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CHRONIC OROFACIAL PAIN "AN ENIGMA WRAPPED IN A RIDDLE"

Otorhinolaryngology

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ABSTRACT

Chronic pain is defined as pain that persists for longer than three months and is associated with significant emotional distress or functional disability and that cannot be explained by another chronic condition. Headache is defined as pain occurring only or mainly above the orbitomeatal and/or nuchal ridge, whereas facial pain is defined as pain occurring mainly or exclusively under the orbitomeatal line, anterior to the pinnae and above the neck. Usually in chronic pain definition implies pain on a daily basis in the case of orofacial pain and headache chronicity is defined as pain occurring on more than 15 days per month and lasting for more than 4 hours daily for at least the last 3 months. This definition excludes the periodic short-lasting pains that often recur in the face and head, but are not essentially chronic. The article discusses about various presentations of the disease and aims to establish definite diagnostic guidelines and first line treatment options for these conditions.

KEYWORDS

Orofacial pain, ICHD, Neuropathy

INTRODUCTION

Chronic pain is defined as pain that persists for longer than three months and is associated with significant functional disability or emotional distress. Chronic orofacial pain (COFP) is an umbrella term used to describe painful regional syndromes with a chronic, unremitting pattern. There is clinical overlap between chronic orofacial pain (COFP) and headache with 60% of patients seeking treatment for COFP reporting headaches. Headache is defined as pain occurring only or mainly above the orbitomeatal and/or nuchal ridge, whereas facial pain is defined as pain occurring mainly or exclusively under the orbitomeatal line, anterior to the pinnae and above the neck. The face and head are both innervated by the trigeminal nerve even if headache is largely via the first division and orofacial pain via the second and third trigeminal branches. Even then both entities are closely associated with each other and the mechanism can be explained by the neuronal interplay between the trigeminal subnucleus caudalis and the upper cervical spinal cord (trigeminocervical complex), and neuroplastic changes that occur in response to injury and pain (Shinoda et al. 2019; Tal et al. 2015).

Chronic orofacial pain (COFP) is pain in the face, mouth, or jaw that lasts for more than three months. Pain can involve the auricular regions also. It can be continuous or intermittent and the prevalence of orofacial pain is around 17% to 26%, out of which 7% to 11% is chronic. Usually in chronic pain definition implies pain on a daily basis in the case of orofacial pain and headache chronicity is defined as pain occurring on more than 15 days per month and lasting for more than 4 hours daily for at least the last 3 months. This definition excludes the periodic short-lasting pains that often recur in the face and head, but are not essentially chronic. Many authors have considered duration of headache to be reduced for 2 hours for uniformity of diagnosis.

Based on a consensus between the International Headache Society (IHS) and the International Association for the Study of Pain (IASP) classification of orofacial pain as per ICHD 3 is

13. Painful Lesions of the Cranial Nerves and Other Facial Pain

- **13.1 Pain Attributed to a Lesion or Disease of the Trigeminal Nerve**
  - 13.1.1 Trigeminal neuralgia
    - 13.1.1.1 Classical trigeminal neuralgia
      - 13.1.1.1.1 Classical trigeminal neuralgia, purely paroxysmal
      - 13.1.1.1.2 Classical trigeminal neuralgia with concomitant continuous pain
    - 13.1.1.2 Secondary trigeminal neuralgia
      - 13.1.1.2.1 Trigeminal neuralgia attributed to multiple sclerosis
      - 13.1.1.2.2 Trigeminal neuralgia attributed to space-occupying lesion
      - 13.1.1.2.3 Trigeminal neuralgia attributed to other cause
    - 13.1.1.3 Idiopathic trigeminal neuralgia
      - 13.1.1.3.1 Idiopathic trigeminal neuralgia, purely paroxysmal
      - 13.1.1.3.2 Idiopathic trigeminal neuralgia with concomitant continuous pain
  - 13.1.2 Painful trigeminal neuropathy
    - 13.1.2.1 Painful trigeminal neuropathy attributed to herpes zoster
    - 13.1.2.2 Trigeminal post-herpetic neuralgia
    - 13.1.2.3 Painful post-traumatic trigeminal neuropathy
    - 13.1.2.4 Painful trigeminal neuropathy attributed to other disorder
    - 13.1.2.5 Idiopathic painful trigeminal neuropathy

