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Effect of MT2 Blade Soft Tissue Mobilization Modified Neck and Dissection for Head and Neck Carcinoma

Dr. Satyam Bhodaji[1], Aniruddha B. Thorat[1], Siddhi Sawant[2], Sejal Adhikari[2], Anushka Mahadik[3], Sakshi Rade[3], Aayushi Panchal[4], Riya Bhanushali[5], Pratiksha Goswmi[5], Soham Sawant[6], Dr. Pratik Namdevrao Thakre[6]

[1]HOD &Associate professor, Department of Geriatric Physiotherapy, Krishna College ofPhysiotherapy, Karad.
[1]Assistant professor, School of Physiotherapy, Chh.SambhajiNagar, University: MGM Institute of Health Science, Navi Mumbai.
[2, 2, 3, 3, 4, 5, 5, 6,]Intern MGM school of physiotherapy Chh.SambhajiNagar, University: MGM Institute of Health Science, Navi Mumbai.
[6]Head of Department of Sports Physiotherapy, Move o Matic Rehabilitation, Sector MU, Greater Noida, Uttar Pradesh -201310, India.

Corresponding Author:Dr.Aniruddha Bhausaheb Thorat
Assistant professor, School of Physiotherapy, Chh.SambhajiNagar, University: MGM Institute of Health Science, Navi Mumbai.
Email: aniruddhathorat0078@gmail.com

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ABSTRACT:
BACKGROUND: Trismus, or restricted mouth opening, is a common side effect of treatment for head and neck cancer. Trismus leads to several difficulties to the patients, like inability to open jaw while eating food, speaking, yawning. The patient usually Complaints of pain & tenderness in the face, more in the area in front of the ear, increases while Attempting to open the jaw, trying to eat food especially solid food. Physiotherapy plays an important role As a treatment of trismus. A 40-year-old Male with trismus was assessed using dial calliper for mouth opening and was treated using Physiotherapeutic approaches. Pre- and post intervention values were recorded. Physiotherapy interventions Included hot moist pack therapy, myofascial release, exercises for the temporomandibular joint (TMJ)**Results**: The results of this study indicated that after 20 days of physiotherapy treatment program the mouth opening increased significantly and there was reduction in VAS score in patients with trismus. The increase in mouth opening seems to be greater in the patient who was young in comparison with the two patients who were older. **Conclusion:** The present report emphasis on the Effect of 2 weeks of physiotherapy intervention using a combination of MT2 Blade Soft tissue mobilization and exercise has Benefited the patient in improving the mouth opening and overall quality of life.

Keywords: Smart Traffic Control, Wireless Sensor Networks (WSNs), Signal Crossings, Accident Risk Mitigation.

1. Introduction

The word Trismus is Latin term derived from the Greek word “Trismos” which means grinding / rasping. In lay terms trismus means limitation of mouth opening due to reduced mandible mobility[1].Most commonly, trismus is temporary and typically resolves in less than two weeks, but permanent trismus may also occur[2].Trismus is a common problem in patients with head and neck cancer. About one-fourth of patients with head and neck cancer develop trismus. The prevalence of trismus after head and neck oncology treatment ranges from 5% to 38%[3].

The most common movements of mouth which are affected in trismus is mandibular elevation (mouth closure). The common characteristic includes restricted mouth opening, preventing the 2-3 fingers positioned side by side from fitting into the intercisal space as seen in normal subjects. Inability to perform lateral mandible movements often indicates trismus due to bony TMJ ankylosis[4,5]. As a result of sustained, tetanic spasm of the mastectomy muscles mediated by the trigeminal nerve, normal motion of the mandible also known as jaw bone is reduced in patients with trismus. ultimately interfering with patients swallowing, normal speech, oral hygiene and rarely it increased risk of aspiration. Patients with trismus often experience difficulties in performing activities of daily living, such as eating, drinking, laughing, and speaking. These difficulties adversely affect their quality of life[6,7].

