

Perspective Article

Current Treatment of Trigeminal Neuralgia

Ramesh VG*

*Professor, Dept of Neurosurgery, Chettinad Hospital & Research Institute, Chettinad Academy of Research & Education

Chettinad Health City Medical Journal 2017; 6(3): 117 - 117

Trigeminal neuralgia is one of the worst pain that can occur to the mankind and causes enormous suffering to the affected person. It is not without reason that it is also named 'Suicide Disease'. The exact pathogenesis of trigeminal neuralgia is still unclear. Various theories and hypotheses have been put forth, but the most popular one being the micro-vascular compression theory and it forms the basis for the Jannetta's micro-vascular decompression surgery (MVD)^{1,2}. But this theory is also contested by many^{3,4}. The basic pathology is a focal demyelination at the trigeminal root entry zone close to the pons, causing ephaptic transmission or cross firing of impulses at the affected area of the root, causing the trigeminal neuralgia^{5,6}.

The trigeminal neuralgia is of two types: Type 1 is the classical, episodic, electrical shock-like pain over the distribution of one or more divisions of trigeminal nerve, often caused by some stimuli like brushing teeth, shaving, chewing food, etc. Type 2 is a more continuous type of pain over the area of distribution of trigeminal nerve. The diagnosis is mainly from the patient's history. Presence of any neurological deficit should alert the physician to the possibility of a secondary cause of trigeminal neuralgia like tumours and other mass lesions in the cerebello-pontine angle. Imaging studies are essentially done in cases of trigeminal neuralgia to rule out the mass lesion in the cerebello-pontine angle.

The initial treatment of trigeminal neuralgia is essentially medical - carbamazepine being the mainstay drug. Other drugs like phenytoin, gabapentin, pregabalin, baclofen are also being used as adjuvant drugs. Though majority of patients do well with the medications, a significant number of patients have recurrence of the pain and become increasingly resistant to medical treatment. Some patients have allergy or intolerance to the drugs. It is these group of patients who need some type of surgical or less invasive procedures.

The options for intractable trigeminal neuralgia range from non-invasive, but expensive radiosurgery to minimally invasive percutaneous procedures and open MVD surgery. All these procedures have their advantages and disadvantages and all have their share of recurrences though less.

Radiosurgery, especially the gamma-knife surgery, has the advantage of being totally non-invasive and safe. But it has the disadvantage of being very expensive, and the onset of pain-relief takes several weeks to months. Percutaneous radio-frequency thermocoagulation (RF lesion) gives immediate pain relief and is less invasive. But it causes dense sensory impairment over the half of face and cannot be used for ophthalmic division pain because of the risk of exposure keratitis. Percutaneous balloon compression is another less invasive method, but the recurrence of pain is more when compared to the other procedures and also may cause transient or

permanent masticatory difficulty due to the motor root involvement. Percutaneous retrogasserian glycerol rhizotomy (PRGR) is another less invasive procedure⁷. It has the advantage of being very cheap, with good immediate pain-relief and can be done as an out-patient or daycare procedure. The only disadvantage is transient or permanent dysesthesia, which occurs in a small proportion of patients. The most popular procedure is the micro-vascular decompression (MVD), which is an open surgical procedure. It has the advantage of being a non-traumatic to the trigeminal nerve and hence does not produce any facial sensory loss unlike the percutaneous procedures and the pain-relief is longer lasting compared to the other procedures. The major disadvantages are that it is a major surgical procedure with its own share of complications, both major and minor. The advent of neuroendoscope may make it less invasive and safer⁸.

In the present day, MVD is preferred for younger, medically fit patients with trigeminal neuralgia. In the old patients and with those with major medical co-morbidities, one of the percutaneous procedures, especially the percutaneous glycerol rhizotomy (PRGR) is preferred⁸.

References

- 1) Jannetta PJ. Arterial compression of the trigeminal nerve at the pons in patients with trigeminal neuralgia. *J Neurosurg.* 1967; 107(1): 216-9
- 2) Jannetta PJ. Observations on the etiology of trigeminal neuralgia, hemifacial spasm, acoustic nerve dysfunction and glossopharyngeal neuralgia. Definitive microsurgical treatment and results in 117 patients. *Neurochirurgia.* 1977;20(5):145-54.
- 3) Adams CB. Microvascular compression: an alternative view and hypothesis. *J Neurosurg.* 1989;70(1):1-12.
- 4) Ramesh VG. Pathogenesis of trigeminal neuralgia. *Neural Regen Res.* 2014;9(8):877.
- 5) Burchiel K. Abnormal impulse generation in focally demyelinated trigeminal roots. *J Neurosurg.* 1980;53(5):674-83.
- 6) Love S, Coakham HB. Trigeminal neuralgia: pathology and pathogenesis. *Brain.* 2001;124 (Pt 12):2347-60.
- 7) Kodeeswaran M, Saravanan N, Ramesh V G, Udes R. Percutaneous retrogasserian glycerol rhizotomy for trigeminal neuralgia: A simple, safe, cost-effective procedure. *Neurol India.* 2015;63(6) :889-94.