

Case Report

Additive effectiveness of “Rocabado’s 6x6 program” on oral submucous fibrosis (OSMF) : Case Report

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Abstract:

Oral submucosa fibrosis (OSMF) is an idiopathic scleroderma of the mouth (1). In India, the prevalence of OSMF is estimated to be between 0.2 and 2.3 percent in males and 1.2–4.6 percent in females, with a age range of 11 to 60 years. This ailment affects the temporomandibular joint, which is essential for optimal mouth function and indeed plays role in chewing, swallowing, talking, oral hygiene, and nourishment, with symptoms that are similar to those seen in "temporomandibular dysfunction." While Rocabado's exercise has been demonstrated to help with TMD symptoms, but there is paucity of evidence on effectiveness of Rocabado's exercise on OSMF . As a result of this aforementioned fact this case study was executed. In view of factuality on medical and surgical management, a third-dimensional approach to OSMF is physiotherapy management which can be considered as physical medicine. As a concomitant therapy, conventional physiotherapy treatment such as stretching, ultrasound (US),and soft tissue manipulation have been used. Aside from that, the Rocabado’s jaw-movement has demonstrated to have a significant impact on TMJ dysfunction betterment, but is however this is not ordinarily used in OSMF.

Keywords : Rocabado’s technique , TMJ dysfunction , OSMF

Background:

OSMF is also acknowledged as 'idiopathic scleroderma of the mouth' (1).It is predicted to affect 0.2–2.3 percent of males and 1.2–4.6 percent of females in India, with a age range of 11 to 60 years.(2) OSMF is a sapping but avertible oral malaise (3) . OSMF can occurs at any stage of life but most frequently perceived in adolescents and adults specifically between 16 and 35 years. It is predominantly observed in Southeast Asia and Indian subcontinent (1). The aetiopathogenesis of OSMF is multitudinous but remains difficult to interpret .Although areca nut is contemplate to be the salient basis for this ailment (4) Other than that, individual’s possessing immunocompromised health, the overlong inadequacy of iron and macronutrients in the dietary regimen, and genomic factors are some crucial constituents for giving lead to OSMF.(5) The distinctive feature of this ailment is submucosal fibrosis that affects the oral cavity and gradually involves the pharynx and the upper gullet. It is characterized by juxta-epithelial inflammatory reaction followed by chronic change in the fibro-elasticity of the lamina propria and is allied with epithelial atrophy and further inducing stiffness of oral cavity, persuading trismus formation and additionally causing impotency to eat.(6) Other characteristic features of OSMF are such as reduced movement and depapillation of tongue , blanching and leathery texture of oral mucosa , loss of pigmentation of oral mucosa , and progressive reduction of mouth opening.(1) There is no precise treatment for OSMF. Owing to its multifactorial etiology and

pathogenesis, various modalities are tried over years, but no medical management has provided comprehensive relief from symptoms of OSMF (7) In view of the aforementioned factuality on medical and surgical management, a third-dimensional approach to OSMF is physiotherapy management which can be considered as physical medicine. As a concomitant therapy, conventional physiotherapy treatment, stretching, ultrasound (US),and soft tissue manipulation have been used. Aside from that, the rocabados jaw-movement has demonstrated to have a significant impact on TMJ dysfunction betterment, but is however this is not ordinarily used in OSMF.(7,8)

Wherefore ,the determination of this study was to see aftereffect of its implementation on patients having OSMF manifestation.

Case Report:

Herewith we reported a case of 45-year-old male postoperatively was referred to the physiotherapy outpatient department with the chief complaint of difficulty in mouth opening, swelling around cheek bones bilaterally. He had a positive history of areca nut chewing and smoking tobacco for 12 years. The patient used to chew commercially available areca nut packets with a frequency of 2-3 packets per day and smoke 4-5 cigarettes in a day. The patient quit the habit completely 1 year ago. The patient had been previously treated with medications for 8 months ago due to complain of ulcers in mouth and inability to eat was significantly relieved of burning sensation but did not get any significant improvement in mouth opening son. The