Other treatments for Trismus include drug intervention, surgical treatment. Yet there is lack of a standardized treatment protocol[8]. The purpose of this case series is to formulate and assess the effectiveness of use of physiotherapy training program in the treatment of trismus. physiotherapy is one of the main rehabilitation in treatment of cancer/trismus, there are many physiotherapy techniques of soft-tissue manipulation. So Instrument assisted soft tissue mobilization is new technique, there is a limited evidence to prove the MT2 Blade Soft tissue mobilization modified neck and dissection for head and neck carcinoma.

Case Description

A 40 year old male patient came with complaint of pain & tenderness in the face, more in the area in front of the ear, increases while Attempting to open the jaw, trying to eat food especially solid food. He was referred to us by an Oncologist for physiotherapy after diagnosed with oral cancer. During taking history the patient informed that for 7 years he has habits of taking gutka 10-12 packet every day. His difficulties in mouth opening started I year back which was gradually increases, and pain on buccal cavity. Because of his limited mouth opening and pain make him difficulty in his various activities. On examination, the patient had restrictions in maximum mouth opening (18 mm), The pain score was 8 measured using VAS.

Outcomes Measures

Calliper for mouth opening and visual analogues scale for pain.

Intervention

The treatment consists of instruction in active and passive exercises for mouth opening, stretching exercises for the neck and shoulder region,

The patients will receive instrument-assisted soft tissue mobilization:

The subject was seated in a relaxed sitting position. M2T blade was used to find specific areas of restriction on TMJ. The lubricant (Vaseline) was applied to the skin around the neck area prior to treatment and the tool was cleaned with an alcohol preparation pad. Then by using M2T blade with angle 45, we were giving long slow strokes without causing any discomfort or pain over muscle starting from its insertion up to its origin approximately for 2 to 3 min repeated two times.

Again, Active moments of TMJ were given 10 rep for each movement.

Cryotherapy were given if needed.

Breathing exercises

Diet and nutrition advice

Fatigue copingstrategy

Shoulder range of motion exercise.

Exercises were prescribed at 10 repetitions, three cycles per day for 2 weeks

1.1 1.2

2. Results

Table 1.1

Outcomes Measures	Pre- Treatment	Post- treatment
Mouth opening (dial calliper)	18mm	50mm
VAS	8	3

3. Discussion

The present report to see the effect of MT2 Blade Soft tissue mobilization modified neck and dissection for head and neck carcinoma. Trismus is an uncontrolled inability to open the mouth or jaw[2]. It interferes mainly with daily activities such as chewing, swallowing and talking, brushing teeth and the tonic contraction of the muscles of the mastication and spasm. It results in the limited ability to open the mouth[1]. It occurs due to several factors such as tumour invasion in the masticatory muscles or in the Temporomandibular joint, fibrosis induced by radiotherapy, oral infections, and oedema after surgery or due to pain[7].MFR for the masseterand temporalis muscles improved the flexibility bydirectly affecting the stress–strain curve principle ofthe muscle resulting in further elongation of the muscle tissue[9]. Literature mainly suggests massage therapy for muscle, but in the present study, MFRtechnique was used which might have helped to specifically relax the affectedmuscle (masseter and temporalis)[10]. This relaxation may be explained by applying a gentle pressure applied slowly Which activates viscoelastic property of fascia results in elongation of muscles. MFR has also shown to help in alleviating the muscle stiffness, reducing pain, and improving the joint range of motion[10].Another technique used to complement stretching interventions is instrument-assisted soft tissue mobilization (IASTM). The Garston Techniqueis the most researched method for performing this intervention[11,12]. This technique is intended to promote connective tissue remodelling by releasing adhesions using stainless steel tools and eliciting a local inflammatory response[13,14]. Several case studies have been published documenting successful improvement in range of motion (ROM) following IASTM[15]. However, this intervention is under researched and the evidence is inconclusive, largely due to variations in technique, tools, and duration of application[16,17]. In present report using MT2 Blade for Soft tissue mobilization shows positive results in VAS score and effect in mouth opening after 2weeks.

4. Conclusion

The present report emphasis on the Effect of 2 weeks of physiotherapy intervention using a combination of MT2 Blade Soft tissue mobilization and exercise has Benefited the patient in improving the mouth opening and overall quality of life.

