

Recent Advances in Diagnosis of MPDS – A Literature Review

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Abstract: Myofascial pain is one of the most common disorders of pain confined to head and neck region which affects the most unique joint in our body i.e., the Temporomandibular joint. Myofascial pain is a type of pain that gets allude from certain trigger areas in masticatory musculature to the of head and neck musculature. It is a TMJ disorder with diversified etiological factors like stress, anxiety, mental illness, parafunctional habits, muscle hyperfunction, sleep disturbances, occlusal prematurities, faulty prosthesis or any injuries to the tissues of TMJ. MPDS is one of the most misdiagnosed and mistreated condition in dentistry. A proper history of patient and clinical examinations are utmost important for a beneficial treatment of patient suffering from MPDS. The article will provide step by step clinical examinations and diagnostic criteria's and treatment planning of MPDS.

Keywords: Myofascial pain, TMJ disorder, Myofascial pain dysfunction syndrome, Trigger points.

1. Introduction

As the name suggests, it's a syndrome that means it has got more than one manifestations, which might include pain and disturbances in head and neck musculature. It is a type of TMD which may caused by the muscles surrounding the joint itself.

It can be defined as a facial pain disorder in which pain of one side of face is allude from the trigger areas in muscles of mastication to the head and neck musculature [1]. It should not be confused with neuralgic pain, the pain from MPDS is constant or dull aching when compared to neuralgic pain which is very sharp, spontaneous, shooting and intermittent in nature [2].

There are a wide variety of etiological factors which may lead to pain in masticatory and peri masticatory musculature which may include certain psychological factors like stress, mental illness, anxiety that results in altered chewing pattern or there may be any parafunctional habits or stress relieving habits like tongue thrusting, bruxism, lip smacking. Sleep disturbances can also contribute to the cause of myofascial pain. Other etiological factors may include occlusal prematurities or any faulty prosthesis [3].

Patients suffering from MPDS may face various primary

clinical symptoms like limitation of mouth opening, clicking sound while opening mouth, pain anywhere in head and neck region or pain on palpation of muscles of mastication. Patients may also have secondary symptoms like nausea, vomiting, fatigue, weakness, tinnitus, ear pain, blurred vision, etc.

2. History

1. In 1934, Costen first gave one etiological factor related to occlusion in TMJ. He reported that there is an association of sinus pain, ear ache, hearing loss, ringing in ears, altered sense of balance and place, sudden spinning sensation while moving head and pain in back of the head with MPDS [4].
2. In 1956, Schwartz given the term "TMJ pain dysfunction syndrome". He further state that the symptoms of MPDS are due to the masticatory and peri masticatory muscles [5].
3. In 1969, Laskin given the term "myofascial pain dysfunction syndrome". He gave a theory called "psychophysiological theory" which states that the muscles spasm is due to psychological stress and advised few drugs like tranquilizers and muscle relaxants [6].

A. History of the Patient

History of the patient is very necessary to diagnose the cause. When a patient comes with a chief complaint of pain in the face then questions related to onset, time during which pain continues, frequency and nature of pain, site and reference area of pain, time of the day at which the pain is more severe, factors that relieve and aggravates the pain and symptoms associated to it along with it any history of previous trauma or any prolonged dental work are also asked.

Patient's psychological assessment should be taken which include sleeping habits, para-functional habits, family or emotional problems.

3. Physical Examinations

A. General Examination Like Vital Signs

In order to rule out any other pathological condition vital signs are important. Hypertension may also be a cause of

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headache in some patients. Elevated body temperature may also result in certain systemic infections. If the condition of pain cannot be discovered and unexplained vital signs like blood pressure, pulse rate, body temperature and respiration rate should be examined

B. Clinical Examination of TMJ

- i) *Range of motion* – The inter-incisal distance of normal individual is around 40mm to 50mm. Pain along with limited active range of motion indicates structural disturbance but range of motion is limited passively then it leads to restricted movements which suggest muscle problems.
- ii) *Direction of opening* – A deviation is due to disk derangement in one or both joints and a deflection occurs when the movement is restricted in one joint which may suggest muscle problems.
- iii) *Palpation of TMJ* – It is done to determine pain or tenderness of TMJ. Palpation of both the joints simultaneously while opening and closing the jaw is done. The posterior portion of the joint is also palpated while mouth is fully open, it is done to determine any inflammation of ear.

C. Muscular Examination

It is helpful for locating muscle pathology, evaluating muscle tone, locating trigger points, evaluating temperature change, locating any swelling and identifying anatomical landmarks.