- **13.2 Pain Attributed to a Lesion or Disease of the Glossopharyngeal Nerve**
  - 13.2.1 Glossopharyngeal neuralgia
    - 13.2.1.1 Classical glossopharyngeal neuralgia
    - 13.2.1.2 Secondary glossopharyngeal neuralgia
    - 13.2.1.3 Idiopathic glossopharyngeal neuralgia
  - 13.2.2 Painful glossopharyngeal neuropathy
    - 13.2.2.1 Painful glossopharyngeal neuropathy attributed to a known cause
    - 13.2.2.2 Idiopathic painful glossopharyngeal neuropathy

- **13.3 Pain Attributed to a Lesion or Disease of Nervus Intermedius**
  - 13.3.1 Nervus intermedius neuralgia
    - 13.3.1.1 Classical nervus intermedius neuralgia
    - 13.3.1.2 Secondary nervus intermedius neuralgia
    - 13.3.1.3 Idiopathic nervus intermedius neuralgia
  - 13.3.2 Painful nervus intermedius neuropathy
    - 13.3.2.1 Painful nervus intermedius neuropathy attributed to herpes zoster
    - 13.3.2.2 Post-herpetic neuralgia of nervus intermedius
    - 13.3.2.3 Painful nervus intermedius neuropathy attributed to other disorder
    - 13.3.2.4 Idiopathic painful nervus intermedius neuropathy

- **13.4 Occipital Neuralgia**
- **13.5 Neck-tongue Syndrome**
- **13.6 Painful Optic Neuritis**
- **13.7 Headache Attributed to Ischaemic Ocular Motor Nerve Palsy**
- **13.8 Tolosa-hunt Syndrome**
- **13.9 Paratrigeminal Oculosympathetic (Raeder's) Syndrome**
- **13.10 Recurrent Painful Ophthalmoplegic Neuropathy**
- **13.11 Burning Mouth Syndrome (BMS)**
- **13.12 Persistent Idiopathic Facial Pain (PIFP)**

Another classification for chronic orofacial pain was established in

2020 named ICOP. The 'International Classification of Orofacial Pain' (ICOP) ICOP is a multiprofessional, international initiative to establish a comprehensive classification of orofacial pain and has recently been published (ICOP 2020). This classification is in line with ICHD-3 and ICD-11 and it includes diseases based on aetiologies such as

1. Orofacial pain attributed to disorders of dentoalveolar and anatomically related structures
2. Myofascial orofacial pain
3. Temporomandibular joint (TMJ) pain
4. Orofacial pain attributed to lesion or disease of the cranial nerves
5. Orofacial pains resembling presentations of primary headaches
6. Idiopathic orofacial pain
7. Psychological causes

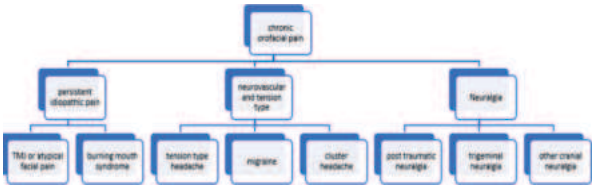

Figure 1- A Brief Classification of Orofacial Pain

The purpose of this article is to discuss the various clinical presentations and how to reach a definite diagnosis in chronic orofacial pain. We will discuss various etiologies and manifestations as enlisted in ICHD-3 and treatment modalities available for these diseases. Our aim is to establish definite diagnostic guidelines and first line treatment options for these conditions. The treating physician needs to have solid knowledge of the pain conditions and often multidisciplinary approach is the need of the hour.

Lesions of the Cranial Nerve

It has been estimated that the incidence of chronic orofacial neuropathic pain is 5-10 per 1 lakh people. The four major neuropathic disorders trigeminal neuralgia, glossopharyngeal neuralgia, nervus intermedius neuralgia and occipital neuralgia. Patients with orofacial neuropathic pain may experience spontaneous pain, or intermittent shock-like pain paroxysms. Let us discuss each of these neuralgias in detail.

