pain in one or more branches of the trigeminal nerve. The most common disorders involved in the differential diagnosis include bursts of headaches, dental pain, gaint cell arteritis, glossopharyngeal nerve neuralgia, intracranial tumour, migraine, multiple sclerosis, otoitis media, sinusitis and temporomandibular joint syndrome. The TN is by far the most frequently diagnosed form of neuralgia with mean incidence of 4 per 1, 00,000 populations and mean age of 50 at the time of examination. In general, TN is unilateral affecting the maxillary (35%), mandibular (30%), both (20%), ophthalmic and maxillary (10%) and ophthalmic (4%) branches and all branches of the TN (1%). The treatment options are varied from medical to surgical therapy. The peripheral neurectomy is the oldest and least invasive therapy with few complications. We present a case of 68 year old female patient with unilateral infraorbital neuralgia treated by invasive procedure. Following neurectomy the patient was free of symptoms in six years period of follow-up. [Patil R et al NJIRM 2013; 4(2) : 169-172]

Key Words: Trigeminal Neuralgia, Infraorbital peripheral nerve, Surgical Management

Author for correspondence: Dr. Ravi S. Patil, Assistant Professor, Satvik Dental & Implant Specialty Clinic, 1st Floor, Shankar Gouda Amarked Hospital Complex, Dr Zakhir Hussain Chowk, Ek-Minar, Raichur, Karnataka,
E mail: drravipatil6@gmail.com

Introduction: Trigeminal Neuralgia (TN) has long been recognized in the medical literature, infact it was described as early as the first century AD in the writings of Aretaeus. It was later discussed by Johannes Bausch in 1672. Nicholas Andre in 1756 used the term tic doulorex (painful sensation) to describe the disorder. Later, Fothergill provided a vivid description of TN in 1773, so called Fathergill's disease.[1] According to ICHD-II criteria (International Classification of Headache Disorders II), classic TN is the most common idiopathic form of disorder and is defined as a unilateral disorder characterized by brief electric shock-like pains, abrupt in onset and termination, limited to the distribution of one or more divisions of TN.[2]

The diagnosis and treatment plan is based on detailed history, clinical examination, radiographs, MRI, CT scan.[3] In the latest classification of the International Headache Society, a distinction is made between classical and symptomatic TN: classical TN (CTN) includes all cases without an established etiology, i.e. idiopathic, as well as those with potential vascular compression of the fifth cranial nerve, whereas the diagnosis of symptomatic TN (STN) is made in cases secondary to tumour, structural abnormalities of the skull base.[4] Treatment modalities includes medical and surgical intervention, those which are refractory to medical therapy will be consider for the peripheral nerve neurectomy.

Case report: A 68 year old female patient consulted to our unit with the complaint of continuous and sharp radiating type of pain on right middle of the face since two months (Figure.1). Pain was not subsided even after having analgesics for several times. Patient was expressing sudden brief, severe, electric shock-like or stabbing pain typically felt on right side of face and which remit for varying periods. On examination, patient was locating pain at lateral surface of nose, upper lip, infraorbital region, on cheek region and it was provoked by light touch. Diagnostic test blocks are performed step by step to rule out TN from those of other disorders which may causes this type of typical condition. Considering a conservative management started with GABA-Pentin, but later patient again started complaining the same. At this time we started with 70% absolute alcohol injection at the infraorbital region, it was responding well and patient started getting relief from pain slowly. We followed the case for 3-4 weeks. But after a month again the pain was started becoming more severe and worst. The condition was refractory to medical therapy;

later case was planned for peripheral infraorbital neurectomy under local anaesthesia.

Figure.1 Facial view

Figure.2 Vestibular incision, retraction and identification of infraorbital nerve

Figure.3 Peripheral nerve isolation

An incision was placed at right vestibular region followed by reflection and retraction of mucoperiosteal flap. Infraorbital and its peripheral nerve endings are identified after blunt dissection (Figure.2). Separation of nerve endings from the surrounding region was performed (Figure.3) followed by excision of infraorbital nerve and its terminal branches (Figure.4). Infraorbital foramen is visible with the complete excision of the peripheral nerves (Figure.5).

