

Temporomandibular Joint Dysfunction: Integration of Dental Interventions with Physiotherapy

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Abstract

Temporomandibular joint (TMJ) dysfunction is one of the very common conditions with almost 15% of the population effected by this. The condition is marked by inflammation or irritation of jaw muscles and ligaments. The patient complains of jaw ache, headache, earache along with jaw locking in mouth open or closed position. The situation becomes so worse that the person becomes unable to chew anything. The primary cause for this problem is faulty joint mechanics that can result from trauma, forward head posture or prolonged dental procedure that required the mouth to remain in open position. The condition is managed primarily by dental surgeon using various procedures such as application of hot or cold packs, NSAIDs, and use of night splints. Because the main etiology is faulty joint mechanics, physiotherapy modalities such as TENS, Ultrasound, and LASER along with interventions such as TMJ joint mobilization, posture correction, and facial muscle relaxation exercises have proved to be beneficial for these patients. For better and early relief of symptoms, physiotherapy and dental interventions should go hand-in hand.

Keywords

- ▶ temporomandibular joint dysfunction
- ▶ jaw locking
- ▶ facial muscle relaxation exercises
- ▶ faulty joint mechanics
- ▶ TMJ mobilization

Brief Anatomy

Temporomandibular (TMJ) joint is a synovial variety of joint that connects the jaw to the skull. It is formed by the condyle of mandible bone inferiorly with articular eminence of temporal bone of the skull superiorly with interposed articular disk between the two articular surfaces. The articular surfaces of TMJ are divided into two separate joint cavities due to this articular disk. The type of joint formed between the lower surface of articular disk with the mandibular condyle is of hinge variety and the joint formed between the superior aspect of articular disk and articular eminence of temporal bone is a plain or gliding type. This joint is present on the lateral aspect of the face, just anterior to the

tragus of ear. The joint is supported by three extracapsular ligaments. First, there is lateral ligament which prevents the posterior dislocation of the joint. The other two ligaments namely sphenomandibular and stylomandibular ligaments support the weight of the jaw. The various physiological movements available in this joint include protrusion and retraction, which are the anterior and posterior movements of the mandible. The other movements include elevation and depression of the mandible.^{1,2}

Background of the Condition

Temporomandibular joint dysfunction is a very commonly encountered problem by the dental professionals during

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their clinical practice. The patients come with complaint of inflammation or irritation of the jaw muscles or ligaments. When involved, TMJ dysfunction can cause lots of problems ranging from jaw pain to headaches, ear ache to jaw locking in either open or closed mouth position etc. Consequently, the person faces difficulty in chewing of food as well as disturbed quality of life. Sometimes, this problem also causes tinnitus in the ears and swelling on the side of the face. Though the exact incidence of this problem is not available, Gauer et al in 2015 has reported an incidence of 15% of this problem in general population at some time during their lifespan, with 20 to 40 years of age group most commonly affected.³

TMJ dysfunction could originate due to various factors. In most of the cases, the problem is localized in the TMJ, particularly in the retrodiskal pad located at the posterior aspect of the joint. Sometimes, pain occurs due to muscle spasm or myofascial pain occurring in the jaw muscles, mainly in masseter, temporalis, or pterygoid. Occasionally, the tension in the neck muscles can cause referred pain the TMJ area.⁴

TMJ dysfunction could be multifactorial in etiology. The first and foremost reason for this problem is faulty mechanics. This could be due to the inflammation or irritation of disk, dislocation of condylar head, TMJ contracture due to trauma, etc. Forward head posture could also result in TMJ irritation and this condition can also be traumatic in origin. The trauma could be sudden as in case of sudden jerk incurred during some accident. This condition could also occur in case of sustained trauma, particularly if the patient had a long dental procedure that required him to keep the mouth wide open for long periods.⁴⁻⁷

DIAGNOSIS

The diagnosis of the condition can be established by extensive clinical examination. This involves checking for range of motion of mouth opening and closing as well as checking for tenderness in the TMJ area. Apart from this, to determine the extent of the problem or damage to the joint, panoramic radiographs and cone beam computed tomography (CBCT) scans can be done. In some cases, where chances of soft tissue involvement are there, MRI scans are also recommended.⁸

Treatment Options

TMJ dysfunction are mostly managed conservatively though surgical treatment option is also available in extreme cases where the patient is not responding to the conservative management strategies. Common conservative treatment strategies used include application of moist heat packs or cold packs. Apart from this, patient is recommended to use NSAIDs such as aspirin or ibuprofen for relief from pain and inflammation. Additionally, the patient is advised the use of night guard and eat soft foods such as yogurt, scrambled eggs, etc.^{9,10}

As already mentioned that the cause of this problem is mostly related to mechanical faults, postural or due to

muscle spasm, physiotherapy treatment plays a very important role in managing patients with TMJ dysfunction. The physiotherapy treatment is primarily focused on relieving pain and associated muscle guarding. To achieve this, various physiotherapy modalities such as transcutaneous electrical nerve stimulation (TENS), therapeutic ultrasound therapy, and LASER play an important role in relieving pain and associated spasm. Apart from this, facial muscle relaxation and tongue proprioception exercises are also used to relieve patient's discomfort. To gain the lost range of jaw movement, various stretching techniques are used to stretch the hypomobile or shortened structures and regain the lost movement. Along with this, the TMJ is mobilized using various specialized joint gliding techniques. The main aim of mobilizing the joint is to regain the reduced accessory movements that are mandatory for the joint to move through the range.

Conclusion

The condition of TMJ dysfunction is quite disabling for the patient, wherein the quality of life of a person becomes so much affected that the person becomes unable to perform his routine activities of daily living. In extreme cases, the person becomes unable to chew food with the mouth in locked position. Considering the impact of this condition on the patient's life, holistic approach needs to be planned for early relief of symptoms. Dental surgeons are always going to be first point of contact for persons with TMJ dysfunction. Taking into consideration the etiology of TMJ dysfunction, the dental surgeons and physiotherapists should work hand in hand for better and early relief of symptoms for the patients.¹¹

Conflict of Interest

None declared.

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