Trigeminal Neuralgia

A disorder characterized by recurrent unilateral brief electric shock-like pains, abrupt in onset and termination, limited to the distribution of one or more divisions of the trigeminal nerve and triggered by innocuous stimuli. It may develop without apparent cause or be a result of another diagnosed disorder. It usually involves second and third division of trigeminal nerve and can often involve both segments and produce symptoms intra and extra orally.

Diagnostic Criteria:

Recurrent paroxysms of unilateral facial pain in the distribution(s) of one or more divisions of the trigeminal nerve, with no radiation beyond, and fulfilling criteria B and C

A. Pain has all of the following characteristics:
1. lasting from a fraction of a second to 2 minutes
2. severe intensity
3. electric shock-like, shooting, stabbing or sharp in quality

B. Precipitated by innocuous stimuli within the affected trigeminal distribution[4]

C. Not better accounted for by another ICHD-3 diagnosis.

The aetiology of trigeminal neuralgia is considered to be vascular (around 80 percent) compression with superior cerebellar artery compressing the root found to be the most common cause. Other contributing vessels include the petrosal vein and the anterior inferior cerebellar or vertebral arteries. Non vascular causes include tumours of CP angle like acoustic neuromas. Demyelinating disorders like multiple sclerosis can also be the causative factor in some cases. In around 10 percent of cases where no apparent cause can be found on imaging it is considered to be idiopathic. The basic investigation that is needed in cases of trigeminal neuralgias is to get an MR imaging done to look for morphological changes (indentation, distortion or atrophy) of the neurological bundle by vascular causes. Other causes such as CP angle lesions, AV malformations and multiple sclerosis can also be picked up by an MRI.

Treatment

First line therapy is always medical and the drug of choice is anti-epileptics carbamazepine or oxcarbazepine. These antiepileptic agents may control pain by binding to voltage-gated sodium channels. Unlike carbamazepine, oxcarbazepine is not metabolized by cytochrome P450 and has fewer potential interactions with other medications. Both drugs can cause hyponatremia. Testing for the HLA-B*15:02 allele is recommended; this allele is strongly associated with developing toxic epidermal necrolysis or Stevens-Johnson syndrome when taking carbamazepine. Most cases respond to carbamazepine. A less effective alternative is gabapentin. In resistant cases to carbamazepine or in cases of toxicity, lamotrigine can be given with decent results. Valproic acid and baclofen are other second line drugs. Neurosurgical options, such as microvascular decompression or gamma knife radiosurgery, may be considered in resistant cases. Botulinum toxin injection may benefit some patients, particularly middle-aged and elderly patients, who are refractory or intolerant to medical therapy.

Peripheral Trigeminal Neuropathic Pain

Facial pain in the distribution(s) of one or more branches of the trigeminal nerve caused by another disorder and indicative of neural damage. The primary pain is usually continuous or near-continuous, and commonly described as burning or squeezing or likened to pins and needles. Superimposed brief pain paroxysms may occur, but these are not the predominant pain type. The most common causes include Herpes zoster infections of the trigeminal nerve or traumatic injury to the nerve.

In cases of neuronal injury topical creams or ointments may be used to reduce the pain. Capsaicin normally at a concentration ranging from 0.025%–0.05% mixed with benzocaine 20% and applied with the use of a stent that covers the affected area (neurosensory stent) is very effective. In cases of viral infections NSAIDs such as diclofenac, anticonvulsant drugs such as gabapentin and carbamazepine, and tricyclic antidepressant medications such as nortriptyline and amitriptyline can be used. Antivirals are used only in cases of active infection.

Glossopharyngeal Neuralgia

A disorder characterised by unilateral brief stabbing pain, abrupt in onset and termination, in the distributions not only of the glossopharyngeal nerve but also of the auricular and pharyngeal branches of the Vagus nerve. Pain is experienced in the ear, base of the tongue, tonsillar fossa and/or beneath the angle of the jaw. It is commonly provoked by swallowing, talking or coughing and may remit and relapse in the fashion of trigeminal neuralgia.

