



**Full Length Research Article**

**THE ENIGMA OF MYOFASCIAL PAIN DYSFUNCTION SYNDROME**

**Dr. Pooja Arora, Dr. Roma Goswami, \*Dr. Shrimant Raman and Dr. Pulkit Jain**

Department of Prosthodontics, Subharti Dental College, Delhi-Haridwar Highway, Meerut – 250002,  
Uttar Pradesh, India

**ARTICLE INFO**

**Article History:**

Received 24<sup>th</sup> October, 2014  
Received in revised form  
04<sup>th</sup> November, 2014  
Accepted 03<sup>rd</sup> December, 2014  
Published online 31<sup>st</sup> January, 2015

**Key words:**

Myofascial Pain Syndrome,  
Trigger Points,  
Taut Bands.

**ABSTRACT**

**Introduction:** Myofascial Pain Dysfunction Syndrome (MPDS) is one of the most common and important cause of the orofacial pain. Patients with temporomandibular joint and muscle pain gradually learn to live with the symptoms although they have been exposed to a variety of treatments. In some instances the symptoms have been aggravated by the treatment, while other patients have recovered without treatment. Masticatory muscle fatigue and spasm are responsible for the cardinal symptoms of pain, tenderness, clicking, and limited function that characterize the MPD Syndrome. The symptoms of a typical temporomandibular joint dysfunction is classified as (a) pain and its sequelae, (2) clicking and crepitus, and (3) irregularities of mandibular movement. The pain can be unilateral or bilateral with varying degree of pain. Mandibular deviation is a third characteristic often evident in temporomandibular joint patients. Mandibular deviation, in this instance, refers to the deviation from rest position to mouth wide open is a result of joint malfunction and muscle pain. Various non- surgical and surgical methods are used for the treatment of myofascial pain dysfunction syndrome.

**Conclusion:** Since MPDS consists of variable symptoms, it might be very difficult to provide any definite diagnosis and treatment. Therefore the more the specialists extend their knowledge and information about this disorder, the more they will make the best decision in this regard.

Copyright © 2014 Dr. Pooja Arora et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**INTRODUCTION**

Myofascial pain dysfunction syndrome has always been an enigma, a big question mark. Some have even questioned the mere existence of MPDS; one might question if there is actually such a thing or it is just a myth created by the specialists. During the previous centuries, MPDS was attributed to the inflammation of fibrous tissues around the ligaments, tendons, muscles and periosteum of the stomatognathic system. But, now, this syndrome has been broadly defined as “dysfunction of the masticatory and associated muscles characterised by pain”. But no signs of obvious pathogenesis causing the syndrome have been found, it relies significantly on the clinical examination.

**Etiological factors attributing to MPDS**

MPDS can be caused by factors such as:

(1)occlusal disturbances, (2) Intracapsular disorders or (3) emotional turmoil.

Etiologic factors also include

- whip lash injury from an auto accident,
- wrestling blow,
- trauma from falling, and unexpectedly biting into a hard object.

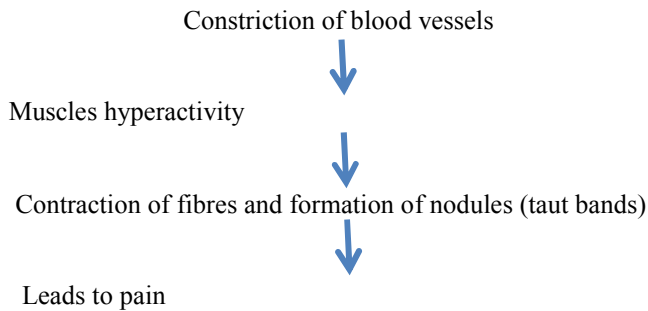
some complain of the pain immediately following a long dental appointment or the extraction of mandibular third molars.

The presynaptic, synaptic and postsynaptic mechanisms of abnormal depolarization (i.e. excessive release of acetylcholine (Ach), defects of acetyl cholinesterase and up regulation of nicotine Ach-receptor activity, respectively) have been proposed as the possible etiological mechanisms.

