PERIPHERAL NEURECTOMY IN THE MANAGEMENT OF TRIGEMINAL NEURALGIA

ABSTRACT
One of the worst types of pain usually encountered by a dental patient is neuralgic pain. The pain is so severe that it may drive the patients to the brink of suicide (Harris, 1926). We report a case of trigeminal neuralgia treated with peripheral neurectomy of the involved branch of trigeminal nerve.

MANUSCRIPT
Trigeminal neuralgia is defined as a sudden, usually unilateral, severe, brief, stabbing, lancinating, recurring pain in the distribution of one or more branches of V cranial nerve. The pain usually manifests at 5th or 6th decade of life (except for in patients with multiple sclerosis) and is more common in females. It occurs more commonly on the right side (Zakrzewska and Hamlyn, 1999) and V3 is the most affected branch. The pain emanates from a specific trigger zone which may be stimulated by talking, shaving, eating, etc. Attacks of pain do not occur during sleep and is confined to the distribution of trigeminal nerve. A well taken history is essential to make a correct diagnosis.

CASE REPORT
A 75 years old male patient was referred to the department of oral & maxillofacial surgery with a complaint of episodes of sudden, electric shock like pain on the right side of face which lasts for about 2 minutes since last 6 years. The pain aggravated on touching cheek, ala nasi, upper lips and upper gums on the right side and during eating food. A complete medical history was taken taken which was non-contributory. The intraoral examination revealed presence of only four teeth in the oral cavity 24 32 33 34 (FDI Notation System). No radiographic findings contributing to severe pain on right side were evident in the radiographs. A diagnostic nerve block test was carried out to confirm the involvement of right infraorbital nerve. After being explained all the different treatment modalities, the patient gave his consent for peripheral neurectomy as he had undergone conservative treatment for about 4 years with episodes of recurrence.

Under local anaesthesia, a U-shaped Caldwell-Luc incision was made in the upper vestibule in the canine fossa region. The infraorbital foramen was located and the nerve exposed. The nerve trunk was held with a haemostat at the exit point of the foramen and removed by winding it around the haemostat and pulling it out. The foramen was plugged with bone wax and wound was closed with interrupted sutures.

The patient was kept on a regular follow-up with no episodes of recurrence in one year follow up period.

DISCUSSION
Trigeminal Neuralgia, often called as “tic douloureux” is one of the most painful and debilitating craniofacial pain disorders. It is either idiopathic (primary), or secondary due to a structural lesion involving the trigeminal system, or associated with some other neurological process.

Peripheral neurectomy is one of the most effective peripheral nerve destructive technique. A single neurectomy yields 26.5 months free of pain (Quinn, 1965). Even those whose pain was not completely controlled by peripheral neurectomy proved more responsive to carbamazepine subsequently.

Intraorbital neurectomy can be performed through Caldwell-Luc incision approach or Braun’s transantral approach. Inferior alveolar neurectomy can be performed through Risdon’s incision approach or via Dr. Ginwalla’s incision approach. Peripheral neurectomy generally produces less severe
Management Algorithm for Trigeminal Neuralgia

**FACIAL PAIN**

1. Paroxysmal
2. Trigger Zones
3. Unilateral
4. Restricted to areas of trigeminal nerve

**Lesions**

- MRI normal
- Demyelinating Plaques

**Vascular Abnormality**

- Not Tolerated
- Not Effective

**Percutaneous Radifrequency Rhizotomy**

- Pain Relief
- Decrease dose slowly

**Recurrence of pain**

- Yes
- Decrease Dose Slowly

**Further Evaluation by Inter-disciplinary Oral, Facial and Head Pain Center**

### Diagnostic Criteria by White & Sweet

**Trigger Zones:**

- **V1:** Supraorbital ridge of the affected side
- **V2:** Skin of upper lip, ala nasi, cheek, infra-orbital margin
- **V3:** Lower lip, gums of lower jaw, skin over the mandible, tongue (rare)

### Pharmacologic

<table>
<thead>
<tr>
<th>Strong evidence</th>
<th>Moderate evidence</th>
<th>Preliminary evidence</th>
<th>Operative</th>
<th>Radiosurgical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine (400-1000mg/day)</td>
<td>Gabapentin (900-2400mg/day)</td>
<td>Lamotrigine (200-600mg/day)</td>
<td>Peripheral Neurectomy</td>
<td>Stereotactic gamma knife</td>
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<tr>
<td>Baclofen (50-60mg/day)</td>
<td>Phenytoin (300mg/day)</td>
<td>Oxcarbazepine</td>
<td>Microvascular Decompression</td>
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<td>Pregabalin</td>
<td>Botulinum toxin</td>
<td>Percutaneous Rhizotomy</td>
<td>Balloon Compression</td>
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<td>Subcutaneous local alcohol block</td>
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</tbody>
</table>

### Surgical

- Pain Relief
- Decrease dose slowly
- Recurrence of pain

### References

4. Scrivani, Matthews : Trigeminal Neuralgia; Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology Volume 100, Issue 5 , Pages 527 - 538, November 2005

### Conclusion

Peripheral neurectomy is a simple surgical procedure for the trigeminal neuralgia involving its terminal branches. It is beneficial for patients who are refractory to carbamazepine therapy or who suffer from its side-effects. In case of recurrence, a repeat neurectomy can be performed without untoward complications and distress. However, a constant patient follow-up is mandatory. The clinician should familiarize himself with the various modes of treatment so that the most appropriate therapy may be offered to his patient.

### References