



Conservative Approach for improving Functional Mobility in Anterior Disk Displacement: A Case Report

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Abstract:

The Temporomandibular joint is a bicondylar joint with 3 degree of freedom. Damage to the cartilage or other structure can lead to inflammation and pain that can affect your ability to open mouth. The causative agents for the TMD are bruxism, Smoking, eating habits, etc. other causative factors include loose bodies, traumatic disturbance and developmental conditions. Here we present a 26 year old male complaining of TMJ pain since 2 months for which he came to AVBRH where X – ray was done and patient was diagnosed with anterior disk displacement and pain in TMJ for which he has started with physical therapy, dental therapy, and medical therapy. We concluded that a well planned physical therapy consisting of joint mobilization and electrotherapy modality have played significant role in the reducing TMD symptoms and improve range of motion and quality of life.

Keywords: Temporomandibular joint dysfunction, joint mobilization, Electrotherapy, Case report, soft tissue mobilization.



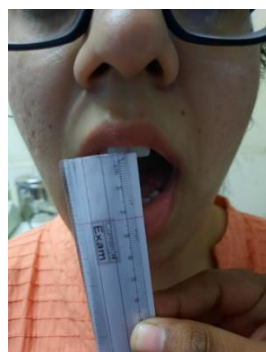
Introduction:

Temporomandibular joint is a synovial condylar and hinge type joint. The two joint encloses fibro cartilaginous surface and the disc divides the joint into two sections. Temporomandibular joint is an umbrella term encompassing wide variety of dysfunction associated with musculature and joint structure. The disc of Temporomandibular joint plays an important role in maintaining normal function. Once the disc is displaced the normal functioning of the joint is lost. The etiology is due to inflammation, loose bodies, traumatic disturbances and developmental conditions (1). The etiology of the internal derangement is not yet known, abnormal proportion of the collagen fiber in the disc leads to improper functioning of the disc which may be due to systemic causes (2). 5% to 12% population of the united state is suffering from temporomandibular joint disorders. The movement possible at the Temporomandibular joint are elevation depression, deviation, protrusion and retrusion (3). A study was done to find the association between Temporomandibular joint in mastication, ventilation this functions are associated with genesis of the primary Temporomandibular disorder (4).

Patient presentation:

Here, we present a case of 26 year old female patient referred to the department of musculoskeletal physiotherapy for pain and discomfort in the right Temporomandibular joint, the pain increased with movement. Medical history of the patient revealed a strong hit by a football on the head while playing football 2 months back. Since then the patient started having clicking in the right TMJ initially in was painless over the period of the 2 months the patient started having pain and discomfort in daily activities. As mentioned by the mother of the patient the patient clenches her teeth during night and the range of mouth opening is reduced in the morning(two finger of the patient approximately 2.7cm) and improve as the day passes to 3.1cm the range The patient complains of pain in the right TMJ while chewing and yawning.

Figure 1: Showing mouth opening 3.1cm



Clinical Diagnosis

On palpation of the masticatory muscle the patient presented with grade II tenderness over the temporalis and on assessment of the joint tracking popping sound is heard over the right TMJ. During mouth opening the jaw seems to deviate on the right side while mouth opening. The Range of motion of the TMJ is mentioned in the table 1 below.

Table 1: Range of Motion Assessment of TMJ.

Movement	Range of Motion
Mouth Opening	31mm
Left lateral Deviation	8 mm
Right Lateral Deviation	11 mm
Protrusion	8 mm

On mouth opening and protrusion the provoke the symptoms of the patient, on pain assessment on numerical pain rating scale (NPRS 0-10) the patient mentioned 5/10. Based on the clinical presentation and RDC/TMD Criteria the patient lies in the axis I of the Temporomandibular joint dysfunction.

The panoramic radiograph of the patient showing reduction in the joint space of the Right TMJ, slight anterior displacement of the right TMJ condyle with supraeruption of the dentition.

**Treatment:**

The patient was instructed to limit the jaw movement within painless limits,

To reduce pain from 5/10 to 3/10 on NPRS in 1 week.

- a. Transcutaneous Electrical nerve stimulation over the temporomandibular joint the pulse frequency was set to 85Hz and the pulse duration was set to 60msec and the duration of application was for 12 min and the intensity was set according to the tolerance of the patient.
- b. The patient was started with ischaemic compression technique for the temporalis muscle in this technique the tender point in the muscles are identified and gentle pressure is applies over the tender point with the pads of the fingers and compression is held for 90 seconds.
- c. Ultrasound application with diclofenac gel is applied over the joint the US is applied in the intermittent mode with the duty cycle of 10% was used the intensity of the ultrasound was set to 0.8 and the duration was for 10 min.

For improving joint Range of motion from 31mm to 35 mm in a week



- a. Grade III maitland mobilizations was started in this therapist places both the thumbs on the molars of the patient and posterior gliding is applied to the TMJ which stretches the posterior capsule of the joint and improve the joint mobility.
- b. Gentle stretching exercises for the joint muscles and the capsule the stretch is hold for 30 seconds and repeated 3 times

The home exercises program

- a. Self stretching exercises for the musculature was administered in this the patient is asked to stand in front of the mirror and keeping the tongue on the roof of the mouth and one finger on the right (affected joint) TMJ and one finger on the chin and ask the patient to perform mouth opening and mouth closing, lateral deviations and protrusion and retrusion avoiding the deviation of the chin.
- b. Hot fermentation on the joint for 10 min twice a day prior to the exercises.

Follow Up and Outcome:

On post one week assessment was performed the NPRS score was marked at 3/10 (pre treatment 5/10). And the range of motion comparison of the pre and post treatment is mentioned in the table 2 below. Figure 2:showing the mouth opening to 3.6cm

Table 2: Pre and post treatment Range of motion of the TMJ.

Movement	Pre Treatment	Post Treatment
Mouth Opening	31mm	36mm
Left lateral deviation	8mm	10mm
Right lateral Deviation	11mm	11mm
Protrusion	8mm	10mm

Discussion:

Calixtre et al, conducted a trial to assess the effectiveness of mobilization of the upper cervical region and craniocervical flexor training on oraofacial pain, mandibular function and headache in



women with TMD. 61 participants were included on the study which were divided into 2 group interventional group received cervical mobilization and motor neck control exercises for 5 weeks while the control group received no treatment. The outcome used were pain intensity. The study concluded that the pain was significantly reduced in interventional group(5). Piekartz and hall conducted a randomized controlled trial, total 43 patient was enrolled in the study one group received orofascial manual therapy. The group received orofacial manipulation showed reduction in pain(6), Nilsson et al. conducted a trial to assess the short term treatment of resilient appliance in TMD pain patient. The study found that there is no significant statistically difference was seen.(7). Chellappa and thirupathy conducte a trial on efficacy of low level laser therapy and TENS for symptomatic relief in TMD. The study concluded that the pain reduced remarkably in patient who received low level laser therapy (8).

Conclusion:

We Conclude that a conservative approach with proper patient education explaining do's and dont's, a goal based treatment protocol with home exercises program and medication and timely follow up help to reduce the clinical symptoms of the patient and reduce the pain and improving the quality of life of an individual suffering from temporomandibular joint dysfunction.

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