**\*Corresponding author: Dr. Shrimant Raman**

Department of Prosthodontics, Subharti dental college, Delhi-Haridwar highway, Meerut – 250002, Uttar Pradesh, India

### Mechanism to show how pain occurs



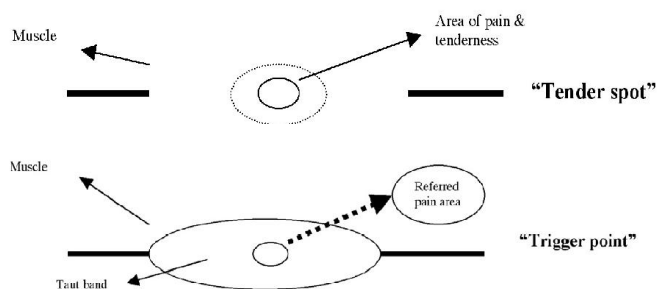
The below flowchart show some of the factors and how it leads to the myofascial pain dysfunction



The development of trigger zone is considered as one of the most important characteristics features of MPDS.

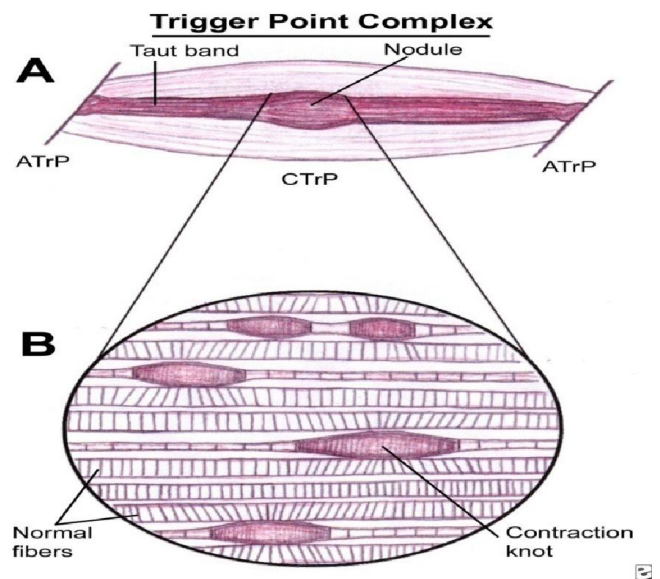
### Trigger Points<sup>1</sup>

One of the significant signs of myofascial pain syndrome (MPDS) is the presence of trigger points (TrP's) in a specific group of muscles. "Trigger points are small exquisitely tender areas, which cause pain referred to a distant region, called the referred Pain Zone. They are activated by pressure, movement, change of barometric pressure and tension, be it physical or emotional." Trigger points differ from "tender spots" (TS's) in the sense that the pain of TS's are localized in the surrounding of the spot while trigger points' pain refers to a distant area. However, the treatment of trigger points and TS's is exactly the same.



Trigger zone, is defined as a palpable focus of hyperirritability in a tissue that when compressed is locally tender and if

sufficiently hypersensitive, gives rise to referred pain and tenderness.<sup>1</sup>



**Taut band:** it is the group of tense muscle fibres extending from a trigger point to the muscle attachments, the tension being caused by contraction knots that are located in trigger point region.

### Signs and symptoms of MPDS:<sup>2,1\*</sup>

- TMJ sounds
- Impaired or irregular mandibular movement
- Limitation in mouth opening
- Preauricular pain
- Facial pain
- Headaches
- Jaw tenderness on function

Pain associated with MPDS is usually unilateral. It may be bilateral in some, but if bilateral, it need not be symmetrical. The quality or character of the pain reported by the patient most often will fall into three gross categories:<sup>1\*</sup>

- (1) a dull-aching pain,
- (2) a sharp-shooting pain (burning), and
- (3) a tight-drawing sensation.

### MANAGEMENT OF MPDS

#### Intensive multi-disciplinary treatment module

Like many musculoskeletal disorders, MPDS can be managed but is difficult to completely cure. Management of MPDS is divided into two groups-

- 1) Non-surgical management
- 2) Surgical management

#### Non-surgical therapy

**Initial therapy:** it aims to bring the joint back to its normal healthy condition. It includes:

- Reassurance – explanation to the patient about the nature and prognosis of the disorder and to reassure the patient about the treatment.
- Diet – elimination of hard and chewy food helps to reduce loading forces on the joints and to rest hypertonic jaw muscles.
- Rest – each patient should be made aware of the relationship between stress and muscle tension. Resting the jaw is possible by making the patient aware of their unconscious postural, swallowing, clenching or grinding habits.
- Thermotherapy – surface heat is applied by laying a hot moist towel, electric heating pad over the symptomatic area. This combination should remain in place for 10-15 mins.

**Supportive therapy:** two types of supportive therapy are there:

- a) Those directed towards the relief of pain. It includes pharmacologic therapy and physical therapy.
- b) Those directed towards the relief of dysfunction.

