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Research Article

**IMPORTANCE OF PERIPHERAL NEURECTOMIES IN THE  
MANAGEMENT OF TRIGEMINAL NEURALGIA**<sup>1</sup>Dr. Shahnila Latif, <sup>2</sup>Dr. Ameer Hamza, <sup>3</sup>Dr. Muhammad Usama Khalid Tareen,<sup>1</sup>Islam Medical and Dental College, Sialkot<sup>2</sup>Liaquat University of Medical and Health Sciences, Jamshoro<sup>3</sup>Multan Medical and Dental College, Multan**Abstract:***Objective:* 50 patients were analyzed for indications, advantages and complications of peripheral neurotomies.*Study design:* A Retrospective Study.*Location and duration:* in the Department of Dental and Maxillofacial Surgery Mayo Hospital Lahore for one year duration from July 2017 to July 2018.*Methods:* We selected patients only over 40 years of age. After neurectomies, 35 (70%) patients had very good relief of pain for 2 to 6 years without any medication; 4 (8%) patients rarely had pain but did not require medication; Drug-controlled pain in 5 (10%) patients; In 6 (12%) patients, pain recurrence in 0-2 years could not be controlled with medication. These patients were referred to a neurosurgeon for MVD (microvascular decompression).*Results:* Both medical and surgical treatments are effective for trigeminal neuralgia. However, factors such as pain relief, relapse rates, morbidity and mortality rates should be taken into consideration when deciding which technique to use. It seems appropriate to start a patient suffering from trigeminal neuralgia with medical treatment, but if the pain control is poor or the side effects of the drugs are not tolerated, continue with early surgical treatment.*Conclusion:* Loss of sensation and recurrence rate along the trigeminal nerve branch is associated with peripheral neurectomy. However, it is an safe and effective procedure for elders; especially short-lived ones. If there are no suitable facilities for the main neurosurgical procedures or if the patient does not comply with such procedures, neurectomy is the best option. It is possible even under local anesthesia.**Key words:** Peripheral neurectomy, Trigeminal neuralgia, Inferior alveolar, Infra-Orbital, Long buccal neurectomy, Mental.**Corresponding author:****Dr. Shahnila Latif,**Islam Medical and Dental College,  
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**INTRODUCTION:**

Neurectomy is the oldest of all procedures. The procedure is famous for useful part in the treatment of trigeminal neuralgia, in many peripheral branches of the trigeminal nerve as nerve, infraorbital, mental and alveolar (ID) above the low hole. It gives up to 33 months pain relief. These methods of peripheral neurectomies are not used commonly nowadays, mostly because of recurrence rate of pain and the complete sensory loss of the area provided by this nerve. Postoperative neuroma formation is a complication of another neoplasm. Neurectomy has been replaced by more complex procedures such as radiofrequency thermocoagulation and microvascular decompression. However, these facilities are not available or the patient is not eligible for major neurosurgical procedures or in the short centers of the patient's life (elderly patients), the neurectomy has a role in the trigeminal neuralgia treatment.

**MATERIALS AND METHODS:**

This Retrospective study was performed on fifty cases with trigeminal neuralgia features in the Department of Dental and Maxillofacial Surgery Mayo Hospital Lahore for one year duration from July 2017 to July 2018. The diagnosis was based on a clinical examination, detailed history and control of pain with carbamazepine. Orthopentotography (OPG) was performed to exclude any local pathology for each patient. Participation was determined by locating the nerve branch epinephrine 1 confirmed by 2% lignocaine based on the location of pain and local anesthesia: 200,000 injection sites were identified and repeated 3 times on consecutive days. Early morning an appointment was given to patients. Before being considered for surgical treatment, all patients had taken gabapentin, in particular treatment with maximal medical treatment, carbamazepine. All patients done with preoperative imaging with (MRI) magnetic resonance imaging, revealing underlying

structure abnormalities such as tumors. The follow-up period of this study ranges from 0 to 5 years.

*Participation criteria*

All patients from both genders who presented trigeminal neuralgia data were informed and included in the study.

*Exclusion criteria*

Patients under 40 years old.

Two cases previously managed with neurectomy.

3 patients with contraindications for general and local anesthesia.

**SURGICAL METHOD**

Infraorbital neurectomy was performed by intraoral incision in the labingival sulcus. The mental nerve was cut with a triangular gingival incision in the premolar area. The transoral approach of the inferior alveolar nerve was identified by an incision similar to the triangular incision for third molar surgery, but proceeded slightly along the anterior edge of the mandibular and nerve branch. The incision was about 1-1.5 cm below the parotid canal. The main crate was then detected and separated as much as possible. The nerve was also dissected previously and the terminal branches were identified. The nerve was cauterized.

**RESULTS:**

Treatment results were divided into four groups: Group 1 Excellent: Pain relief was labeled as total pain relief without need of carbamazepine cycle. Group 2 Good intentional pains; The drug is not required.

