



EFFICACY OF LASER ASSISTED FIBROTOMY FOR THE MANAGEMENT OF ORAL SUBMUCOUS FIBROSIS: A CLINICAL STUDY

Dr.Richa Gupta Naik (BDS, MDS; consultant Oral and Maxillofacial surgeon)

Dr.Rajesh B Dhirawani (MDS, FIAOS, FAAOMS, FPFA ; consultant Oral and Maxillofacial Surgeon)

Date of Submission: 25-11-2020

Date of Acceptance: 15-12-2020

I. AIM:

This study is done to evaluate the efficacy of lasers in bringing improvement in the mouth opening for patients with oral submucous fibrosis. And to assess the effect of patient co-operation and active physiotherapy after every surgical procedure to bring about further improvement and maintain the results.

II. INTRODUCTION:

OSMF is “an insidious chronic disease affecting any part of the oral cavity and sometimes the pharynx...although occasionally preceded by and/or associated with juxta epithelial inflammatory reaction followed by a fibro-elastic change of the lamina propria, with epithelial atrophy leading to stiffness of the oral mucosa and causing trismus and inability to eat”.

It is an established precancerous condition with increased prevalence in the Indian subcontinent and a malignant transformation rate of 7.6%. The results from studies conducted in 2002 indicate that more than 5 million people in India have OSMF (0.5 percent of the Indian population)¹.

Classification of OSMF: Khanna and Andrade² 1995:

- I-	Grade	very early cases burning sensation, recurrent stomatitis, no mouth opening limitation
- II –	Grade	mouth opening 26-35mm
- III-	Grade	mouth opening 15-25 mm
- IV a-	Grade	mouth opening less than 15 mm

- IV b-	Grade	presence of hyperkeratotic/ leukoplakic/ assoc SCC growth.
------------	-------	--

III. MATERIAL AND METHODS:

Twenty patients of either sex with oral submucous fibrosis reporting to my Department of Oral and Maxillofacial surgery, Jabalpur shall be included in this study. Patients with interdental opening of < 25 mm but >15 mm. Patients who have undergone any conservative treatment method (intralesional injections) for oral submucous fibrosis without any improvement or those patients who have not received any kind of treatment before.

Patients not included in the study were:-

- ⊙ Patients who have undergone any previous surgical procedure for the correction of the condition.
- ⊙ Patients with fibrosis secondary to radiation
- ⊙ Patients with absolute systemic contraindications for surgical procedure.
- ⊙ Patients having any other associated malignant transformations.

All the patients were counseled pre operatively explaining the possible cause of their disease and therefore, importance of quitting the habit. Most importantly, post-op compliance for active mouth opening exercises and follow-up.

Under aseptic conditions, in all the patients the fibrous bands in the buccal mucosa were excised with Diode LASER bilaterally followed by the extraction of all the erupted 3rd molars. The excised regions were left raw to heal by secondary intention .

Post operatively patients were given the following instructions:

- Not to spit or gargle for next 12 hrs
- Ice fomentation for first 48 hrs.



- Patients put on soft liquid diet for 2-3 days
- Instructed to maintain good oral hygiene.
- Antibiotic, analgesic and muscle relaxant for 3-5 days
- Long term medication with anti-oxidant for 3 months one tablet daily.

