

REVIEW ARTICLE

Orofacial Pain: A Review

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ABSTRACT:

Pain in the oral and craniofacial framework speaks to a major medical and social issue. Orofacial Pain (OFF) can emerge from various locales and etiologies. Temporomandibular issue (TMD) are the most pervasive orofacial Pain conditions for which patients look for treatment. Orofacial Pain speaks to a critical weight as far as dreariness and wellbeing administration usage. It incorporates exceptionally basic issue, for example, toothache and temporomandibular disorders, and also uncommon orofacial pain disorders. In spite of the fact that proof demonstrates that orofacial pain is broadly common in the overall public, look into still neglects to address various parts of agony administration and conclusion. In this way both the lab and the clinical research ought to be performed to expand our insight into the ordinary and strange components that generate orofacial pain.

Keywords: Orofacial pain, Temporomandibular joint disorder, Neuropathic pain; Pain transmission, Trigeminal.

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This article may be cited as: Money MS, Ahuja I, Aneja K. Orofacial Pain: A Review. J Adv Med Dent Scie Res 2017;5(9):82-86.

Access this article online	
Quick Response Code 	Website: www.jamdsr.com
	DOI: 10.21276/jamdsr.2017.5.9.19

Introduction:

Pain in the oral and facial area (orofacial pain) produces huge biopsychosocial impacts Risk factors for constant oro-facial pain incorporate chronic widespread pain age, sexual orientation, sex and psychological factors. Most populace based examinations have demonstrated that ladies report more facial pain than men with rates around twice as high among ladies contrasted with men.⁶ conversely, different investigations have discovered no sex distinction in the predominance of Orofacial pain.¹ This might be because of the broad assortment of Orofacial pain conditions, which may have varying sexual orientation 'inclinations'. Orofacial pain might be because of different conditions influencing various structures neighborhood to or far off to the oral cavity including: the meninges, cornea, oral/nasal/sinus mucosa, dentition, musculature, salivary organs and temporomandibular joint.² The district's novel neurophysiologic characteristics, which are diverse to the spinal nociceptive framework, can introduce indicative difficulties to clinicians represent considerable authority here. As of late there has been an expansion in proficient enthusiasm for orofacial pain disorders. Another kind of

clinical field is developing with exceptional involvement in overseeing orofacial pain disorders. It recommends that pain is intervened by method for particular neural structures that are made for that reason and demonstrates that pain is a defensive component against injury.

Substrates of pain: Neuroanatomy of pain pathways

Receptors of pain

Sensory receptors for pain, nociceptors, are exposed nerve endings that end in the skin and most different tissues of the body. Be that as it may, their dispersion is not uniform all through organs of the body. When in doubt, profound instinctive organs of the body are not all around provided with nociceptors.³ These receptors are for the most part characterized by the sort to which they react:

1. Mechanosensitive pain receptors react to mechanical harm.
2. Thermosensitive pain receptors react to react to temperature extremes.
3. Chemosensitive pain receptors react to chemicals that happen with harmed tissues illustration hypertonic saline, potassium chloride, acetylcholine, 5-

Hydroxytryptamine, histamine, bradykinin and substance P. Vasoactive amines are discharged soon after damage by the basophils, platelets and mast cells.

As these receptors flag either genuine or potential harm to tissues, pain has survival incentive to the living being. Thus pain receptors for the most part don't adjust to confirm for the presence of cutaneous myelinated A δ and unmyelinated C filaments was given by Zottermann, who translated his perceptions as solid help for Bell's and Mullers hypothesis of specificity. It is realized that poisonous incitement energizing substantial and dental A δ afferents may apply a covering or inhibitory impact on C-fiber related sensations.⁴

Dental pain

Face is considered as a reflection of mind-internal occasions, feelings, practices are pondered outward appearances. The cortex is additionally a perfect representation to the body. It mirrors the self-perception and sees what the body encounters. The cortical homunculus of the body has more extensive portrayal for orofacial zone when contrasted with different parts. At the point when a patient goes to the dental practitioner and gripes of pain, the dental specialist is not managing a straightforward tactile marvel including the peripheral neural occasions inspired by excruciating jolts. Pain in dentistry has a tactile – discriminative measurement.⁵

Pain has multidimensional accentuation, includes full of feeling, motivational and intellectual segments. In orofacial pain for instance the patient's last visit to the dental specialist, and progressing tangible encounters of stress and tension amid the present visit may tweak the pain understanding. Sensory disturbances of the face and oral cavity can happen in number of circumstances that are exceptionally compelling to the oral and maxillofacial specialist. These incorporate nerve lesions amid expulsion of mandibular cysts, third molars, osteotomies of the facial skeleton and maxillofacial injury.

