



# Research Journal of Pharmaceutical, Biological and Chemical Sciences

## Neuralgic Disorders of Orofacial Region- A Review

Anitha N\*, Masthan KMK, Aravindh Babu N, Balachander N, Malathi L, and Rajesh E.

Department of Oral Pathology and Microbiology, Sree Balaji Dental college and hospital, Bharath University, Chennai, Tamil Nadu, India.

### ABSTRACT

Pain can be defined as a sensation which is associated with physical, psychological and social experience. It is more or less localized sensation of discomfort which usually results from stimulation of nerve endings. Neuralgic pains result from dysfunction of the peripheral sensory nerves. The pain includes neuropathies, nerve compressions and other nerve disturbances of the peripheral nervous system. This review discusses the various neuralgic pain affecting the orofacial regions.

**Keywords:** Neuralgic pain, Trigeminal neuralgia, peripheral nervous system, parasthesia.

*\*Corresponding author*

## INTRODUCTION

Pain is a complex physical, psychological and social experience. It is defined as a more or less localized sensation of discomfort, distress or agony resulting from the stimulation of specialized nerve endings [1]. The pathological pain can be acute or chronic. Acute pain is psychological or behavioural reaction. Chronic pain is much more complicated physical, behavioural and psychosocial problem. Physical pain acts as protective mechanism for humans and it arises from variety of nociceptive stimuli such as mechanical, thermal, ischemic and endogenous agents [2]. A wide variety of nociceptive stimuli stimulate pain receptor nerve endings (nociceptors) to begin the process of pain transmission. The nociceptors are of different types and are found in most tissues of the body.<sup>3,4</sup> In the oral cavity the nociceptors are superficial areas of skin, gingiva and mucous membrane of oral and maxillofacial areas, adventitia of blood vessels, aponeurotic sheaths, muscles, periosteum, periodontal ligaments, dental pulp and predentin of tooth. These nociceptors protect all tissues from injurious agents [2].

Temporomandibular joint and craniofacial problems are commonly misdiagnosed and treated inadequately [5]. The problem list for TMJ and craniofacial pain can be categorized as follows, [6, 7]

- Symptoms (obtained from chief complaints)-Physical or emotional.
- Diagnosis (physical or psychiatric)-Primary or secondary.
- Contributing factors (Initiating, perpetuating, resultant)-Biologic, Behavioral, Social, Environmental, Emotional, Cognitive.

### Neuralgia

Neuralgias result from dysfunction in neuronal firing of the peripheral sensory nerves. Neuralgia involves pain along a nerve and includes neuropathies, nerve compressions, neuritis and other nerve inflictions of peripheral nervous system. The general symptom of neuralgias is paresthesia like pain along a distinct nerve distribution. Neuralgias fall into two main groups: Paroxysmal and continuous [2].

### Paroxysmal neuralgia

Paroxysmal neuralgia is characterized as a lancinating pain along a nerve distribution. It is unilateral with trigger area and lasts for seconds to minutes. This pain is eliminated with nerve block. The pathophysiology is said as the continuous afferent impulses conveyed locally to a nerve are summated over a period of time and build up an excitatory state where normal stimuli trigger a sudden intense discharge of impulses [8].

### Continuous neuralgia

The continuous neuralgia occurs as paresthesia along a nerve distribution and it may be unilateral or bilateral. It is also eliminated with nerve block but it stays constant over time.

## Classification

### Paroxysmal neuralgia

- Trigeminal neuralgia
- Glossopharyngeal neuralgia
- Facial neuralgia
- Occipital neuralgia
- Nervous intermedius neuralgia
- Eagle's syndrome

### Continuous neuralgia

- Post herpetic
- Post traumatic and Post surgical
- Environmental neuralgias
- Residual cavities
- Burning tongue syndrome

### Trigeminal neuralgia (Trifacial neuralgia, Tic Douloureux, Fothergill's disease)

Trigeminal neuralgia is facial neuralgia characterized by an extremely severe electric shocklike or lancinating type of pain. Trigeminal neuralgia usually affects one, two or all three divisions of the nerve [9]. Women are affected more than men [2]. The pain is limited to one or more branches of the trigeminal nerve. Occasionally, trigeminal neuralgia results from brain stem tumour or infarction [10]. The etiologic factors suggested are periodontal disease, traumatogenic occlusion, peripheral injury to trigeminal nerve, abnormal vessels, aneurysms, tumours and chronic meningeal inflammation. On touching the various trigger zones such as vermilion border of the lips, alae of the nose, cheeks and around eyes the patient experiences a searing, stabbing or lancinating type of pain [11].

### Glossopharyngeal neuralgia (Vaguglossopharyngeal neuralgia)

Glossopharyngeal neuralgia is similar to trigeminal neuralgia but arises from the glossopharyngeal nerve but is comparatively rare. Neural ischaemia has been suggested as etiology but without conclusive evidence. The disorder has no gender predilection and manifests as sharp, shooting pain in the ear, pharynx, nasopharynx, tonsil or the posterior portion of the tongue. Patient may experience numerous mild attacks interspersed by occasional severe ones. The trigger zones are posterior oropharynx or tonsillar fossa [11]. This neuralgia causes pain in the ear, tonsillar area, lateral posterior pharyngeal area, posterior tongue, throat, Eustachian tube and neck [12, 13].