Figure.4 Excision of peripheral nerve endings

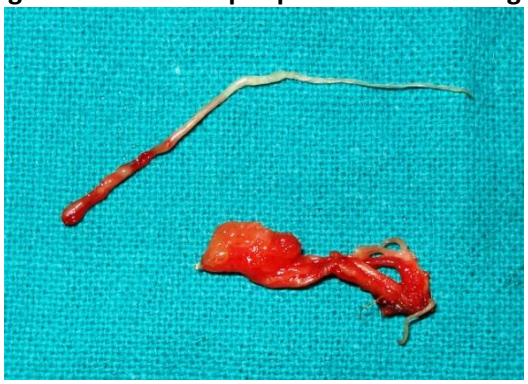


Figure.5 Surgical area after complete nerve excision

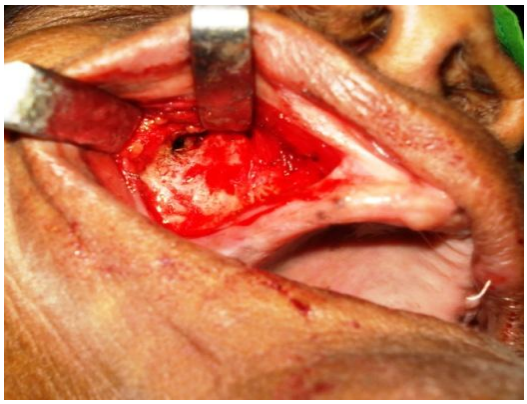
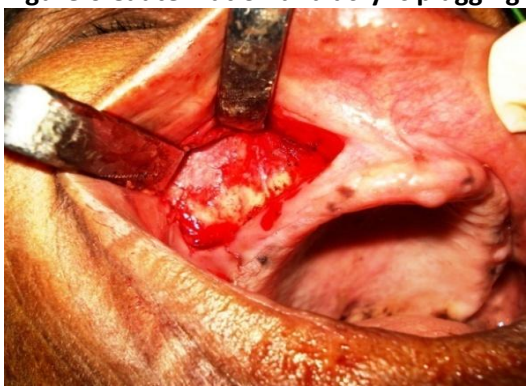


Figure.6 Cauterization and acrylic plugging



To avoid recurrence and regeneration of nerve endings, cauterization was performed followed by acrylic plug placement at foramen entrance, finally surgical site irrigated with betadine, saline and wound was closed (Figure.6). Patient have experienced about 85-90% of pain relief after surgery. Patient was followed-up periodically for twice in every month for first 2-3 months followed by once in every 6 months for 6 years.

Discussion: The diagnostic criteria are defined by the International Association Classification for the Study of Pain (IASP) and by the International Classification of Headache Disorders (ICHD) *as follows*; 1) Paroxysmal episodes lasting from a fraction of 1 sec. to 2min, affecting one or more divisions of the trigeminal nerve. 2) Pain with severe, sudden, superficial, or stabbing and initiated by trigger factors or trigger points. 3) Episodes are similar among patients. 4) Patients do not have clinically evident neurologic changes. 5) It is not attributed to other disorders[1]. Treatment options are varied for this condition ranging from medical therapy to invasive surgical procedures[2].

The results of the treatment were classified into four groups; Group1: *Excellent*- Pain relief defined as total free of pain without requiring a course of carbamazepine.Group2: *Good*- No medication required. Group3: *Fair*- Mild to moderate pain but relived with modest amount of carbamazepine. Group 4: *Poor*- Pain relief as no significant relief even with carbamazepine[3].

The Sweet's criteria have been commonly used worldwide for the diagnosis of TN. Criteria emphasizes five major clinical features to define TN. *They are as follows*; Pain is paroxysmal, trigger zone-pain may be provoked by light touch to the face, pain is confined to trigeminal distribution, pain is unilateral, and clinical sensory examination will be normal[1].

A recent meta-analysis has shown anticonvulsants like carbamazepine is more effective to treat TN. The alternative evidence-based medical treatments are lamotrigine and beclofen. But considering the evidence –based benefits of gabapentin in other neuropathy and posttherpatic neuralgia, this is relatively a new drug may represent an advance in treatment[3]. Surgical management is acceptable after the condition become refractory to medical therapy. Various factors will be consider for the peripheral neurectomy like nerve involvement peripheral or central, age, extreme worst symptoms and considering the refractory condition to medical therapy etc,. Peripheral neurectomies has the following advantages like simple and ease of procedure, well tolerated by patient, no major complications, most of the time out door patient treatment and can be perform under local anaesthesia.

Surgical management of TN is associated with increased morbidity and mortality but it has been stated that the results of surgical intervention for TN is excellent and often better served rather than prolonging the periods with either pain or adverse effects from medications[3].

In this study, 40 patients are performed with surgical procedure for TN among them 12 patients underwent peripheral neurectomy and they concluded about 79% had excellent pain relief lasting 5 years or more[5].

In one study 50 patients are analyzed to evaluate the role of peripheral neurectomies in the treatment of TN. They reported that 70% of the patients had excellent pain relief for a period of 2-5 years. They concluded that peripheral neurectomy should be performed in elder patients and microvascular decompression should prefer in younger patients[6].

In our case, after the medical treatment patient experienced with continuity of pain and condition was refractory and underwent surgical intervention. Postoperatively gabapentin was preferred for 2-3 months after this it has been discontinued and after this period patient experienced complete relief of pain even after a long follow-up. Considering the various factors like no response to medical therapy, the age of patient, duration and severity of pain of TN and following

the literatures we concluded that peripheral neurectomy for the TN will relieve maximum pain and also improves the patient social activities and life style.

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