The current strategy emphasizes prevention. Current strategies emphasize prevention, in instances of existing trismus, collaboration between professionals to establish pain control, prevent the progression of trismus, and restore function. A physiotherapy personnel can make a set of simple, systematic and feasible mouth opening exercise training program to encourage patients to insist on long -term exercise to a longer time period for around a year after radiotherapy, and give patients effective exercise training guidance. Of course, what remains to be studied is how to develop a sophisticated, standardized and personalized rehabilitation program for the prevention and treatment of trismus and long-term effect of physiotherapy intervention along with the clinical guidance for the follow-up of patients with oral cancer treatment.

Declarations

Conflicts of Interest

The authors declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

Patient Perspective

The patient shared his perspective that compared to day one he found significant changes in his pain, range and function hence, improvement in quality of life.

Consent

As per international standard or university standard patients' written and informed consent has been collected and preserved by the authors.

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5. References

1. Livia M. Santiago-Rosado; Cheryl S. Lewison. Santiago-Rosado LM, Lewison CS. Trismus. 2020 Dec
2. Dhanrajani PJ, Jonaidel O. Trismus: aetiology, differential diagnosis and treatment. Dent Update. 2002 Mar;29(2):88-92, 94.
3. Monisha N, Ganapathy D, Sheeba PS, Kanniapan N. Trismus: a review. Journal of pharmacy research 2018;12(1):130-133.Sonis, Stephen. (2011).
4. Strojan P, Hutcheson KA, Eisbruch A, et al. Treatment of late sequelae after radiotherapy for head and neck cancer. Cancer Treat Rev. 2017; 59:79-92. doi: 10.1016/j.ctrv.2017.07.003,
5. Tveterås K, Kristensen S. The aetiology and pathogenesis of trismus. Clin Otolaryngol Allied Sci. 1986 Oct;11(5):383-7.
6. van der Geer SJ, van Rijn PV, Kamstra JI, et al. Prevalence and prediction of trismus in patients with head and neck cancer: A cross-sectional study. Head & Neck. 2019; 41:64–71. https://doi.org/10.1002/hed.25369
7. Thiagarajan B. Trismus an overview. ENT Scholar June. 2014. Available from: https://www.researchgate.net/publication/263277344_Trismus_an_overview
8. Wu H, Zhou Z, Zhang C, Shen S, Liu J, Zhang C. The progress of post-treatment restricted mouth opening in oral and maxillofacial malignant tumour patients. Front Oral Maxillofacial Med 2021; 3:7.
9. Balasubramanian T.Trismus an Overview: Scholar Work Spaces. Stanley Medical College; 20 June, 2014. p. 1-13.
10. John FB. Myofascial Release Treatment centres & Seminars. No date. Available from: https://www.myofascialrelease.com/about/definition. aspx. 2016 Jun 28.
11. Baker RT, Nasypany A, Seegmiller JG, et al. Instrument-assisted soft tissue mobilization treatment for tissue extensibility dysfunction. Int J Athletic Ther Train. 2013; 18:16–21.
12. Baker RT, Hansberger BL, Warren L, et al. A novel approach for the reversal of chronic apparent hamstring tightness: a case report. Int J Sports Phys Ther. 2015;10(5):723–733.
13. Looney B, Srokose T, Fernández-de-las-Peñas C, et al. Graston instrument soft tissue mobilization and home stretching for the management of plantar heel pain: a case series. J. Manipulative Physiol. Ther. 2011;34 (2):138–142.
14. Vardiman JP, Siedlik J, Herda T, et al. Instrument assisted Soft Tissue Mobilization: effects on the Properties of Human Plantar Flexors. Int. J. Sports Med. 2015;36(3):197.

15. Bayliss AJ, Klene FJ, Gundeck EL, et al. Treatment of a patient with post-natal chronic calf pain utilizing instrument-assisted soft tissue mobilization: a case study. J Man Manip Ther. 2011;19(3):127–134.
16. Terry Loghmani M, Bayliss AJ, Clayton G, et al. Successful treatment of a guitarist with a finger joint injury using instrument-assisted soft tissue mobilizationon: JManManipTher. 2015;23(5):246–253.
17. Cheatham SW, Lee M, Cain M, et al. The efficacy of instrument assisted soft tissue mobilization: a systematic review. J Can Chiropr Assoc. 2016;60(3):200211.