



**TREATMENT OF TMJ PAIN DISORDER BY OCCLUSAL SPLINT
THERAPY – A CASE REPORT**

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A B S T R A C T

Temporomandibular joint and neuro-musculature are the parts of stomatognathic system. These components must be in harmony with each other so as to maintain long term health and function of TMJ and teeth. Defects in any of these components prevent them from working in harmony and thus vicious cycle develops that could lead to Temporomandibular disorders (TMDs). As conservative treatment mostly dentists prescribe patients NSAIDs like ibuprofen or diclofenac, other narcotic analgesics, muscle relaxants for pain relief and anti-anxiety drugs for stress managements. But this treatment is only symptomatic. Occlusal splints guide TM joint into harmonious stable position. One of the best suited modality to treat occlusal deformities as they are one of the prime cause of TMDs.

Case Report: This paper presents a case of patient who reported with pain in TMJ area mainly due to occlusal instability. As one of the most conservative treatment occlusal splint therapy was given to patient as a result of which pain complaint was resolved and radiograph post treatment showed improvement in condylar head shape.

Discussion: Occlusal splint helped to reduce or eliminate unfavorable loading forces and gradually returning the jaw to its centric relation. This slowly alleviates the masticatory muscle pain, TMJ pain, restricted jaw mobility and other signs and symptoms of the TMDs. Splint allows healing, remodelling and adaption of joint structures by controlling forces to the TMJs with properly bite splint design.

Conclusion: occlusal splints are one of most conservative and effective treatment modality for treating this pain disorders. Treating doctor must be watchful about the steps in fabricating this as much precision is required to get exact jaw relation.

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INTRODUCTION

Temporomandibular joint and neuro-musculature are the parts of stomatognathic system. All the three components must be in harmony with each other so as to maintain long term health and function of TMJ and teeth. Defects of any of these components prevent them from working in harmony and thus vicious cycle develops that could lead to Temporomandibular disorders (TMDs).

Most commonly teeth are suspected to be the cause of problem related to stomatognathic system as compared to rest two components. Rather than following this trend dentist must thoroughly evaluate all components of stomatognathic system to reach a perfect diagnosis well in time so as to treat the problem at the earliest and prevent consequences of finding exact etiology at later stages.⁽¹⁾

Temporomandibular Joint (TMJ) disorders/TMDs are conditions affecting the jaw joints and surrounding muscles and ligaments. These can be caused by trauma, an improper bite, attrition, deleterious habits like bruxism and arthritis etc.

TMJ disorders mostly involve females in age of 20 to 40 years.⁽³⁾ Mostly disease present itself as jaw pain, headaches, earaches, pain in the neck or shoulders, difficulty opening your mouth wide, jaws that "lock" in the open or closed mouth position, clicking, popping, or grating sounds in the jaw joint when opening or closing your mouth, tired feeling in your face, difficulty chewing, tinnitus, or ringing in your ears, tooth pain etc.⁽²⁾ Improper occlusion can cause TMDs and vice versa is also true.

TMJ disorders should be treated well in time as they can lead to significant health problems, including chronic pain and inflammation.⁽³⁾ It can also cause bite issues, tooth erosion and

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long-term conditions such as sleep apnea, insomnia, depression and anxiety.

Treatment protocol for TMDs range from conservative treatments to radical surgeries. In conservative treatment mostly dentists prescribe patients NSAIDs like ibuprofen or diclofenac, other narcotic analgesics, muscle relaxants for pain relief and anti-anxiety drugs for stress managements. But this treatment is only symptomatic.

One of the best suited modality to treat occlusal deformities as they are one of the prime cause of TMDs. Occlusal splint or night guard are one of the favourable and excellent treatment modality for TMD correction⁽¹⁾ Splints and night guards are mouthpieces that fit over your upper or lower teeth. When worn, these mouthpieces provide stable tooth contacts during closure and mouth is closed in centric occlusion. These splints guide TM joint into harmonious stable position⁽³⁾

CASE REPORT

A 21 years old female with chief complaint of pain on right side of jaw while opening and closing of mouth from last 1 year. On asking about history of present illness patient revealed that pain was dull and in pre-auricular region, continuous, non-radiating, aggravates on yawning, wide mouth opening, mastication, while eating hard food and relieves on taking analgesic medication. Patient also revealed that she had earlier visited some dentist with same complaint and was prescribed analgesics for pain relief.