Diagnostic Criteria:

A. Recurring paroxysmal attacks of unilateral pain in the distribution of the glossopharyngeal nerve[1] and fulfilling criterion B

B. Pain has all of the following characteristics:
1. lasting from a few seconds to 2 minutes
2. severe intensity
3. electric shock-like, shooting, stabbing or sharp in quality
4. precipitated by swallowing, coughing, talking or yawning

C. Not better accounted for by another ICHD-3 diagnosis.

Due to the proximity of the vagal sensory nerves, glossopharyngeal neuralgia may coincide with a cardiac dysrhythmia such as bradycardia, asystole, and syncope. The pain is often referred to as vagoglossopharyngeal neuralgia because of its close association. Neuralgias of superior laryngeal nerve may mimic glossopharyngeal neuralgia. The diagnosis is confirmed by blocking the tonsillar and pharyngeal branches using local anaesthetics which causes remission of pain. Imaging with a CT scan of the head and a brain MRI should be conducted to rule out pathology related to the nerve compression and possible oropharyngeal carcinoma.

Secondary Causes of Glossopharyngeal Neuralgia Include:

- Vascular compression, mainly at the nerve root: the most common cause
- Demyelinating diseases: e.g., multiple sclerosis
- Inflammatory and autoimmune diseases: e.g., Sjogren disease
- Intraoral and peritonsillar infections
- Intracranial space-occupying lesions, especially medullary tumours or tumours originating from CP angle
- Posterior fossa and cervical malformations
- Eagle syndrome or stylalgia: If the styloid process is over 25mm or the stylohyoid ligament is calcified, they can cause compression of the glossopharyngeal nerve
- Oropharyngeal cancers include carcinoma of the tongue and benign tumours like schwannomas

Treatment for primary glossopharyngeal neuralgia is mostly medical. Anti epileptics are the mainstay of treatment. Secondary glossopharyngeal neuralgias are treated according to the underlying cause. Microvascular decompression and excision of styloid process are surgical options. Autoimmune diseases are treated with immunosuppressants and oropharyngeal lesions may be treated with excision using CO2 laser or radiation therapy.

Neuralgias of Nervus Intermedius

A rare disorder characterized by brief paroxysms of pain felt deeply in the auditory canal, sometimes radiating to the parieto-occipital region. In the vast majority of cases, vascular compression is found at operation, occasionally with a thickened arachnoidea, but it may develop without apparent cause or as a complication of herpes zoster or, very rarely, multiple sclerosis or tumour. It is provoked by stimulation of a trigger area in the posterior wall of the auditory canal and/or periauricular region. Other terms previously used for this condition include geniculate neuralgia and Hunt neuralgia. The treatment protocol is similar to trigeminal neuralgia.

Occipital Neuralgia

Unilateral or bilateral paroxysmal, shooting or stabbing pain in the posterior part of the scalp, in the distribution(s) of the greater, lesser and/or third occipital nerves, sometimes accompanied by diminished sensation or dysaesthesia in the affected area and commonly associated with tenderness over the involved nerve(s). The causes for occipital neuralgia involve trauma to neck, osteoarthritis, disc disease, or infection (herpes zoster and avian influenza), gout, rheumatoid arthritis or diabetes. Commonly occipital neuralgias are treated with NSAIDS and physical therapy. Resistant cases can be treated with nerve blocks using steroids or local anaesthetics which can produce relief up to 12 weeks. Treatment of underlying causes like arthritis and systemic diseases improves treatment outcomes.

Neck Tongue Syndrome

Immediate-onset, unilateral, sharp or stabbing and usually severe occipital and/or upper neck pain brought on by sudden rotatory head movement, accompanied by abnormal sensation and/or posture of the ipsilateral tongue. The pain of the NTS is in the distribution of C2 nerve root. The most likely cause of this clinical entity is a temporary subluxation of the lateral atlantoaxial joint with impaction of the C2 ventral ramus against the articular processes on head rotation. Conservative management with physical therapy, cervical collars for neck immobilization and local injections can be tried.

Painful Optic Neuritis

Pain behind one or both eyes caused by demyelination of the optic nerve(s) and accompanied by impairment of central vision.