Temporo Mandibular Disorders (TMD) contain by a wide margin the most well-known reason for constant facial pain conditions with a higher predominance in ladies when contrasted with men. TMD are a complex heterogeneous group of conditions, including masticatory muscles as well as temporomandibular joints, characterised by unending facial pain and speaking to reason for physical and mental debility in an expansive portion of populace.

Pathways of orofacial pain:

Sensory input from peripheral receptors is conveyed along the trigeminal pathway to the somatic sensory areas of the cerebral cortex by means of a 3-neurone chain. The cell bodies from the Trigeminal (Gasserian) Ganglion and this principle nerve package at that point enter the brainstem at the level of the pons. These fibers synapse for the first time at the main sensory nucleus of the Vth nerve or then again at dropping spinal tract nuclei, the N. caudalis (pain, temperature and touch), N. oralis (cutaneous vibrate of

oral mucosa) and N. interpolaris (tooth pulp pain). Second order fibers emerging from these destinations at that point cross the midline and climb to synapse at the thalamus, from which thalamocortical projections at that point go to those cortical zones concerned about oro-facial sensation and its appreciation.⁶

Classification of Orofacial Pain

Orofacial pain can be classified into following different categories:⁹

Neuralgias

- Primary Trigeminal Neuralgia (Tic Douloureux)
- Secondary Trigeminal Neuralgia (CNS Lesion or facial trauma)
- Herpes Zoster
- Post Herpetic Neuralgia
- Geniculate Neuralgia (Cranial Nerve VII)
- Glossopharyngeal Neuralgia (Cranial Nerve IX)
- Superior Laryngeal Neuralgia (Cranial Nerve X)
- Occipital Neuralgia

Pain of musculoskeletal origin

- Cervical Osteoarthritis
- Temporomandibular joint disorders
- TMJ Rheumatoid arthritis
- TMJ Osteoarthritis
- Myofascial Pain Dysfunction
- Fibromyalgia
- Cervical Sprain or Hyperextension
- Stylohyoid (Eagle's) Syndrome

Primary vascular disorders

- Migraine
 - o Classic – preceded by an aura, unilateral, photo and phonophobia
 - o Common – 80% of headaches, similar to classic but not preceding aura
 - o Complex – neurologic symptoms imitating stroke
- Cluster Headache
- Tension-type Headache
- Hypertensive Vascular changes (Aneurysm, Emboli)
- Mixed Headache
- Cranial arteritis
- Carotodynia
- Thrombophlebitis

Psychogenic pains

- Delusional/hallucinatory
- Hysterical/Hypochondriac

Generalised pain syndromes

- Post-traumatic pains
- Sympathetically maintained pain (Causalgia)
- Phantom Pain
- Central Pain

Lesions of the ear, nose, and oral cavity

- Maxillary Sinusitis
- Otitis media
- Odontalgia
- Dentin defects
- Pulpitis
- Periapical pathology/Abscess
- Cracked tooth/restoration
- Atypical odontalgia
- Periodontal pathology
- Occlusal trauma
- Dental impaction
- Cysts and tumors
- Osteitis
- Mucocutaneous diseases
- Salivary gland diseases
- Atypical facial pain
- Glossodynia

Epidemiology of orofacial pain

Orofacial pain alludes to a vast gathering of scatters, including temporomandibular disorders (TMDs), migraines, neuralgia, pain emerging from dental or mucosal inceptions, and idiopathic pain. The classification and epidemiology of orofacial pain presents challenges in view of the numerous anatomic structures included, various causes, capricious agony referral designs and showing side effects, and an absence of agreement with respect to differential symptomatic criteria. Chronic orofacial pain influences around 9% of grown-ups and up to half of the elderly. There is confirm that sex contrasts in masticatory muscle pain and delicacy develop as right on time as 19 years of age. Women of reproductive age, with a centralization of ladies in their 40s, look for treatment for orofacial pain all the more much of the time contrasted with men by a 2:1 ratio. Moreover, a more noteworthy extent of ladies look for treatment for other pain conditions, for example, headache and tension type cerebral pains, fibromyalgia, autoimmune rheumatic disease, perpetual exhaustion, orthopedic issues, and irritable bowel syndrome.⁸

