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Case Report

Effectiveness of fascial manipulation in the management of temporomandibular joint dysfunction: a case report

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ABSTRACT

Temporomandibular joint dysfunction (TMD) commonly presents with pain, restricted mouth opening, and functional limitations during talking, chewing, and yawning. Fascial manipulation (FM), based on Stecco's model, targets densified fascial points to restore coordinated movement patterns. This case report aimed to evaluate the effectiveness of FM in reducing pain and improving mandibular function in a patient with TMD. A single-case study design was used involving a 20-year-old female with bilateral TMD. Fascial restrictions were identified using the Stecco FM assessment. The patient underwent eight FM sessions over four weeks, each focusing on deep friction over selected points followed by brief mandibular mobility exercises. Outcomes were measured using pain intensity, mouth opening range, and the MFIQ. After the intervention, the patient reported significant pain reduction and improved ease of chewing and speaking. Mouth opening range increased, clicking reduced, and the MFIQ score showed a notable improvement, indicating reduced functional impairment. Overall clinical findings demonstrated meaningful functional recovery following FM. Fascial Manipulation was effective in reducing pain and improving mandibular function in a patient with TMD. FM may serve as a beneficial adjunct in physiotherapy management for selected TMD cases, although further studies with larger samples are needed.

Keywords: Fascial manipulation, Temporomandibular joint dysfunction, MFIQ

INTRODUCTION

The temporomandibular joint (TMJ), a key component of the stomatognathic system, enables essential functions like talking, chewing, swallowing, breathing, and facial expressions through its combined hinge and sliding motions.[1,2] In the world, over 450 million people had chronic facial pain, of which 6% were men and 10% were women. A cross-sectional study in Central Kerala indicated that TMD affected 51.35% of the general population.[3] The incidence increases with age, especially after the age of 40 years.[4]

The term "temporomandibular disorders" (TMD) describes a collection of musculoskeletal and neuromuscular conditions that affect the TMJ and the structures around it, including the muscles, fascia, ligaments, and nerves that regulate jaw movement.[5,6] Temporomandibular disorders cause pain and dysfunction in the jaw, ear, face, and surrounding areas, leading to difficulty in speaking, chewing, jaw movement, and symptoms like clicking sounds, ear pain, headaches, jaw locking, and reduced range of motion.[4,5,7]

Fascial manipulation (FM) is a hands-on / manual therapy that focuses on assessing and treating dysfunctions in the fascial system to restore movement and alleviate pain. It is based on the model developed by Luigi Stecco and involves deep tissue manipulation of specific densified areas within the fascia to improve mobility and function.[8]

FM claims to differ from other soft tissue techniques by using a movement-based assessment to identify specific fascial densifications, applying deep, sustained pressure at precise points within the fascia.[9] Musculoskeletal dysfunction is considered to occur when the muscular fascia no longer slides, stretches, and adapts correctly. The rationale for using the technique is based on the capability of fascial tissues to slide with respect to surrounding tissues.[10] Altered fascial stiffness leads to poor muscular biomechanics, altered muscle coordination and decreased strength, which leads to abnormal movement patterns causing excessive tissue strain on the capsule and cartilage. These altered fascia or increased matrix stiffness could possibly lead to myofascial pain. The application of FM technique through manual pressure will stimulate the central nervous system (CNS) and autonomic nervous system (ANS). CNS will change the global muscle tone, while response from ANS will include vasodilation, altered tissue viscosity and global muscle tone and reduced tonus of intrafascial smooth muscle cells. It will allow the free nerve endings to slide more freely and allow new deposition of collagen and elastic fibers, which reduces the pain.[11]

FM has shown great significance in treating various musculoskeletal disorders, but its role in TMD requires further research to confirm its effectiveness.[9] The purpose of this case report is to evaluate the effect of FM on TMD. This study focuses on the effect of FM on reduction of pain and restoration of movement in the TMJ.

CASE REPORT

This study was conducted on a 20-year-old female subject diagnosed with TMJ Dysfunction who presented with severe bilateral TMJ pain. The subject was selected based on the pre-defined inclusion and exclusion criteria. The baseline assessment was done using visual analogue scale (VAS) and functional assessment was done using mandibular functional impairment questionnaire (MFIQ). Following the assessment Facial Manipulation therapy was given to the subject for 4 weeks, as 2 sessions per week each lasting 45 minutes. The treatment was given based on Luigi Stecco's fascial manipulation concept, where specific centres of coordination (CC) and centres of fusion (CF) points related to the mandibular, cervical, and temporal sequences were identified and deep manual friction was applied until change in tissue consistency was felt. Post intervention assessment was done using the same outcome measures (VAS and MFIQ) to evaluate the effectiveness of fascial manipulation in reducing pain and improving mandibular function.

In the first two sessions, points such as IR CP2, IR CP3, IR CL, ER CP1, ER CP3, ER CL, AN CP2, AN CP3, AN CL, and AN HU were identified as tender and restricted on palpation. Deep manual friction was applied over each point for about 3–5 minutes until a softening of tissue and reduction in tenderness was noted. Following the first two sessions, she reported a temporary increase in pain and discomfort that lasted for a day or two, which gradually subsided with adequate rest and hydration.

During the third and fourth sessions, the treatment focus was extended to the contralateral fascial lines to restore balance and coordination between the jaw and neck regions. Additional points such as RE CP3, RE CL, and RE CU were identified and treated, and the patient reported decreased stiffness in the neck and improved comfort while chewing and speaking after these sessions.

In the fifth and sixth sessions, mild residual tightness was noted around AN CL and ER CP3, which were readdressed using deep manual friction. The subject was also taught simple jaw mobility and chin tuck exercises to encourage symmetrical movement and prevent postural strain.