### Atypical Facial neuralgia (Atypical facial pain, Facial causalgia)

It constitutes a group of conditions in which there is a vague, deep, poorly localized pain in regions supplied by fifth and ninth cranial nerves and the second and third cervical nerves. The distribution of pain is unanatomic and may cross midline. This pain lacks a

trigger zone and is constant persisting for weeks, months or even years. It may be as severe as trigeminal neuralgia but its pattern and quality are different. Atypical facial pain is without specific cause but injury of trigeminal nerve due to facial trauma or base skull fracture may produce this disorder [11].

### **Occipital neuralgia**

Occipital neuralgia originates unilaterally above the superior nuchal line as a stabbing pain that radiates up the back of cranium [13]. It is usually confused with posterior cervical myofascial pain referred to occipital area. This neuralgia is caused by fascial entrapment of the occipital nerve [2].

**Nervus intermedius neuralgia** (Ramsay Hunt syndrome, Geniculate ganglia neuralgia, Wrisburg neuralgia)

It is a rare disorder and is described as a lancinating “hot poker” in the ear [14,15]. The trigger zone is usually in the external auditory canal. It can occur anterior or posterior to or on the pinna in the auditory canal and occasionally soft palate [2].

### **Eagle’s syndrome (Carotid artery syndrome)**

This syndrome consists of either elongation of the styloid process or ossification of the stylohyoid ligament. This results in dysphagia, sore throat, otalgia, glossodynia, headache and pain along the distribution of the internal and external carotid arteries. The more consistent symptom is pharyngeal pain. The ossified ligament causes impingement on the internal and external carotid arteries [11].

### **Postherpetic neuralgia**

Post herpetic neuralgia is a constant, intense burning pain with hyperesthesia that occurs within days of a unilateral neural infection of a peripheral nerve or dorsal root ganglion with herpes zoster virus [16]. It most frequently affects the elderly and commonly causes sleep interruption, drug reliance and depression [2].

### **Post Traumatic and Post-surgical neuralgia**

It differs from post herpetic neuralgia in onset, history and quality of pain [17]. It results from damage to the nerve by trauma or surgery. A frequent dental cause of postsurgical nerve injuries occurs to inferior alveolar nerve during extraction of mandibular molar teeth. The pain is usually a continuous tingling, numbness, twitching or prickly sensation [2].

### **Environmental neuralgias**

It is caused by heavy metal poisoning, toxic substances, medication side effects or other environmental stimuli. Heavy metal poisoning causes pain or paresthesias in the head, feet, hands and extremities. Associated findings may be gastrointestinal disturbances, skin

changes and neurological deficits. Medication side effects can be neuralgias of extremities, hands and feet [2].

### **Residual cavities**

Residual cavities in maxilla and mandible after traumatic extraction have been proposed as a cause of continuous neuralgias. Patient complains of constant pain in the area of tooth extraction [2].

### **Burning mouth syndrome**

Burning mouth syndrome consists of burning sensation in the oral mucosa most commonly tongue. The symptoms are constant but fluctuate in intensity. Many etiologic factors are involved in this syndrome and they are psychogenesis, pernicious anemia, diabetes mellitus, oral moniliasis, trauma, geographic tongue, xerostomia, iron deficiency anemia, gastric acid disturbance, folic acid deficiency, food and toothpaste allergies, medication side effects, heavy metal intoxication, tobacco and spices in excess, faulty dentures and menopause [18].

### **REFERENCES**

- [1] Dorland's Illustrated Medical Dictionary, Philadelphia, 1974, W B Saunders Co.
- [2] James R Friction, Richard J Kroening, Kate M Hathaway. Friction's TMJ and Craniofacial pain Diagnosis and Management, 2000.
- [3] Perl ER. J Psychiat Res 8:273-287, 1971.
- [4] Sessle BJ, In Bonica, J Liesbeskind and Abel -Fessard. Adv Pain Res Ther 1979;3, New York, 1979, Raven Press.
- [5] Friction J and Kroening R. Oral Surg 1982;54:628-634.
- [6] Aranda JM. JAMA 1974;229:549-551.
- [7] Degowin EL, Degowin RL. Bedside diagnostic examination 4<sup>th</sup> edition, London, 1978, Macmillan.
- [8] Kugelberg E, Lindblom U. J Ne Ne Psy 1959;22:1:36-43.
- [9] Yoshimasu F, Kurland LT and Elveback LR. Neurol 1972;22:952-956.
- [10] Brad W Neville, Douglas D Dann, Carl M Allen, Jerry E Bouquet. Ora and Maxillofacial Pathology, Second edition WB Saunders(2002);680-687
- [11] Shafer's Textbook of Oral Pathology 5<sup>th</sup> edition 2006.
- [12] Rushton JG, Stevens JC, Miller RH. Arch Neurol 1981;38:201-205.
- [13] Bohm E, Strang RR. Brain 1962;85:371-388.
- [14] Walker AE, Knighton PR, Dumke PR. Neuralgias of the glossopharyngeal vagus and intermediate nerves. New York 1966, Little, Brown and Co, 421-429.
- [15] Knox DL and Mustonen E. Trans Am Acad Ophthalmol Otolaryngol 1975;79:513-516.
- [16] Loeser JD. Pain 1986;25:149-164.
- [17] Bonica JJ. The management of pain, 785-824, 1263-1303, Philadelphia, 1953.
- [18] Zagarelli DJ. Oral Surg 1984;58:34-38.