Ladies will probably look for therapeutic administer to torment; be that as it may, they additionally report more agony for which they don't look for treatment. among patients who gave orofacial pain enduring no less than seven days, over 90% grumbled of pain in other body regions also. Patients who have orofacial pain share numerous similitudes with different patients who have perpetual agony, for example, a direct connection between's accounted for side effects and goal pathologic discoveries, maladaptive practices (eg, parafunctions), social and psychologic trouble, impedance of every day exercises, word related incapacity, and higher rates of medicinal services utilize.⁹ The outcome is a lessened personal satisfaction that is compelled by pain encounters. Various components with shifting degrees of empiric help have been

placed to clarify sex contrasts in pain commonness. These incorporate contrasts in sliding focal sensory system pathways that regulate pain signal transmission, hereditary qualities, and the impacts of gonadal hormones. Likewise, an immense writing addresses psychosocial sex contrasts in side effect evaluation, socialization and gender roles, manhandle and injury, discouragement and uneasiness, sexual orientation predisposition in inquire about and clinical practice, and race and ethnicity.

Pain diagnosis

The most critical piece of overseeing orofacial pain is in understanding the issue and touching base at a legitimate analysis. It is just by legitimate determination that a suitable treatment can be chosen.

The target of determination is to precisely distinguish the what, where, how and why of the patients dissensions. The qualities of pain make diagnosing the pain more troublesome. Diagnosing a pain grumbling comprises of these significant strides:

- History
- Clinical examination
- Accurately distinguishing the area of the extractions from which the pain exudes
- Establishing the right pain classification that is spoken to in the condition under scrutiny

Differential Diagnosis

The following sections are aimed at giving an overview of the processes involved in formulating a differential diagnoses for patients presenting with OFP. They are not meant to be exhaustive and interested readers are referred to several excellent texts on the subject. A recent report on the differential diagnosis of OFP highlights some important strategies to help distinguish between OFP conditions and come to a diagnosis or differential diagnoses. History-taking remains of paramount importance in facilitating the diagnostic process. Blau⁴⁴ suggested fifteen questions to facilitate the history taking process in OFP which cover the following aspects of the presenting pain: Onset, Frequency, Duration, Provoking factors, Site of initiation of pain, Radiation and referral of pain, Is the pain deep or superficial, Aggravating or exacerbating factors, Relieving factors, Characteristics of the pain, Severity and other associated features, for example lacrimation or other autonomic signs and symptoms, Previous management strategies attempted and atient's perceived causes of pain.⁹

Several recent recommendations for the assessment of pain patients cover the necessity for a full medical, dental, and social history, following the history of the presenting complaint. The examination of a patient with OFP should include the following as a bare minimum and more detailed examination of some tissues or systems may be added as the diagnostic process refines: Inspection of the head and neck,

skin, topographic anatomy, and swelling or other orofacial asymmetry, Palpation of the temporomandibular joint and masticatory muscles, tests for strength and provocation. With assessment and measurement of the range of mandibular movement, Palpation of soft tissue (including lymph nodes), Palpation of cervical muscles and assessment of cervical range of motion, Cranial nerve examination, General inspection of the ears, nose, and oropharyngeal areas, examination and palpation of intraoral soft tissue, examination of the teeth and periodontium (including occlusion).

Differential diagnosis of OFP includes:¹⁰

Dental causes

- Pulpitis
- Dentin hypersensitivity
- Cracked tooth syndrome
- Periodontal
 - Periapical periodontitis and periapical abscess
 - Periodontal abscess
- Pericoronitis and pericoronal abscess
- Burning mouth syndrome
- Oral ulceration (e.g. aphthous stomatitis, erosive oral lichen planus, etc.)
- Oral cancer
- Persistent idiopathic facial pain (atypical facial pain)
 - Atypical odontalgia
 - Neuropathic pain
 - Trigeminal neuralgia
 - Glossopharyngeal neuralgia
 - Mental nerve neuralgia
 - Headache
 - Migraine
 - Cluster headache
 - Temporomandibular joint dysfunction (TMD)
 - Eagle syndrome

General Considerations in Managing Orofacial Pain

The conditions that produce pain are vulnerable to adjustment. The treatment of individuals who endure pain involves the control of those components that start and complement pain as well as the organization of means and techniques by which patients can better adapt to their protestation. The pain administration covers following elements:

