

## Symptomatic Trigeminal Neuralgia - A Case Report

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### Abstract

Trigeminal neuralgia (TN) also known as 'Fothergill's disease' is characterised by the recurrent paroxysms of severe, unilateral, sharp, shooting facial pain typically activated with cutaneous stimulation on the face or "trigger zone". It is more common in females than males. It can be classified based on its etiology and has a wide variety of clinical presentation. Trigeminal neuralgia may be a recognized complication in patients with intracranial tumors poignant the fifth cranial nerve. This case report describes an epidermoid cyst at the cerebellopontine angle in a young man with unilateral trigeminal neuralgia.

**Keywords:** Trigeminal Nerve; Neuralgia; Orofacial Pain; Trigger Zones; Magnetic Resonance Imaging (MRI)

### Introduction

The trigeminal nerve also known as fifth cranial nerve is responsible for sensation in the face. Its name "trigeminal" comes from the actual fact that every nerve, one on each side of the pons. It has 3 major branches, the ophthalmic nerve (V1), the maxillary nerve (V2) and the mandibular nerve (V3). The ophthalmic and maxillary nerves are purely sensory. The mandibular nerve has both sensory and motor functions [1]. The trigeminal nerve is the largest of the cranial nerves and it receives Pain, thermal, tactile and kinaesthetic sensory stimuli from facial skin, oropharynx, oral mucous membranes, sinuses, teeth, palate, dura and masticatory muscles [2]. Trigeminal neuralgia (TGN), or tic doloureux, is a debilitating syndrome consisting of unilateral short bursts of lancinating pain in the distribution of one or more branches of the trigeminal nerve [3]. It can be caused by vascular compression of trigeminal nerve roots, intracranial tumors, and intracranial infections [4]. Here we are reporting a young patient with trigeminal neuralgia secondary to intracranial epidermoid cyst.

### Case Report

A male patient of age 25 yrs, reported to the department of oral medicine and radiology with a chief complaint of severe pain in the left upper back teeth region since one week. His history of present illness revealed that the pain was on the left upper back teeth region which cannot be localised and was associated upon contact with sour, cold, hot fluids and food items. The pain used to lasts for about a period of 2 to 3 minutes and typically triggered on washing face with cold water in the morning. The pain was unilateral, sudden, sharp and recurrent. There was no history of awakening from sleep due to pain. Patients past medical, past dental, habits and family history were non-contributory. On clinical examination, there were no significant changes found in the soft and hard tissues. Based on the history and clinical examination a provisional diagnosis of Trigeminal neuralgia was made and then patient was subjected for hematological and radiological investigations. All the blood parameters were within the normal limits and on panoramic radiograph there was no evidence of dental pathology. Patient was kept under medication of Carbamazepine 200 mg twice daily with proper instructions along with vitamin

B12 supplements. Initially patient responded well with reduced pain and frequency of pain but later the medication did not help even after increasing the dose and adding Baclofen to the regimen. Patient was then advised for Magnetic resonance Imaging (MRI) to rule out any intracranial pathology. Axial section of brain T1 weighted image showed extra axial left cerebellopontine angle heterogeneous area with hypointense cystic lesion displacing 4<sup>th</sup> ventricle to right side and mild dilatation of supratentorial ventricular system suggestive of intracranial cyst (Figure 1). In T2 weighted axial section, the lesion was hyperintense (Figure 2). Patient was then referred to higher centre for the surgical treatment and the cyst was completely removed. Histopathological examination confirmed the diagnosis of Epi-dermoid cyst. Postoperatively patient's condition improved without any facial pain. After 6 months the patient was reviewed and he was free from pain completely.