#### a) (1) Pharmacological therapy

- Analgesics – opioid analgesics depresses CNS, just relieve pain. whereas, non-opioid analgesic relieve pain without depressing CNS. Examples- morphine, pethidine, codeine, salicylates and paracetamol.
- Anti-inflammatory agents – commonly used are salicylates(aspirin), propionic acid(ibuprofen), acetic acid(indomethacin), fenamic acid, oxicam, aryl-acetic acid derivatives(diclofenac sodium).
- Anxiolytics agents –benzodiazepines such as alprazolam, diazepam, lorazepam and oxazepam are commonly used to alter the patient's perception or reaction to the supportive therapy.
- Muscle relaxants – commonly used are carisoprodol, chlorzoxazone, meprobamate, methocarbamol and cyclobenzaprine.
- Herbal medicines – lavender, lemon balm, rosemary, kava kava, skullcap are some of the recommended medicines

#### a) (2) Physical therapy:<sup>1</sup>

Many authors claim that physiotherapy is the main module of treatment and that injections are only of secondary purpose. Physiotherapy provides treatments to patients with physical limitations caused by disease or injury. Several modes of physiotherapy are available e.g.

- Spray and stretch
- Ischaemic pressure
- Soft pressure and continuous massaging
- Continuous suppleness exercises

Physical therapy may also include electrical stimulation therapy which include:

- Electro galvanic stimulation
- Trans cutaneous stimulation

Electro galvanic stimulation (EGS): a rhythmic electrical impulse is applied to the muscle, creating repeated involuntary contraction and relaxations. This increases blood flow to the muscles.

Trans cutaneous stimulations: trans cutaneous electrical nerve stimulation (TENS) activates the A-delta fibres and prevents pain from C- delta fibres by using an electric current.

**Also, other techniques can be used such as**

- Acupuncture
- Ultrasound
- Iontophoresis
- Cold or soft laser

#### b) Therapy for relief of dysfunction

- Restrictive use – painful movements should be avoided to prevent damage to the structure. Patient should eat soft food and take smaller bites.
- Exercises – all exercises programs involve the stretching of hypertonic muscles. Physiotherapy can be regarded as first choice in select cases.

**Bio-feedback therapy:** it gives patient voluntary control over automatically regulated body functions. It reduces bruxism and also reduces stress.

**Occlusal appliances:** occlusal splints and nightguards can be used which reduces muscle spasm and TMJ pain and tooth abrasion and also relieve clenching. They are best fabricated for the maxillary arch.

#### Surgical management:<sup>3</sup>

Should be considered only as a last resort. They are listed as follows:

- Condylotomy- it is a deliberate displacement of the head of the condyle. Its chief merit is that the joint capsule and intracapsular structures remain undisturbed.
- High condylectomy- it is a surgical reduction of the height of the condylar head and elimination of the condylar articular pathology, thus relieving the persistent irritation and pressure of the nerve supply to joint. It is indicated only when all the conservative forms of treatment have failed.
- Meniscectomy- it is the removal of the articular disc from the TMJ.it is best considered when actual traumatic damage to the disc is present.
- Myotomy- selected myotomy of the masseter or temporalis muscle via an intraoral approach is beneficial.
- Arthroscopy- it includes lysis and lavage techniques resulting in increased range of motion, improvement of joint function and reduction of pain.
- Botulinum toxin A(BtA) injections- this method has been used successfully to treat both excessive clenching and recurrent TMJ dislocation.

#### Conclusion

It is essential that the correct diagnosis be made before treating MPDS. It is not a case of merely injecting trigger points and

tender spots and hoping for the best. Be sure that proper training in this regard is achieved and that the patient is treated in a recognized multi-disciplinary fashion. MPDS is self-limiting if etiological factors are removed. Surgical management should be considered only after reasonable non-surgical efforts have been tried. In spite of all above efforts, more research is still required for the better management of the patient suffering from this syndrome. The proper treatment of Myofascial Pain Syndrome may be one of the most rewarding if handled correctly.

## REFERENCES

- Odendall, CL. Southern African journal of an aethesis and analgesia -July 2003.
- Hong C-Z. Myofascial trigger point injection. Critical Review of Physical and Rehabilitation Medicine. 1993; 5(2):203 – 217.
- Garg *et al.* 5<sup>th</sup> anniversary issue, Heal talk, sep-oct 2013, volume 06, issue 01.
- Laskin DM, Block S. Diagnosis and treatment of myofascial pain dysfunction (MPD) syndrome. J Prothet Dent 1986; 56(1): 75-84.

\*\*\*\*\*