- Elimination of causative stimuli
- Interception of nociceptive circuits

- Enhancement of neural instrument of pain hindrance

More often than not, patients will visit the clinician when pain and dysfunction, for example, constraint of opening, scenes of joint locking (open lock/TMJ subluxation), pain with mandibular capacity (biting), facial pain, or cerebral pain are available. The treatment objectives for TMD are diminishing pain and reestablishing typical masticatory and jaw work. Numerous TMDs can be repeating and self constraining, with times of complete abatement of symptoms. The utilization of a home care program has ended up being successful in the administration of TMD. It has been demonstrated that patients have revealed feeling less pain promptly after their underlying patient instruction/guiding visit, maybe as an outcome of a quick lessening in stretch/pressure related parafunctional movement.¹¹ Persistent instruction is a critical part of home care and is a standout amongst the most unpretentious and overlooked, yet successful, medications for TMD. Accordingly, advising and consoling the patient with respect to their condition and exhibiting side effects may ease a lot of uneasiness and enhance treatment results.

Medicinal care (non-surgical)

Physical therapy/ Exercise based recuperation

Educating the patient to apply sodden warmth or icy packs, or exchanging the two modalities, has been turned out to be gainful, since it empowers absense of pain and unwinding and may enhance development. Physical therapy is useful in reestablishing the ordinary capacity of the TMJ, muscles of mastication, and cervical muscles, and additionally in diminishing inflammation, advancing repair, and quality.¹¹

Pharmacotherapy

Drugs are a viable expansion in dealing with the effects of intracapsular issue. Regularly utilized pharmacological operators for the treatment of TMJ issue incorporate analgesics, nonsteroidal anti-inflammatory drugs (NSAIDs), local anesthetics, oral and injectable corticosteroids, sodium hyaluronate infusions, muscle relaxants, botulinum toxin infusions, and antidepressants.^{12,13} The analgesics and corticosteroids are demonstrated for intense TMD pain; the NSAIDs, local anesthetics, and muscle relaxants are utilized for both intense and unending conditions; and tricyclic antidepressants are typically utilized more for perpetual TMD pain in relationship with tension type cerebral pains. Research showing the adequacy of botulinum toxin for solid issue identified with TMD is constrained in spite of the fact that there is little information to help the advantage of utilizing low fixations and huge infusion volumes of botulinum toxin at multiple muscular sites.

Surgical care

TMJ surgery is just shown when non-surgical therapy has been ineffectual, and it is not demonstrated in patients who are asymptomatic or somewhat symptomatic or as a

preventive measure. Surgical proposals, for example, arthrocentesis and arthroscopy, rely upon the level of interior derangement and in addition past TMJ treatment history notwithstanding moderate-to-serious pain and incapacitating dysfunction.^{14,15} It is essential to debilitate patients from experiencing surgical methodology if physical drug, pharmacological administration, and splint therapy have not been endeavored. Working intimately with an oral and maxillofacial specialist who has skill in TMJ surgery is exceedingly prudent in managing this specific gathering of patients.¹⁶

Conclusion:

Considerable clinical and experimental evidence demonstrates gender and sex differences in the epidemiology, etiology, and manifestation of orofacial pain. Experimental studies in humans consistently indicate greater pain sensitivity among women, although the magnitude of the sex difference varies across studies. Some evidence suggests sex differences in responses to pharmacologic and nonpharmacologic treatments for pain; however, conflicting findings abound. The mechanisms that underlie these sex differences in clinical and experimental pain responses are not understood fully; however, several biopsychosocial factors are believed to contribute, including gonadal hormones, genetics, cognitive/affective processes, and stereotypic gender roles.

A clinically relevant area for future research involves identifying sex-related markers that distinguish individuals who are at risk for developing chronic pain from those who are comparatively resistant. The relative contributions of genetic, anatomic, neurochemical, and hormonal factors remain unknown, although, they all seem to influence the pain experience.

It also is important to consider that psychosocial factors exert powerful effects on pain modulation, and the neurobiology of these processes requires further investigation. Most research has focused on the magnitude of sex differences in responses to pain and its treatment; however, a potentially more important issue is identifying sex-specific determinants of pain and

treatment outcome. Because pain involves multifactorial and redundant systems, it is unlikely that a single medication or treatment will suit all patients' needs. Thus, increased efforts to elucidate qualitative sex differences may be informative for developing new analgesic agents and multidimensional therapeutic techniques. The advancement of knowledge regarding sex, gender, and pain signifies a promising step toward designing targeted diagnostic techniques and treatment methods.

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Source of support: Nil

Conflict of interest: None declared

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