Patient has no relevant medical history and was not indulged in any deleterious habit. In dental history patient revealed that she got orthodontic treatment done 2 years back. On asking about retainers she told that she failed to wear retainers prescribed by orthodontist after fixed orthodontic treatment during retention phase.

On extra-oral evaluation, patient had pain on right side of jaw, tenderness at TMJ, and in muscles of mastication (especially masseter), clicking was present in right TM joint and there was no deviation noticed.

Intra-oral inspection it was found that patient has class 1 molar relation bilaterally, missing 1st premolars in all 4 quadrants, mandibular molars bilaterally werelingually inclined, patient also had caries in 36,46. Tenderness was present in lateral pterygoid muscle on right side.

Provisional diagnosis was

1. Occlusal instability leading to temporo-mandibular joint disorder and also pain in muscles of mastication due to muscular hyperactivity.
2. myofacial pain dysfunction syndrome,
3. Inflammation of TMJ,
4. Atypicalorofacial pain



Photo 1 showing condylar head changes in TMJ view

Treatment

As patient told in history that patient underwent orthodontic treatment and it was found that there were occlusal instabilities, so the treatment was initiated bydisoccluding posterior teeth and giving anterior bite plane on upper anteriors. This bite plane had indentations that were created for resting of lower anteriors on them. This treatment lead the patient to close in perfect centric relation. After 21 days patient was recalled and evaluated, the pain complaint was resolved. For permanent treatment a new occlusal splint (heat cure material) was fabricated by preparing new casts of dentulous jaws and transferring the records via face bow transfer from patient to semi-adjustable articulator. Then bite was adjusted on semi-adjustable articulator. After fabricating the splint it was trimmed to get canine guided occlusion via semi-adjustable articulator. Later in patient’s mouth some selective grinding was done to reduce high points and canine guided occlusion was evaluated.



Photo 2 showing anterior bite plane



Photo 3 showing mouthguard with anterior bite plane (made for interim period of 21 days)



Photo 4 showing permanent occlusal splint in canine guided occlusion

Recall

Patient was recalled after 2 weeks, 4 weeks, 2 months and 6 months and there was significant reduction in pain and no discomfort was reported by patient.

DISCUSSION

Goal of occlusal splint treatment is to protect the TMJ Discs from dysfunctional forces as well as to improve the jaw muscle function to relieve associated signs and symptoms by creating harmonious occlusion.⁽⁴⁾

Bimanual method of mandibular guidance was used to adjust the splint in centric relation position. Anterior guidance was kept shallow at the same time allowing for posterior disclusion on protrusive movement and right and left canine guidance was established on the working side. The splint was fabricated at the vertical dimensions guided by retruded contact point (i.e. just keeping optimum thickness of interocclusal recording medium sufficient enough to keep Retruded Contact Point free from occlusion. The incorporation of Curve of Wilson facilitated the working side disclusions by keeping lower lingual cusps slightly shorter than lower buccal cusp.⁽⁷⁾

Occlusal splint helped to reduce or eliminate unfavorable loading forces and gradually returning the jaw to its centric relation. This slowly alleviates the masticatory muscle pain, TMJ pain, restricted jaw mobility and other signs and symptoms of the TMDs.

Splint allows healing, remodelling and adaptation of joint structures by controlling forces to the TMJs with properly bite splint design.⁽⁵⁾

The splint design has flat posterior surface with only supporting cusp tips touching. These should be preserved to minimize the stimulation of periodontal proprioceptors that provoke the muscular hyperactivity.⁽⁶⁾

The shallow anterior guidance on splint also ensured preventing premature anterior contact during clenching which further prevents distalization of condyle and comfort of retrodiscal tissues and that resulted in reduced pain.

CONCLUSION

There are many treatment modalities to treat TMJ pain disorders like pharmacotherapy, surgical intervention, physiotherapy and patient counselling, but occlusal splints are one of the most conservative and effective treatment modalities for treating these pain disorders. Treating doctor must be watchful about the steps in fabricating this as much precision is required to get exact jaw relation and expertise of doctor is required to treat this condition effectively by this conservative method.

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