Figure 1

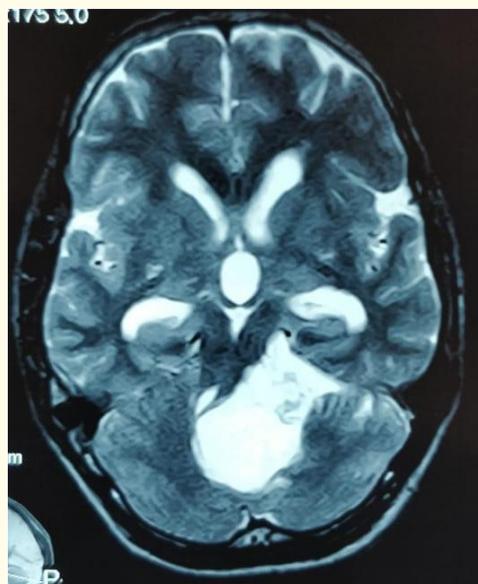


Figure 2

## Discussion

Neuropathic pain has been recently redefined by an international group of experts as pain arising as a direct consequence of a lesion or disease affecting the somatosensory system [5]. Trigeminal neuralgia (TN) has been referred to as one of the most painful afflictions of humanity [6]. It was first noticed in a physician by name, Johannes Laurentis Bausch (1605 - 1665). Tic douloureux is a French term and was coined by Nicolaus Andre, who reported five patients and practiced trigeminal nerve ablation by applying caustic substances through infraorbital foramina [7]. International association for the study of pain (IASP) defined trigeminal neuralgia as "sudden usually unilateral severe brief stabbing recurrent pain in the distribution of one or more branches of fifth cranial nerve". International headache society (IHS) defined it as "painful unilateral affliction of the face characterized by brief electric shock like pain limited to the distribution of one or more divisions of trigeminal nerve" [8]. Pain is commonly evoked by trivial stimuli, including washing, shaving, smoking, talking, or brushing teeth (trigger factors) and frequently occurs spontaneously. Small areas in the nasolabial fold or chin may be particularly susceptible to the precipitation of pain (trigger areas) [9]. The pain usually remits for variable periods. Onset is usually in middle or old age and is rare in children and young adults [10]. Though there are many classifications available to describe trigeminal neuralgia, IHS appropriately divided it as classic and symptomatic.

Classic TN has no apparent cause other than vascular compressions.

### Diagnostic criteria for classic trigeminal neuralgia [11]:

- Paroxysmal attacks of pain lasting from a fraction of a second to two minutes that affect one or more divisions of the trigeminal nerve.
- Pain has at least one of the following characteristics intense, sharp, superficial, or stabbing precipitated from trigger areas or by trigger factors
- Attacks are similar in individual patients
- No neurological deficit is clinically evident
- Not attributed to another disorder.

Symptomatic TN is caused by a demonstrable structural lesion other than vascular compressions [12]. Structural lesions include intracranial tumors and cysts such as acoustic neuroma, meningioma, epidermoid cysts, schwannomas, and pituitary adenoma and demyelination disorders such as multiple sclerosis [10].

Intracranial tumors rarely cause TN with an incidence rate less than 0.8% [13]. Tumors causing trigeminal neuralgia are generally located in the posterior fossa and are usually acoustic neuromas. Tumors located at the central fossa tend to be meningiomas, schwannomas and pituitary adenomas. Epidermoid tumors rarely cause trigeminal neuralgia and comprise only 1% of all intracranial tumors [14,15]. MRI is useful to rule out symptomatic trigeminal neuralgia as in our case, and is also used to identify and locate nerve compression.

Pharmacologic treatment is the first line of choice for TN. The medical management includes anticonvulsant drugs. Carbamazepine's efficacy in treating TN was first described by Sigfrid Blom in 1963 [16]. It can be started initially with a dose of 200 to 600 mg per day in divided doses and can be increased to a maximum dose of 1200 mg/day depending on the patient's response [17,18]. If the symptoms doesn't subside drugs like Baclofen, Phenytoin, Gabapentin, Lamotrigine, and Clonazepam can be added to the regimen. Lamotrigine has recently been validated as the drug of choice in case of multiple sclerosis induced trigeminal neuralgia.

The surgical management for trigeminal neuralgia is considered only when the medical management does not provide relief for the patient. It includes the procedures like Microvascular decompression, Glycerol gangliolysis, Radiofrequency gangliolysis, Balloon decompression, Stereotactic radiosurgery, peripheral neurectomy, Cyber knife etc [19,20]. The selection of surgical management modality depends upon the etiology of the TN and patient's medical condition.

## Conclusion

Trigeminal neuralgia has a huge impact over the quality of life of a person. Though it is common in older individuals, its occurrence in younger patients cannot be ruled out and should be followed by thorough investigations like MRI to detect any intracranial pathology. As chronic pain conditions like trigeminal neuralgia have a huge psychological effect, the management should be focussed towards proper assurance of the patient apart from the standard treatment protocols.

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