By the seventh and eighth sessions, the patient's pain had significantly reduced. Gentle fascial release was performed over previously treated points to maintain tissue mobility. The patient was educated on maintaining a neutral head and jaw posture during daily activities and advised to continue home based mobility exercises.

At the end of the four-week intervention, reassessment was done using the VAS and MFIQ. Post-treatment findings showed a clear reduction in pain intensity and improvement in jaw function.

Outcome measures

VAS

VAS is widely used as a measure for pain intensity globally. It is a reliable and valid scale for people aged above 18 years. It is usually a horizontal line of 100 mm length with ranges from "no pain" to "worst possible pain" which enables the subject to rate the intensity of the pain felt.[12]

MFIQ

MFIQ is a valid and reliable tool used to assess jaw related issues and functional impairment caused by it. It contains 17 items. Each is rated by a 5-point system from 0 (No difficulty) to 4 (Severe difficulty or Impossible). The items include masticatory, non-masticatory and social functions of jaw.[13]

Comparing pre and post values of VAS and MFIQ

Noticeable changes in the severity of pain and Mandibular function were observed as the subject's VAS score reduced from 9/10 to 3/10 and MFIQ score reduced from 42/68 to 20/68. This indicates the overall positive progress following the intervention, which suggests that Fascial Manipulation is effective in reducing pain and improving function in TMJ Dysfunction.

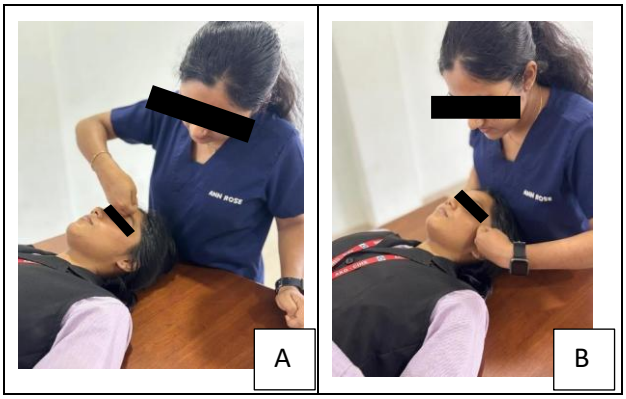


Figure 1 (A and B): Fascial manipulation.

Follow up

Two weeks after the completion of 4-week treatment period, patient was enquired about her symptoms and jaw function. The patient reported continued relief of pain and improved jaw mobility. However, no repeated outcome measures were performed at the follow-up. Therefore, the findings reported were solely based on patient's self-reported feedback.

DISCUSSION

The present case report aimed to evaluate the effect of Fascial Manipulation based on Luigi Stecco's method in a 20-year-old female diagnosed with TMJ Dysfunction. At the time of assessment, the patient presented with bilateral TMJ pain, difficulty during chewing, restricted mouth opening, and associated cervical discomfort. During the initial assessment, the subject had severe pain (VAS 9/10) and a high level of functional limitation as shown by her MFIQ score (42/68). After four weeks of treatment, there was a considerable reduction in pain (VAS 3/10) and improvement in function (MFIQ 20/68), suggesting that Fascial Manipulation played a significant role in reducing symptoms.

TMD affects both the masticatory and cervical muscle groups, and previous studies have shown that myalgia involving the sternocleidomastoid, upper trapezius, and splenius muscles significantly decreases following physiotherapy-based interventions. Similar improvements have been reported in orofacial muscles such as the masseter, temporalis, and pterygoid muscles, contributing to the restoration of normal mandibular mechanics. These findings align with the present case, where a reduction in cervical and orofacial muscle pain was observed following fascial manipulation sessions.[14,15] The theoretical assumption of FM suggests that applying FM to dysfunctional or stiff areas may reduce fascial tension, improve sliding between fascial layers, and potentially restore normal movement patterns while possibly reducing mechanical stress on muscles, joints, and tissues.[8]

Stecco and colleagues highlighted that restoring fascial gliding reduces abnormal tension and improves neuromuscular coordination around the jaw and cervical regions.[16] Similarly, Cattrysse et al demonstrated that Fascial Manipulation significantly reduces pain and improves function in various musculoskeletal conditions, supporting its use in regions with complex biomechanical interactions such as the TMJ and cervical spine.[17] During the first two sessions, the patient experienced temporary pain aggravation, which has been described earlier that deep fascial pressure initially increases sensitivity before tissue viscosity improves.

Earlier research has demonstrated that addressing myofascial restrictions in the head-neck region can improve jaw mobility, reduce muscle tenderness, and enhance overall function in individuals with TMD. In addition, ultrasound-based findings by Langevin et al. showed that targeted manual pressure on densified fascia can decrease tissue stiffness and enhance mobility, offering a biomechanical explanation for the symptomatic improvements observed following FM treatment.[18]

The improvements observed in the present case, particularly the increase in mouth opening range and reduction in end-range pain, are consistent with these findings. As the treatment progressed, the reduction in muscle tension and tenderness was more evident.

The improvement in MFIQ scores in this case further supports the functional benefits of FM. Restoring fascial mobility around the mandibular and cervical sequences can positively influence daily activities such as chewing, speaking, and biting, which are commonly impaired in TMD.

In conclusion, the present case demonstrates that Fascial Manipulation based on Stecco's method may be effective in reducing pain and improving functional mobility in individuals with TMJ dysfunction. The improvement in VAS and MFIQ scores, along with enhanced jaw mobility and reduction in cervical symptoms, supports the role of fascia in TMD rehabilitation.

CONCLUSION

The present case suggests that FM may be a beneficial therapeutic approach in managing TMD-related pain and functional limitations.

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