



Review Article

A literature review on trigeminal neuralgia

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ABSTRACT

Out of all the cranial nerves “Trigeminal Nerve” is the fifth cranial nerve. Trigeminal nerve possesses both the components i.e. mixed components as well as sensitive components that’s why trigeminal nerve is known as a mixed nerve. The sensitive component of the trigeminal nerve takes up the sensation from most of the part of the face and the mucous membrane to the central nervous system and that’s why it is responsible for the disease which is known as trigeminal neuralgia. The characteristic feature of the trigeminal neuralgia is the sudden onset of pain which is sharp and lacerating, and that may last from few of the seconds to few minutes. Trigeminal neuralgia more frequently affects the female as compared to the male.

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1. Introduction

Trigeminal neuralgia is characterized by paroxysmal pain which is of sudden onset and that may last from few seconds to one to two minutes. The pain of trigeminal neuralgia occurs in irregular time, get triggered by the simple action of touching and chewing.¹ This trigeminal neuralgia most commonly affects the maxillary and the mandibular division of the trigeminal nerve, some time the trigeminal neuralgia attacks are accompanied by the action of salivation, lacrimation, some time from congestion of the nasal mucosa, from contraction of the muscles that are acting over the jaw. Trigeminal neuralgia has trigger zones over the face. According to a study trigeminal neuralgia affects females more as compared to the male and it affects

the female in between the sixth to eight decade of the life.²

A study stated that, the most common mechanism for the development of the trigeminal neuralgia is associated with the process of degeneration due to aging, and also due to the compression of vessels at or near the root of the trigeminal nerve. It is stated that in the patient of trigeminal neuralgia, myelin sheath around the nerve starts getting degenerating, some times trigeminal neuralgia also occurs as a result to trauma to the oro facial or maxillofacial region.³

2. Characteristic of the Trigeminal Neuralgia

It is characterized by sudden onset of paroxysmal pain, that lasts from few seconds to two minutes, it occurs in irregular period, trigeminal neuralgias most commonly triggered by the stimuli which is not at all painful, it is triggered by the normal act of mastication, normal act of speaking,

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lacrimation or can get triggered by the act of chewing also.¹ According to Galassi et al in the year of 1985, they reported that the onset of the pain in trigeminal neuralgia patient occur only when patient touches the specific areas of the face, which is other wise known as the trigger zones. These trigger zone areas are present ipsilateral to the pain, most commonly present near the nose and near the lips over the face.

Russ et al. in the year of 1995 evaluated that trigeminal neuralgia has higher incidence of prevalence to the patient with a mean age of 60 years and three months with higher incidence of prevalence to the female group of patients i.e. sixty percent as compared to the male group of patients. They also stated that in trigeminal neuralgia both the divisions i.e. maxillary and the mandibular division of the trigeminal nerves are affected.

A study done by batagaliion et al. in the year of 1997 stated that during the episode of the pain the muscle which are involved in speech and chewing came to the state of contraction. They also stated that the prevalence rate of trigeminal neuralgia is more in female patient as compared to the male patient with predominance of occurrence to the right side of the face.

Trigeminal neuralgia can affect the both sides of the face, i.e. it can be bilateral and if it is unilateral it most commonly affects the right side of the face. Trigeminal neuralgia is a one of the most painful disease, it can also get triggered by the trivial stimuli that is, it can be triggered by washing the face, during the action of shaving during smoking during normal talking to the other people, during the action of brushing or some times even during applying makeup over the face.⁴⁻⁷

3. Etiology of Trigeminal Neuralgia

Neurovascular compression at the root of the trigeminal nerve could be the reason of the trigeminal neuralgia. Adams and victor classify the trigeminal neuralgia in to primary or idiopathic trigeminal neuralgia and secondary or symptomatic trigeminal neuralgia. There would be no specific cause for the primary or idiopathic trigeminal neuralgia, it is stated that neurovascular conflicts due to small arteries and vessel was found to be the cause of the primary trigeminal neuralgia. It is believed that vascular compression near the trigeminal nerve results in the areas of demyelization that results in short circuit due to functional changes at the level of the axons. Also due to some physiological changes related to age for e.g. appearance of atherosclerosis along with hypertension some times result in neurovascular compression near the trigeminal nerve. So the idiopathic trigeminal neuralgia occurs due to the compression of the trigeminal nerve by the peripheral vessels.⁸ Secondary or symptomatic trigeminal neuralgia has a symptomatic cause for example viral infection, any tumor in the region or near by the region of the trigeminal nerve,

that put pressure or compression over the trigeminal nerve, multiple sclerosis, aneurysms, due to local trauma or due to surgical trauma, might be due to fracture of the zygomatico maxillary complex.³

4. Diagnosis of the Trigeminal Neuralgia

Some of the clinical symptoms that are presented by the patient help in clinically diagnosing the trigeminal neuralgia, i.e. patient tend to immobilize the face, so to avoid any further episodes of pain.

Olesen established the criteria for the diagnosis of trigeminal neuralgia on the basis of clinical signs and symptoms:-

There should be paroxysmal attacks of pain, which should of sudden onset and may last from few seconds to one to two minutes, the pain should represent the distribution of the branch of the trigeminal nerve, pain should be sudden, it should be sharp, it should be superficial and the pain should be of great intensity. The pain should be initiated or precipitated from the areas of the trigger zones or the pain should be precipitated form the act of normal chewing, mastication, by the action of shaving or by the action of applying makeup over the face attack of the trigeminal pain should be of abrupt pattern, and often initiated by gentle touch over the trigger areas points.⁹⁻¹¹

5. Treatment Option for Trigeminal Neuralgia

Treatment option for trigeminal neuralgia involves two types of treatment that is medical treatment and the second one is the surgical treatment. medical therapy is the first line of choice in the treatment of the trigeminal neuralgia, which includes giving medication to the patient. Firstly carbamazepine and oxycarbazepina should be prescribed to the patient with low doses, if required doses can be increased. some of the other drugs that can be used in the treatment of the trigeminal neuralgia are local anesthetic solution, muscle relaxants, neuroleptics, and anticonvulsants can be used.¹²⁻¹⁴

In surgical method it depends upon the etiology of the disease also, for e.g. tumor is the cause of the trigeminal neuralgia due to decompression of trigeminal nerve by tumor, in this case, tumor is surgically removed to relive the compression over the trigeminal nerve. The two main types of surgical techniques used in the treatment of the trigeminal neuralgia is the differential percutaneous electrocoagulation of the trigeminal nerve and the second one is the trigeminal vascular decompression and also with radiofrequency thermocoagulation of the Gasser ganglion, most commonly used in the patient above 50 years of the age. Balloon compression is a technique that offers comfort for a longer time and with lower recurrence rates (approximately 30%), and have lower morbidity and no mortality.¹⁵⁻¹⁷

6. Conclusion

Trigeminal neuralgia is one of the common neurological disease of the face. One should have a thorough knowledge of the clinical condition, knowledge of proper anatomical structures related to the trigeminal nerve. Trigeminal neuralgia is a common disease which is encountered by the dentist and it should be the prime duty of the dentist to treat the disease by taking full history and find the underlying cause of the disease, that is whether the trigeminal neuralgia is from idiopathic cause or due to symptomatic cause, and the treatment should go according to the cause of the disease.

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8. Conflict of Interest

None.

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