Diagnostic Criteria:

A. Unilateral or bilateral retro-orbital, orbital, frontal and/or temporal pain fulfilling criterion C
B. Clinical, electrophysiological, imaging and/or laboratory evidence confirming optic neuritis[1]
C. Evidence of causation demonstrated by both of the following:
1. pain has developed in temporal relation to the optic neuritis
2. pain is aggravated by eye movement
D. Not better accounted for by another ICHD-3 diagnosis.

Gadolinium-enhanced MRI shows optic nerve enhancement in 90% of cases of Painful optic neuritis. Pain may be a preceding symptom than impairment of vision. It can be associated with multiple sclerosis. Corticosteroids form mainstay of treatment.

Tolosa Hunt Syndrome

Tolosa Hunt syndrome (THS) is described as severe and unilateral periorbital headache associated with painful and restricted eye movements. Synonyms for Tolosa Hunt syndrome include painful ophthalmoplegia, recurrent ophthalmoplegia, ophthalmoplegia syndrome. The aetiology is mostly idiopathic and there is non specific inflammation near superior orbital fissure and/ or cavernous sinuses. The disease process is associated with auto immune diseases like Wegner's granulomatosis, SLE or sarcoidosis. Pain usually precedes ophthalmoplegia even up to a month. Oculomotor, trochlear, Abducent and ophthalmic branch of trigeminal nerve is involved. There can be associated sympathetic involvement (Horner's syndrome) or parasympathetic involvement causing pupillary involvement. MRI brain with contrast shows thickening of the cavernous sinus because of the presence of abnormal soft tissue which is isointense on T1, iso or hypointense on T2, and enhances with contrast. Other MRI findings include convexity of the lateral wall of the cavernous sinus, extension into the orbital apex. Treatment mainstay is high dose steroids tapered over weeks. The disease shows excellent recovery with glucocorticoids with pain improvement in 2-3 days and nerve involvement improvement within a week.

Paratrigeminal Oculosympathetic (Raeder's) Syndrome

Constant, unilateral pain in the distribution of the ophthalmic division of the trigeminal nerve, sometimes extending to the maxillary division, accompanied by ipsilateral Horner's syndrome and caused by a disorder in the middle cranial fossa or of the carotid artery. Raeder's syndrome is seen as poorly recognized complication of multiple disorders including carotid aneurysm, cancer, herpes zoster, maxillary sinusitis, and chronic otitis media.one useful feature to differentiate it from Horner's syndrome is preserved facial sweating.

Burning Mouth Syndrome (BMS)

An intraoral burning or dysaesthetic sensation, recurring daily for more than 2 hours/day over more than 3 months, without clinically evident causative lesions. It is usually seen in females, typically in the peri-menopausal and post-menopausal periods. The various aetiologies postulated for BMS include

1. Preceding infection with organisms like candida, klebsiella, Enterobacter, Fusospirochetal and H.pylori
2. Diabetes mellitus and associated peripheral neuropathy
3. Irritation caused by dental implants
4. Food allergies including peanut, sorbic acid, chestnuts and cinnamon
5. Neuropsychiatric conditions including depression, anxiety and mood disorders
6. possible prescription drug adverse effects, increased bradykinin, and comorbid dermatologic conditions

Treatment includes topical and systemic medications and Cognitive Behavioural therapy. Topical capsaicin and unconventional topical agents, including a mouth rinse of tabasco sauce with water or hot pepper and water have reduced burning symptoms. Also, 70% aloe vera gel was applied 3 times per day to reduce symptoms. Low dose clonazepam (0.5 mg/day) and tricyclic antidepressants can be tried.

Persistent Idiopathic Facial Pain (PIFP)

It is most often depicted as dull, nagging or aching, either deep or superficial. It can have sharp exacerbations, and is aggravated by stress. With time, it may spread to a wider area of the craniocervical region. Pain cannot be attributed to any pathological process for a diagnosis of PIFP. There may be a preceding noxious event which triggers the pain without any identifiable local cause at time of presentation. When present intraorally, PIFP has been termed 'Atypical Odontalgia'. The term atypical odontalgia has been applied to a continuous pain in one or more teeth or in a tooth socket after extraction, in the absence of any usual dental cause. Other common associations include psychiatric illness and irritable bowel syndrome. Treatment consists of 10 mg amitriptyline for six months. Clinical response may take up to 6 weeks.

