

The Effect Of Deep Transverse Friction And Splint Therapy On Pain, Range Of Motion, Quality Of Life And Disability In Temporomandibular Joint Dysfunction- A Case Study.

Shashank Kumar ^{1*}, Dr. R. Arunmozhi ² & Dr. Abhinav Jain ³,

1. Ph. D. Scholar, Department Of Physiotherapy, Sbs University, Dehradun.

2. Professor, Department Of Physiotherapy, Sbs University, Dehradun.

3. Associate Professor, Department Of Surgery, Uttarakhand Dental College And Research Center, Dehradun.

Abstract

Background: Temporomandibular (TMJ) dysfunction affects the temporomandibular joint, masticatory muscles, and related structures. Various treatments are existing to improve the symptoms of temporomandibular joint disorder, however, a specific approach is still missing. Thus, we tested the combined effect of deep transverse friction massage and splint therapy in improving pain, quality of life, and disability in TMJ dysfunction.

Materials and Methods: A 21-year female reported to the dental clinic with a history of pain in chewing food, a clicking sound in mouth opening, and limitation in vertical mouth opening, which was present for more than two months. The patient was diagnosed with TMJ dysfunction by the dentist. Pre and post-test measurement shown a positive result on the combined effects of splint therapy with deep transverse friction massage on improving the range of motion, quality of life, and in reducing pain.

Results: The subject showed improvement in all outcome measures. However, mild improvement shown on vertical mouth opening

Conclusion: Splint therapy along with deep transverse friction massage is an effective and safe technique, providing long-lasting effects on the symptoms of temporomandibular dysfunction such as pain, quality of life, range of motion, and disability.

Key Word: Temporomandibular dysfunction; Physiotherapy Treatment; Splint Therapy.

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I. Introduction

Temporomandibular dysfunction is a disorder involving masticatory muscles, temporomandibular joints, and adjacent segments. These disturbances affect the dynamic stability of the structures, leading to [1] the common signs and symptoms include pain, joint sounds (clicking, grating), limited or asymmetrical jaw movement, and spasms of the chewing muscles. These symptoms can profoundly affect health and quality of life [2]. The treatment of these issues is often complex [3].

Temporomandibular dysfunction affects women at a rate that is 1.5–2.5 times more than it does men [3]. TMD has an incidence of over 5% [4]. Treatment options for TMD include simple reassurance, physiotherapy, splint therapy, drug therapy, surgical intervention, and combined treatment [4].

Previous studies showed satisfactory results on the combined protocols of exercise and electrotherapy application on TMJ dysfunction. Transverse friction and splint therapy have proven individually effective on TMJ dysfunction. However, we have not found a single study on a specific approach like deep transverse friction combined with splint therapy to treat TMJ dysfunction. Thus, the aim is to find out the effect of deep transverse friction combined with splint therapy on pain, range of motion, quality of life, and disability in TMJ dysfunction.

II. Material And Methods

A female with 21 years old visited to the physiotherapy department with a diagnosis of TMJ dysfunction, the condition was diagnosed by a dental surgeon. Voluntary consent was obtained from the patient before the participation of the case study. The patient had complaints of pain in chewing food, a clicking sound in mouth opening, and limitation in vertical mouth opening. On examination the patient also explained that the

problem has persisted for the last 3 months and that he was not able to speak continuously for a few minutes. Also, the patient had poor quality of sleep, especially in the side lying position due to pain.

Procedure methodology

The patient was assessed for pain, jaw functions and oral health before treatment. The patient was managed for a period of six weeks and the physiotherapy treatment was administered on alternate days for six weeks (18 sessions). The treatment was administered in the following methods like ultrasound therapy, deep transverse friction massage, stretching and a soft occlusion splint for six weeks.

Ultrasound therapy (HMS Company, India) for 10 minutes with a frequency 1 MHZ and the intensity of 1.2 W/CM² for 10 minutes. Deep transverse friction massage was administered to pterygoids, masseters, and temporalis muscles for 10 minutes (3 session / week) for 6 weeks.

The soft occlusion splint was given to the patient to use the splint for every day, the patient should bear the splint at night, the patient can remove the splint during breakfast, lunch, and dinner. Stretching exercises to the pterygoid, temporalis, and masseters was taught to the patient as a home-program.

Masseter stretching Starts with a closed mouth and relax the jaw as much as possible. Slowly and gently beginning to open the mouth as wide as possible. Maintaining the position for 20–30 sec and repeating 3–5 times.