- i) *Temporalis muscle* – Anterior region, middle region and posterior region of temporalis muscle over the temporal fossa at the side of the head is palpated for involvement of pain. Intraoral palpation of the tendon of temporalis is done by moving the finger over anterior border of the ramus till the coronoid process and the tendon of temporalis attachment are felt. There are some TMDs which can develop a tendonitis of temporalis that can cause muscle pain and the pain can be referred to the retro-orbital region.
- ii) *Muscle of Masseter* – The deep part of masseter muscle is palpated over the zygomatic arch at its superior attachment and the superficial part of masseter muscle is palpated over the mandibular lower border. If pain is felt by doing this palpation, then masseter muscle is involved.
- iii) *Functional manipulation of lateral pterygoid* – In case of inferior part of lateral pterygoid muscle, force is applied by the examiner and the patient is asked to protrude against this force and in case of superior part of lateral pterygoid muscle, two tongue blades are placed bilaterally and the patient is asked to bite on these tongue blades. If the patient witness any kind of pain while doing these functional manipulation then the lateral pterygoid is involved.
- iv) *Medial pterygoid* – In this case the patient is asked to clench the teeth together, widely open the mouth, protrude the mandible against resistance and bite on the separators. If the patient witness any kind of pain

while doing these functions then medial pterygoid muscle may be involved.

- v) *SCM* – Although it is not directly taking part in mandibular movements but trigger points or source of pain found in this muscle and refer pain to temporal and ear area. The full length of this muscle should be palpated from its attachment to the mastoid process down to clavicle.

Posterior cervical muscle or the back of the neck like muscular attachment in the occipital region, *slenius capitis*, *trapezius* may also be involved.

D. Dental/Occlusal Evaluation

If there is any open bite in anterior region, any cross bite, decreased vertical dimension, Attrited tooth, tooth mobility, wear facets, any missing teeth should be checked. Kind of malocclusion, dentofacial or any skeletal deformities should be checked.

E. Examination of Cervical Region

To check whether the source of pain is muscular or vertebral in origin, careful investigation of pain and limitation of movement is necessary. When limited range of movement is present and the patient can stretch it to a greater range passively, the source is muscular in origin (known as soft end feel). If the patient is having any vertebral problem, then the patient cannot stretch to a greater range normally (known as hard end feel).

4. Diagnosis

A provisional diagnosis of MPDS is made when no other clinically detectable organic lesion can be found to account for the patient's symptoms and signs.

A. Other Diagnostic Criteria's

1. *Trigger points injection* – The source of pain is also be determined by muscular injection. A therapeutic effect can also be produced, example, local anaesthetic injection into the trigger areas, can lead to relief of pain, even if the anaesthetic solution is metabolized. If trigger point is suspected, it is injected with L.A and will lead to relief of pattern of pain referral. 0.5cc of L.A (without epinephrine) is injected. Lignocaine or bupivacaine can also be given for long term therapeutic effect.
2. *Nerve block injection* – It can also be given for the diagnosis of myofascial pain. To determine whether a structure which is painful is actually a source of pain or a site, diagnostic nerve blocks are very useful. If giving the injection is mainly for diagnostic purpose, a short acting L.A agent should be given without a vasoconstrictor.
3. *Auriculotemporal nerve block* – By taking routine aseptic measures, preparation of preauricular area is done. Insertion of 26-27g needle is done little anterior to the junction of earlobe and the tragus over the skin. Advancement of needle behind the posterior portion of the condyle is done in an antero-medial way to total

depth of 1cm and 1.5cc of L.A solution is deposited after checking aspiration. The pain will get eliminated within 5minutes if the true source of pain is joint itself. Infraorbital nerve block can also be used.

B. Examination of Radiographs

To diagnose the pathologies of intra-articular disk, pathology of bone and pathology of soft tissue, radiographic examinations are very useful.

1. OPG – It is done for evaluating the TMJ on both sides, for examining the articular surfaces and for any other bone defects.
2. Tomography – It is done to get a clear radiograph of TMJ.

Other radiographic examinations like transcranial radiography, etc., can also be done.

5. Conclusion

Myofascial pain is a common disorder which has an increasing prevalence with age [7]. An increasing number of people have myofascial pain in our advancing population that affects their day-to-day activities [8]. If they will not be diagnosed and treated, they may become more chronic with time. This may result in further distress and depression. Therefore, early diagnosis is very helpful to overcome psychosocial complications [9]. Certain trigger points are associated with myofascial pain syndrome. Its pathophysiology includes development of taut or hard band in muscle which refers pain to distant areas [10]. This trigger points are major source of many Musculo-skeletal disorders. Clinician should suspect these myofascial trigger points in their diagnosis [11]. The successful prognosis of MPDS is majorly dependent on precise history and diagnosis of the patient. The clinician must identify the individual issue and must arrive at a solution which can be best suited for the patient [12]. If the etiological parameters are removed then MPDS is a self-limiting disorder. Step by step

history should be taken, proper clinical examination of the patient should be done which may include palpation of TMJ, palpation of masticatory and peri-masticatory musculature. If required further examination should be done like; giving trigger point injection and nerve block injection to arrive at a precise diagnosis of MPDS and further conservative treatment should be started accordingly.

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