patient gave a history of undergoing treatment with laser diode therapy removing overgrowths of tissue and systemic medication were given. Since because of reoccurrence of the ulcers after 1 month biopsy was done he was then suspected with oral submucosa fibrosis (Grade II) and was then operated for OSMF with nasolabial flap. Dietary changes were advised to the patient, but progressively, the intake of solid food was reduced due to increased difficulty in mouth opening, and the patient reported with an ability to have only semi-solid food. He was then further advised for physiotherapy management related with TMJ dysfunction . An evaluation was performed where on inspection, reduced mouth opening was observed and initial inter-incisal distance was measured by measuring scale and was approximately 10 mm. Tongue protrusion was mildly restricted Deviation of mandible on opening was towards left and Malocclusion was Class III Underbite. Further on palpation tenderness was grade 2 ,and the swelling was present around masseters , buccinator , Temporalis ,digastric, with absence of warmth and pain was rated 6/10 by patient on 10cm VAS then thick fibrous bands were present around Massector ,sternocleidomastoid ,levator scapulae & upper trapezius ,boggy site around parotid gland was present , as well as involvements of facial lymph nodes were observed.Cervical flexion range along with lateral flexion to left was restricted and herewith also the chvostek sign was

assessed to see for involvement of fascial nerve and which appeared to be negative in this case. The fonseca's Questionnaire (FQ) was assessed for TMJ dysfunction symptoms and Jaw and function limitation score (JFLS) was assessed for limitation of jaw function .Pre FQ score was 66 and JFLS score was 83.

Physiotherapy Intervention :

The patient was treated with manipulative and therapeutic approach for OSMF which involved the followin program for 2 weeks.. it consisted of Rocabado's exercises 6x6 regimen ^(9,10) along with conventional OSMF protocol which included ultrasound therapy with 3 MHZ ,1.5 W/cm , continuous 1:1 duty cycle , 6 minutes ; 2 times a day for 5 days/per week for 2 weeks, osteopathic soft tissue release for Temporalis ,Massector ,diaphragms release's ,sacral release,occipito-atlantal release ,Sternocleidomastoid ,Suboccipital region ,pterygoid release , upper trapezius and levator scapulae according to the identified tonic muscles involved ,wherein this release were given to reduce the hypertonicity of the muscles . which were given for half an hour each session twice a week for 2 weeks and TMJ mobilization was administered with distraction , medial and lateral glide .⁽¹¹⁾ After 2 weeks patient continued with rocabados exercise regimen along with prescribed jaw opener device (V surz heister Mouth GAG) and respective ongoing dentistry management also follow up was taken.



Fig : 1 Pre treatment mouth opening



Fig : 2 post treatment mouth opening



Fig 3 : Swelling pre treatment



Fig 4 :Swelling post treatment

Outcome and follow up:

The patient post-assessment was done after 2 week which showed marked relief of symptoms where patients achieved increase in the interincisal mouth opening in mean range of 31 mm in 2 weeks, the pain reduced to 3/10 on VAS scale, the FQ score was assessed at 2 week which scored 22 and JFLS was scored 33. patients were kept under close observation for 1 month to check the recurrence and relapse, 1 month and 3 month while continuing with medical and oral physiotherapy management wherein the functional scales were reassessed at 3 month during follow up FQS score was 19 and JFLS score was 24.

Discussion:

The consumption of betel nut is closely linked to OSMF. It's a premalignant condition that, if persisted unaddressed, will in turn result in significant functional defacement.

Aggressive physical therapy after surgery is essential to the long-term resolution of trismus. If patients do not comply with the physical therapy regimen, recurrent trismus is inevitable. The long-term recovery of lock jaw or trismus requires physical rehabilitation after operative intervention. Resurgence trismus is unavoidable if patients do not comply to their physical treatment program.⁽¹²⁾ Hemaashree V et al. from her study asserted that as compared to the group treated with jaw opening exercises, local ultrasound and jaw opening exercise led to a substantial gain in mouth opening range.⁽¹³⁾ Himani T et al in her study mentioned the thermal effects are due to heating and may include increased blood flow, reduction in muscle spasm, increased collagen fibers extensibility, and proinflammatory response provides pain relief. Hence in the

cases of OSMF, more of thermal effects is advisable for treatment.⁽⁷⁾

According to Rocabado, his 6 x 6 workout regimen has been demonstrated to allay discomfort and optimize masticator muscle activity, as well as rectify the forward head posture. The objective of these exercises is to improve muscular coordination, ease tight muscles, promote TMJ ROM, alter the jaw closure pattern, and enhance muscular strength.^(9,14) The Rocabado approach indicates that the centric orientation is only possible when the position and movement patterns of the sub-cranial area, the mid and lower cervical spine, the hyoid, and the jaw are in balance. Because these impacts may be deficient with traditional TMJ exercise, henceforth this aforementioned " technique" is traditionally indicated for treatment.⁽⁹⁾ Moreover, the Rocabado's exercise 6x6 program demonstrated superior remission in patients with OSMF in our current case study. As a corollary, for OSMF cases of severe trismus who have responded positively to conventional surgical management, where a comprehensive hospice care strategy is key.