Medial Pterygoid - Stretching with the patient supine, two fingers are placed behind the lower incisor teeth with the thumb under the chin, pulling the mandible forward and down so that the jaw should be fully open. To stabilize the head and neck the other hand is placed on the forehead. The medial pterygoid responds well to ischemic compression and stretching. Maintaining this position for 20–30 sec and repeat 3–5 times.

III. Result

The subject showed improvement in all outcome measures (Table 1). Marked improvement was reported on pain, Oral Health Impact Profile-14 Questionnaire and Jaw functional limitation scale. However, mild improvement shown on vertical mouth opening (Fig. 1).

Variables	Baseline (Pre-treatment)	Post treatment (6 th week)
Numeric pain rating scale	9	3
Jaw functional limitation scale (JFLS)	86%	52%
Oral health impact profile - 14 Questionnaire	57.14 %	7.14%
Temporo-mandibular range of motion (Vernier Caliper scale)	31.33 mm	32.56 mm

Table. 1 Summary of all variables.

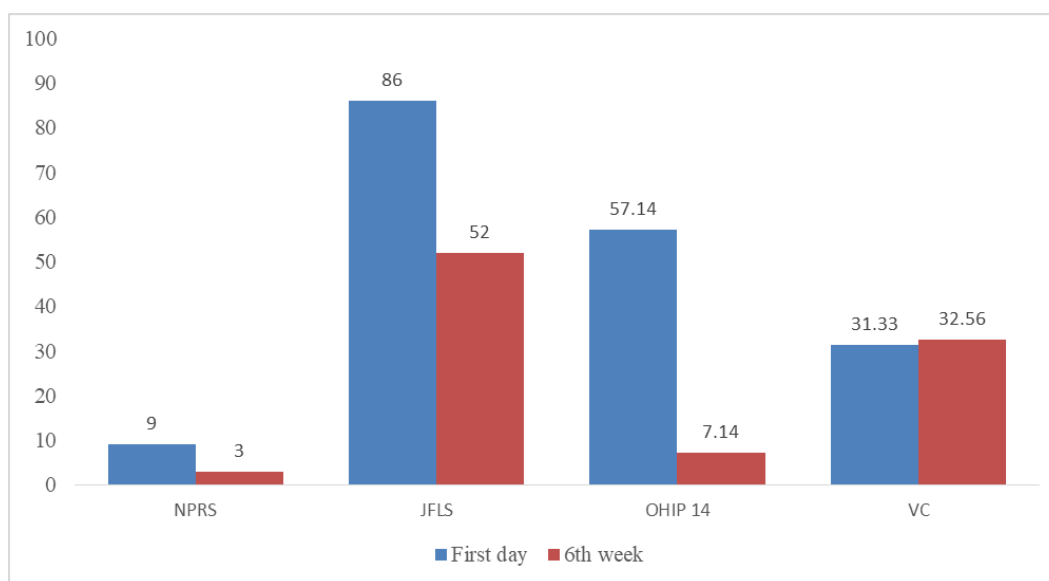


Fig. 1 Shows measurements of all variables from baseline to 6 weeks.

IV. Discussion

This case study has shown a significant improvement in decreasing pain, increasing mouth opening, and reducing disability and improving quality of life in temporomandibular dysfunction. To the best of our

knowledge, this is the first study that evaluates the potential effect of deep transverse friction massage with splint therapy on TMJD.

Manual therapy, such as deep transverse friction massage, stimulates local blood flow as well as starts the re-establishment of the normal status of muscles in subjects with temporomandibular joint pain and muscle spasms [4]. In addition, many studies have confirmed notable acute effects on flexibility, pain, and sort of motion with the short-duration deep transverse massage [6].

In temporomandibular joint dysfunction, the joint is under unusual loading stress due to mispositioning of the mandible head. Therefore, it results in inflammation of the TMJ and decreased vertical range of motion. However, the splint therapy corrects the position and decreases the inflammation in the TMJ as well as improves vertical mouth opening. Splint therapy also decreases spasms of masseter muscles, so pain also decreases [7].

In addition, therapeutic exercises such as active and passive stretching are performed to improve mouth opening and reduce pain. It lengthens the tight muscles which restrict the normal ROM of the mouth [8]. Furthermore, ultrasound therapy draws blood, with oxygen and nutrients to the joint region thus, it improves the health of the affected muscles [9]. So, in combination of all the effects the combined treatment effects improve the re-establishment of function and improve quality of life in TMJ dysfunction.

V. Conclusion

Splint therapy along with deep transverse friction massage is an effective and safe technique, providing long-lasting effects on the symptoms of temporomandibular dysfunction such as pain, quality of life, range of motion, and disability.

Conflict of Interest: The Authors have no conflicts of interest.

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