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Efficacy of Physical Therapy in Temporomandibular Dysfunction post Tooth Extraction: A Case Report

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Abstract

Temporomandibular joint dysfunction are more common in females and less common in males causative agents are considered to bruxism, stress, eating habits, smoking, excessive kissing, trauma, anterior disc displacement are the major causes of the temporomandibular joint dysfunction. Here we present a 22 year old male presented with difficulty in mouth opening since one week for which the patient was referred to the physical therapy OPD where assessment was done the pre treatment NPRS score was 6/10. The patient received treatment for one week which consist of TENS, Mobilization, range of motion exercises which showed improvement in the mouth opening and reduction in pain. We conclude that a well planned physical therapy intervention is effectibve in reducing pain and spasm of the muscle for more significant results a long term study should be conducted.

Keywords: *Temporomandibular Joint dysfunction, Tooth extraction, physical therapy, joint mobilization, case report.*

1. Introduction:

Temporomandibular joint is a synovial joint between the temporal bone and mandible, for proper mouth opening and closing both left and right Temporomandibular joint must work together for proper harmony, the causes Temporomandibular joint dysfunction(TMJ) are due to excessive mechanical stress on the TMJ which are due to certain stress induced disorders of TMJ which include Bruxism which means excessive clenching of the teeth and oral parafunctional habits in daily life such as smoking, tobacco chewing which leads to irreversible damage in the joint tissue[1]. A study conducted in year 2019 assessed the relation between the work induced stress and Temporomandibular joint dysfunction led to an assumption stating excessive mental stress at work place is related to TMJ dysfunction[2]. a study conducted in 2021 which reveled 50% positive association between stress and TMD across various job categories and TMJ clicking was significant in musicians, other review asses the relation between the sleep quality and Temporomandibular joint dysfunction which reveled positive relation between poor sleep quality and Temporomandibular joint dysfunction [3,4]. Quality of life of adults also has an impact on the Temporomandibular joint a study suggest that quality of life is affected in all axis I TMD patients, especially in group I and III with higher pain intensity and disability as compared to group II another study revel that the prevalence of Myofacial pain and other joint condition is significantly higher levels of depression and somatization [5,6]. Further study revealed that a good portion of individual suffering from TMD were depressed and experienced moderate to severe somatization[6].

2. Patient Presentation:

Here we present a 22 year old male reported to the Out patient department of physiotherapy with a chief complaints of pain in bilateral Temporomandibular joint with reduced mouth opening since one week after tooth extraction of left upper molar tooth. Patient also mentioned a history of multiple episodes of migraine in past 5 months. Patient also mentioned the history of smoking since 1 year. The patient was assessed in supine lying position. The built is ectomorphic. On observation while on mouth opening the chin tends to deviate on the left side, no apparent swelling or wound was present. On palpation over the TMJ clicking was heard on palpation grade II tenderness was present over the right TMJ. And popping of the is felt in the right TMJ on mouth opening. The maximum mouth opening measured for the patient was two fingers as show in figure 1 below

On assessment the pain intensity on numerical pain rating scale was 6/10 on the range of motion assessment for the TMJ is mentioned in table 1 below.

Movement	Range of Motion
Mouth opening	25mm
Protrusion	20mm
Left deviation	15mm
Right deviation	20mm

3. Timeline

15/06/2022 patient undergone left upper molar tooth extraction. 30/06/2022 pateint presented to physiotherapy OPD for the reduced mouth opening and pain over the right TMJ. 01/07/2022 physiotherapy treatment was started.

4. Diagnostic Assessment

X-ray was done which revealed reduced joint space on right Temporomandibular joint

5. Management

The treatment started with pain modulation with Transcutaneous Electrical Stimulation application over the both TMJ and grade I and II mobilization for pain relief. Range of motion exercises for maintaining available Range of motion. Grade III posterior joint mobilization for both the TMJ for improving mouth opening by correcting joint tracking. Goldfish exercises for maintaining the flexibility of the bilateral TMJ. Patient was advised hot fermentation at home to reducing pain.

Intervention	**Dosage**	**Rationale**
Transcutaneous Electrical Nerve Stimulation (Figure 2)		To Reduce pain
Grade I and II Joint Mobilization	8 repetition 3 sets	To reduce pain
Grade III posterior Mobilization (figure 3)	8 repetition 3 sets	To stretching the capsule and correct the joint tracking
Goldfish Exercises	10 repetition with the tongue to the palate and perform mouth opening protrusion and lateral deviation.	To stretching the capsule and maintain and improve range of motion`

Figure 2: Application of TENS

Figure 3 Showing Grade III mobilization to TMJ

6. Follow Up

Post one week follow up patient NPRS score came down to 4/10(6/10 pre treatment). The improvement of the range of motion in mentioned in the table below

Movement	Range of Motion (Pre treatment)	Range of Motion (post Treatment)
Mouth opening	25mm	30mm
Protrusion	20mm	20mm
Left deviation	15mm	20mm
Right deviation	20mm	23mm

7. Discussion

A study was conducted by by Egle Lendraitiene et, al on the association of changes in cervical range ROM and Temporomandibular joint ROM in Quality of life of individuals with migraine the intervention given was aerobic exercises along with postural correction for these patient has shown good improvement in the pain and ROM in the individuals(10). Aggarwal A, and Keluskar V. studied physiotherapy as an adjuvant treatment for Temporomandibular joint this review highlight the role of physiotherapy in the rehabilitation of the Temporomandibular joint pain (11) . Melissa Joan Pierson studied the effect of massage therapy on Temporomandibular joint dysfunction in this the treat session was given for 5 weeks and the duration was 45min the report shows significant reduction in pain in patient with symptoms of Temporomandibular joint dysfunction(12). W.A. Abboud et, al conducted a study on the comparison of two physiotherapy programme for rehabilitation they concluded that the physiotherapy programme with immediate postoperative full range of motion mobilization achieves better results that physiotherapy prorgamme with gradual controlled increase in range of motion(13). Maryam Ghodrati et, al. Conducted a study on adding TMJ treatment to routine patient with neck pain they concluded that the reading on VAS and NDI Were of clinical importance(14–16).

8. Conclusion

We concluded that active release technique, joint mobilization, strength training, stretching exercises, virtual reality and bruxisism splint showed an significant positive result by improving the pain, range of motion, resisted isometric contraction and diet modification. Reduction in symptoms and improvement in overall quality of life of a 25 year old patient.

9. References

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