Conclusion:

As is its being proven time and time again, that rehabilitation consisting of a physiotherapy regiment is the centerpiece of postoperative phase care.

Traditional jaw exercise, soft tissue release, varying modalities, and splinting have been used to treat OSMF patients for decades, but the Rocabado's exercise regimen 6x6 heretofore was not used to treat OSMF patients, and thus our case report proved the effectiveness of this technique in handling OSMF when pursued with conventional protocol.

References:

- 1) More CB, Gupta S, Joshi J, Varma SN. Classification system for oral submucous fibrosis. *Journal of Indian Academy of Oral Medicine and Radiology*. 2012;24(1):24-28
- 2) Umate R, Patil M, Telrandhe S, Pathade A, Chhabra KG, Nimbalkar G, Fulzele P. Assessment of Scientific Production of the Health Sciences University on Oral Submucous Fibrosis Using Bibliometric Analysis. *Journal of Evolution of Medical and Dental Sciences*. 2020 Oct 12;9(41):3033-40-42
- 3) Aziz SR. Coming to America: betel nut and oral submucous fibrosis. *The Journal of the American Dental Association*. 2010 Apr 1;141(4):423-428.
- 4) Lambade P, Dolas RS, Dawane P, Rai B, Meshram V. "Oral Submucous Fibrosis Scoring Index" to predict the treatment algorithm in oral submucous fibrosis. *Journal of maxillofacial and oral surgery*. 2016 Mar;15(1):18-24.
- 5) Devarajan H, Somasundaram S. Oral submucous fibrosis: Etiology and management—A review. *Drug Invention Today*. 2019 Jun 1;11(6):12-14
- 6) Hemaashree V. Effectiveness of Ultrasound Therapy on Oral Submucosal Fibrosis. *Indian Journal of Public Health Research & Development*. 2020 Mar 1;11(3).
- 7) Tyagi H, Lakhanpal M, Dhillon M, Baduni A, Goel A, Banga A. Efficacy of therapeutic ultrasound with soft tissue mobilization in patients of oral submucous fibrosis. *Journal of Indian Academy of Oral Medicine and Radiology*. 2018 Oct 1;30(4):349-355
- 8) Dani VB, Patel SH. The effectiveness of therapeutic ultrasound in patients with oral submucosal fibrosis. *Indian Journal of Cancer*. 2018 Jul 1;55(3):248-251
- 9) Mulla NS, Babu VK, Kumar SN, Rizvi SR. EFFECTIVENESS OF ROCABADO'S TECHNIQUE FOR SUBJECTS WITH TEMPOROMANDIBULAR JOINT DYSFUNCTION-A SINGLE BLIND STUDY. *International Journal of Physiotherapy*. 2015 Feb 1;2(1):365-375.
- 10) Mulet M, Decker KL, Look JO, Lenton PA, Schiffman EL. A randomized clinical trial assessing the efficacy of adding 6 x 6 exercises to self-care for the treatment of masticatory myofascial pain. *Journal of orofacial pain*. 2007 Oct 1;21(4):12-14

- 11) Nagata K, Hori S, Mizuhashi R, Yokoe T, Atsumi Y, Nagai W, Goto M. Efficacy of mandibular manipulation technique for temporomandibular disorders patients with mouth opening limitation: a randomized controlled trial for comparison with improved multimodal therapy. *J Prosthodont Res.* 2019 Apr;63(2):202-209.
- 12) Packer AC, Pires PF, Dibai-Filho AV, Rodrigues-Bigaton D. Effect of upper thoracic manipulation on mouth opening and electromyographic activity of masticatory muscles in women with temporomandibular disorder: a randomized clinical trial. *J Manipulative Physiol Ther.* 2015 May;38(4):253-61
- 13) Hemaashree V. Effectiveness of Ultrasound Therapy on Oral Submucosal Fibrosis. *Indian Journal of Public Health Research & Development.* 2020 Mar 1;11(3):41-48
- 14) Saraf V , Shetty V et al , Modified sectional impression technique – Clinical Report and Review , *Pravara Medical Review* , 2014 , 6 (1) , 4-7