Recurrent Painful Ophthalmoplegic Neuropathy

Previously termed as ophthalmoplegic migraine. usually associated with paresis of one or more cranial nerves with ipsilateral headache. MRI during headache shows gadolinium enhancement or thickening of affected nerve. Corticosteroids are believed to improve symptoms. intravenous immunoglobulin (IVIG) infusions, indomethacin, and pregabalin are other treatment options. Calcium channel blockers and beta-blockers can help prevent or reduce episodes.

Temporomandibular Joint Disorders (TMD)

Temporomandibular joint disorders are defined as a number of clinical problems that involve the masticatory musculature, the temporo-mandibular joint, and associated structures. The clinical symptoms caused by TMD are multiple and include Jaw pain, discomfort, or soreness, clicking, popping, or grinding sounds in the jaw, headaches, especially around the temples, difficulty opening or closing the mouth, jaw locking, earaches or tinnitus and rarely teeth sensitivity. Careful evaluation of the facial structures and high degree of clinical suspicion is necessary to arrive at the correct diagnosis. There are more than 30 diseases that contribute to pain and dysfunction in the jaw and joint region.

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Figure 2 – Symptoms of TMD

There are 3 main classes of TMD
1. Disorders of the joints, including disc disorders.
2. Disorders of the muscles used for chewing (masticatory muscles).
3. Headaches associated with a TMD.

Epidemiology

The disease is twice as common in women than in men. Disease peak is seen between 35 and 44 years of age in women. The disease symptoms can arise in adolescents or early teens and may present intermittently well in to middle age. In most of the cases symptoms improve with time and hence conservative approach is preferred by most physicians. The progression of symptoms to either closed or open jaw is relatively rare. Rasmussen noted that although clicking noises persisted in internal derangements of joint, most painful and disabling symptoms subsided over time. The mean duration of acute symptoms lasted for 5-5.5 years.

Disorders of the joint are result of disc- condyle incoordination that results in faulty TMJ biomechanics. Disc interference disorders or internal derangement are a group of intracapsular disorders of the joint. These group of disorders include displacement or deformity of the disc with or without reduction. This can be often associated with inflammation of the capsule (synovitis). There can be damage to the joint cartilages by arthritis and damage to the joint by external trauma can contribute to disc disorders. Disc displacements with reduction usually present as clicks which can be painful or non-painful. Retro discitis and temporomandibular joint subluxation may present with pain due to underlying inflammation of the capsule or synovium.

Muscular disorders usually present with a dull aching pain. It usually occurs as a result of injury or strain. Treatment may include, rest, hot or cold compresses, stretching exercises, and muscle relaxants. Myofascial pain (MFP) also presents as a dull, continuous aching pain that varies in intensity. In chronic cases tenderness of the muscle and referred nature of pain may be present. Trigger points can be seen and may elicit a local twitch response. Blocking the master muscle by local anaesthetic can reduce the pain and can be used as a test for definitive diagnosis. Pin increasing with mandibular movement and localized tenderness are seen in most cases.

Evaluation of Patient

Examination is focussed on signs of dysfunction or pain symptomatology. Fingertips are placed over the lateral and posterior aspects of the TMJs applying light but steady force and performed when the mandible is at rest/closed position and opening. Symptoms elicited in response to force applied to the lateral aspect of TMJs may be a sign of capsulitis/synovitis. Symptoms elicited in response to force applied to the posterior aspect of the condyle may be a sign of retro discitis or posterior capsulitis. The treating doctor should always listen for clicks, pops or crepitus. These sounds can be auscultated or perceived during palpation. Crepitations are usually associated with osteo arthritis of joint. Next is assessment of mandibular range of movements. Mandibular deviation has to be assessed during closing and opening. The evaluation of mandibular range of movements consists of measuring comfort opening, active opening, passive opening, protrusion, and left and right lateral excursions with a millimetre ruler while noting the severity and location of pain with jaw movement. This is done to differentiate between joint and muscle pain. Comfort opening is determined by the patient opening as wide as possible without any pain, active opening is determined by the patient opening as wide as possible with pain, and passive opening is determined by the clinician gently stretching the patient presumably past active opening while noting a soft or hard end feel. A reasonably normal interincisal distance is approximately 40 mm, or the width of three of the patient's fingers as a crude measure.