Group 3 Fair: mild to moderate pain but relieved with a modest amount of carbamazepine

Group 4: Elimination of bad pain, no significant relief even in treatment with carbamazepine

50 patients were selected from 60 patients

| <b>Duration of pain relief</b> | <b>Group I</b>  | <b>Group II</b> | <b>Group III</b> | <b>Group IV</b> |
|--------------------------------|-----------------|-----------------|------------------|-----------------|
| Less than 1 year               | —               | —               | —                | 02              |
| 1 year                         | —               | —               | —                | 02              |
| 2 years                        | 10              | 01              | 01               | 02              |
| 3 years                        | 11              | 01              | 02               | —               |
| 4-5 years                      | 14              | 02              | 02               | —               |
| <b>Total: 50</b>               | <b>35 (70%)</b> | <b>4 (8%)</b>   | <b>5 (10%)</b>   | <b>6 (12%)</b>  |

**TABLE 1: DURATION OF PAIN RELIEF IN EACH GROUP**

| Neurectomy of nerve | Group I     | Group II  | Group III  | Group IV   | Total        |
|---------------------|-------------|-----------|------------|------------|--------------|
| Inferior Alveolar   | 15          | 01        | 02         | 02         | 20           |
| Infra-Orbital       | 13          | 01        | 01         | 01         | 16           |
| Long buccal         | 05          | 01        | 01         | 02         | 9            |
| Mental              | 02          | 01        | 01         | 01         | 5            |
| Total               | 35<br>(70%) | 4<br>(8%) | 5<br>(10%) | 6<br>(12%) | 50<br>(100%) |

**TABLE 2: DISTRIBUTION OF NEURECTOMY OF NERVE BRANCH IN EACH GROUP**

The remaining ten patients did not inform our department at different treatment stages and adequate follow-up was not completed. The mean age of the patients was 59.5 years. Twenty-eight were male and twenty-two: 1.3: 1 female. The neurotomy for many branches of the trigeminal nerve was: mental (n = 5); Lower alveolar (n = 20); Buccal length (n = 9); Infra-orbital (n = 16). In this study, cases of lingual, supraorbital and supra-trophic nerve neurectomy were not recorded. All neurectomies were performed as the primary procedure. As shown in Table 1, 35 (70%) patients had excellent pain relief for 2-5 years without medication. In 6 patients (12%), pain was observed in 0-2 years. drug control (in group IV). In these cases, second neurectomy was not performed in the same branch because conditions were not sufficient for the second operation and the patient evaluated neurosurgery better for MVD. However, two patients preferred MVD. The distribution of neural branch neurectomy in different groups is shown in Table 2.

### DISCUSSION:

As the response to treatment is partially diagnosed, medical treatment is applied to all new patients. If the patient responds to medical treatment, the doctor can be sure that the correct diagnosis has been made. A new meta-analysis showed that anticonvulsants are effective in the treatment of trigeminal neuralgia. It has been discovered that carbamazepine is the drug of choice in the treatment of trigeminal neuralgia. Dosage based on efficacy and side effects can be administered clinically. When carbamazepine is not available, evidence-based alternative medical therapies are lamotrigine and bclomfen<sup>6</sup>. If a single drug is ineffective, a combination of two or more drugs can be used. In the treatment based on trigeminal neuralgia only lamotrigon-carbamazepine

combination is prominent. Taking into account the evidence-based benefits of gabapentin in other neuropathies and postherpetic neuralgia, this relatively new drug may represent an improvement in treatment. A good understanding of the mechanism of action of these drugs will provide good pain control with minimal side effects. Some patients have hematological and biological chemical reactions. Surgical treatment of trigeminal neuralgia is associated with increased morbidity and mortality. However, the results of surgical treatments for trigeminal neuralgia have been reported to be as good as patients treated better by surgery. Most of the studies performed for neurectomy were published 20-50 years ago and Murali and Rovit have only one article in the literature. Quine reported a series of retrospective cases of 63 patients with 112 neurectomies. A follow-up period of 0 to 9 years was observed and pain relief was reported between 24 and 32 months. Grantham<sup>10</sup> also reported a case series of 55 patients with 55 neurectomies. A follow-up of 6 months to 8 years was observed and a mean pain relief of 33.2 months was achieved. Our experience with 50 neurectomies and pain relief from 2 to 5 years was observed in a follow-up period of 0 to 5 years. A recent study by Murali and Rovi has been reported in a series of patients 40 as a primary procedure and in a series of 28 cases as the second procedure for treating relapse of pain after radiofrequency thermocoagulation. The follow-up period was 2 to 10 years. 79% reported excellent pain relief (defined as total pain loss without medication) lasting for 5 years or more, and some had excellent pain relief until death. The mean age of the patients was between 72 and 50-94. Our observations are very close to this study. We found 70% of the patients who complained of excellent pain lasting 4-5 years. The mean age of our study was 59.5 (40-79). Despite

the excellent results so far, if some of these patients live long enough they may experience recurrence of pain.

### CONCLUSION:

Trigeminal neuralgia is the most common neuralgia of facial pain. The first step is to make a correct diagnosis. Initial treatment should be low-dose carbamazepine with up-titration of the dose to alleviate pain. Surgery is recommended for patients who are resistant to pain, have a drug-side effect, or have sufficient side effects to demand discontinuation of the drug. 70% of the patients had excellent pain relief for 2 to 4 years or more without any medication. In 12% of patients, pain control occurred within 0-2 years and could not be controlled with medication. These patients were referred to a neurosurgeon for MVD. Peripheral neurectomy procedures appear to be associated with recurrence rate and loss of sensation along the trigeminal nerve branch.

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