Management

The treatment objectives for TMD are reducing pain, restoring normal range of movements, and restoring normal masticatory and jaw function. As explained earlier pain is usually intermittent and there are periods of complete remission and hence almost always conservative measures are preferred. The treatment options are classified in to home care methods, medical and lastly surgical measures.

The first step is always patient counselling. Reassurance about the symptoms and disease progression is of at most importance. Home therapy includes soft diet, restriction of jaw movements, moist heat or ice therapy. Reduction of jaw movements like chewing, yawning and talking is advised. Clenching or bruxing should be strictly avoided. Patient education and understanding of the physiological rest position (lips together, teeth apart) is imperative in reducing and eventually halting the daytime activity that contributes to the progression of the disease. Saying the letter “N” throughout the day can remind the patient to unclench or discontinue grinding their teeth. Moist heat tends to work better for muscle pain or tension by increasing circulation and relaxing involved muscles, and ice for TMJ capsulitis by reducing inflammatory symptoms.

Medical care includes physical care and pharmacotherapy. The goal of physical therapy is to reduce muscular trigger points, improve range of movements and stretch chronically contracted and fatigued muscles. Exercises commonly used to treat include 1) N-stretch (placing the tip of the tongue on the roof of the mouth and stretching the jaw). 2) chin to chest (gently pulling the head forward, bringing the chin toward the chest); and 3) head tilt (turning the head to one side and then tilting it posteriorly). These exercises must be done four to six times per day to be effective. the patient should use moist heat for 10–15 minutes followed by ethyl chloride spray prior to stretching the muscles. Application of sprays reduce pain while stretching and increase compliance. Transcutaneous electrical nerve stimulation is another alternative.

Pharmacotherapy includes analgesics, NSAID'S, local anaesthetics and oral and injectable corticosteroids, muscle relaxants and sodium hyaluronate injections. Anti-depressants can be added if there is an associated tension type headache. Role of botulinum toxin is controversial with some researchers advising injection at multiple muscular sites. NSAID'S are not meant for long term use and its use is usually restricted up to 2 weeks. Local anaesthetics are used for myofascial trigger points. Its usually found over masticatory muscles, splenius capitis and over trapezius muscles. The use of triamcinolone or dexamethasone, in addition to 2% lidocaine without epinephrine, is generally used for TMJ injections. Although risk of osteoclastic activity is there with steroid injections single injections are unlikely to cause them. Ultrasound guided procedures improve the accuracy and hence results. Muscle relaxants are advised in case of muscular tension associated with TMJ disorders.

Occlusal Appliance Therapy

Oral appliances are used as an effective adjuvant in reducing pain and stabilising joint and redistributing joint forces. Stabilization appliances (flat plane splints) (Figure 3) are used for the purpose of equally distributing jaw parafunctional forces, reducing the forces placed on the masticatory muscles, and protecting the occlusal surfaces of the teeth from chronic nocturnal bruxing. Usually, relaxation devices are used during night times. Ocular adjustment therapy is not usually recommended.

Surgical therapy is only indicated for severe cases. Mild to moderate

cases are always treated conservatively. Arhtroscopy is done to visualise the joint spaces and can be done for taking biopsies and treating fibrosis. Arthrocentesis and injection of corticosteroids in to the joint space is considered when there are intra-articular restrictions to movement, as in disc displacement without reduction. Arthrotomy with partial or complete joint reconstruction is reserved for cases totally non responsive to other modalities of management. It is used in cases of neoplasia, bony or fibrous ankylosis, severe chronic arthritis, and severe chronic dislocations.

CONCLUSIONS

Diagnosis of orofacial pain is challenging and often requires a multidisciplinary approach to arrive at the correct diagnosis. A combination of medical therapy, physiotherapy, psychological support and even surgical modalities are indicated for management of these conditions. Often a thorough understanding of different aetiologies and neurobiology of trigeminal system is needed to institute the correct treatment for remission of symptoms. A proper patient education and the need for sticking to treatment regimens is an absolute must in management of these cases.

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