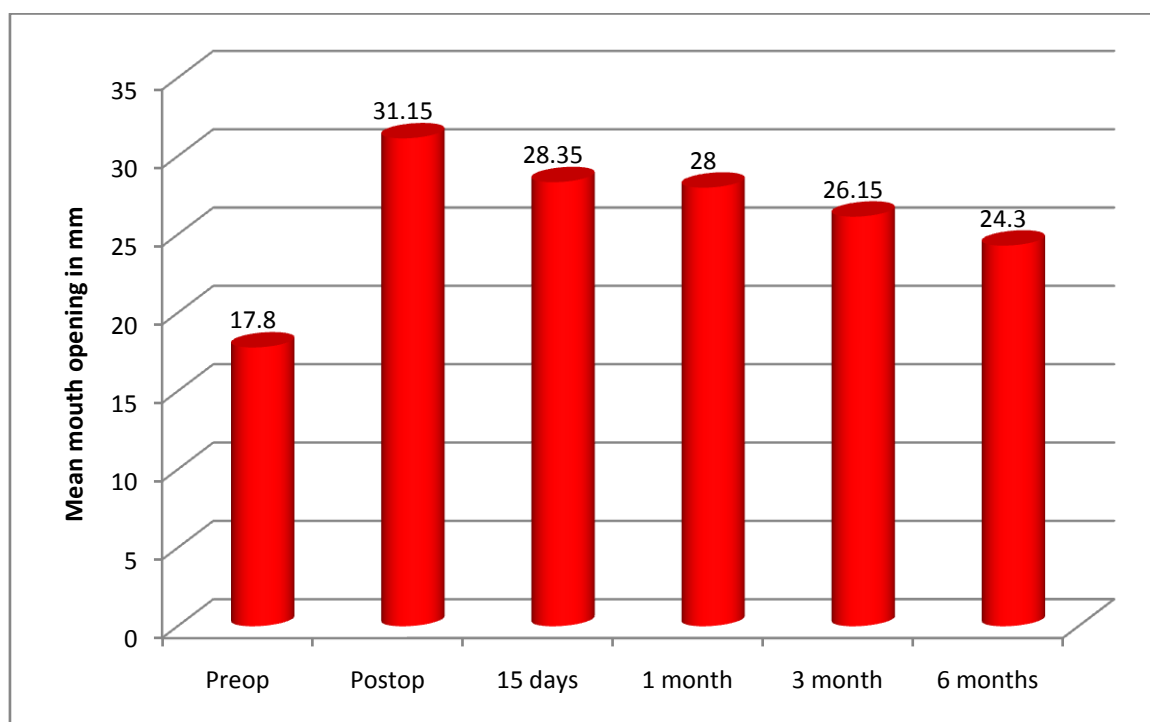
In our study, all the patients post-operatively were given a lycopene containing anti-oxidant once a day for 3 months. It was noticed that there was reduction in burning sensation and the newly formed mucosa by secondary intention was also soft in consistency.³

Also, patients were given muscle relaxants after 3rd post-operative day for 5 days to help in performing active mouth opening exercises.

Adding a muscle relaxant as an adjuvant to the routine treatment of OSMF not only caters and halts the problem of fibrosis but also takes care of the muscle spasm and inflammation which also inadvertently contributes to the restricted mouth opening.⁴

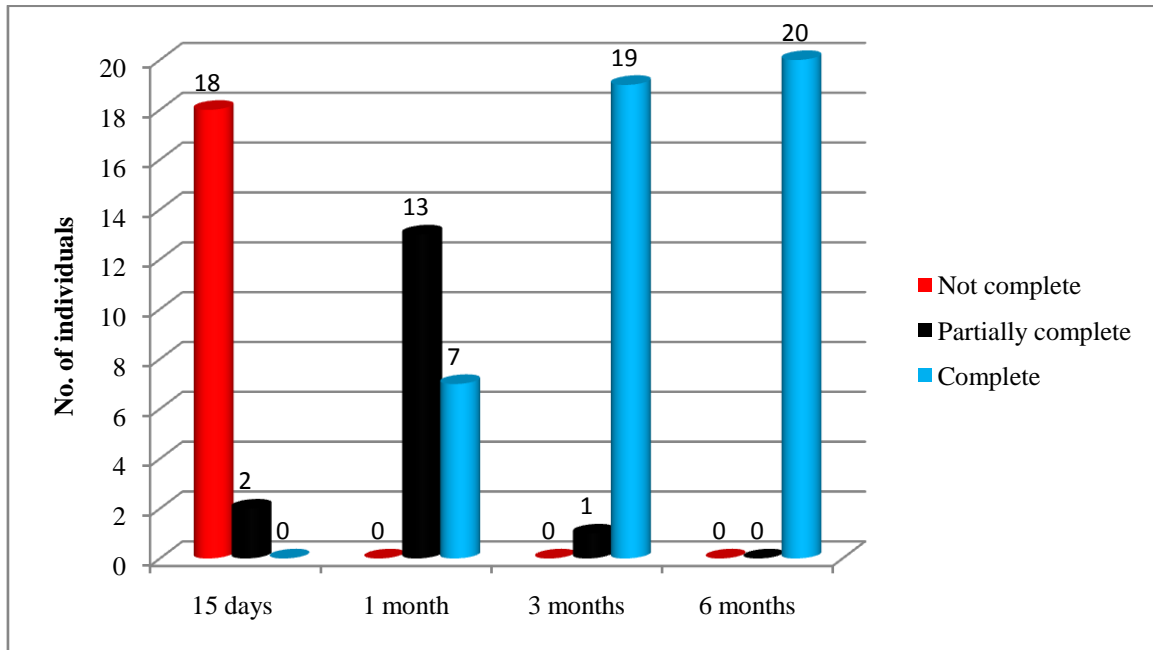
IV. RESULTS:

There was vast increase in the mouth opening from pre-op 17.8 ± 2.72 mm to immediate post-op 31.5 ± 4.9 mm. But then it started declining over a 6 month follow up reducing to 24.3 ± 4.36 .



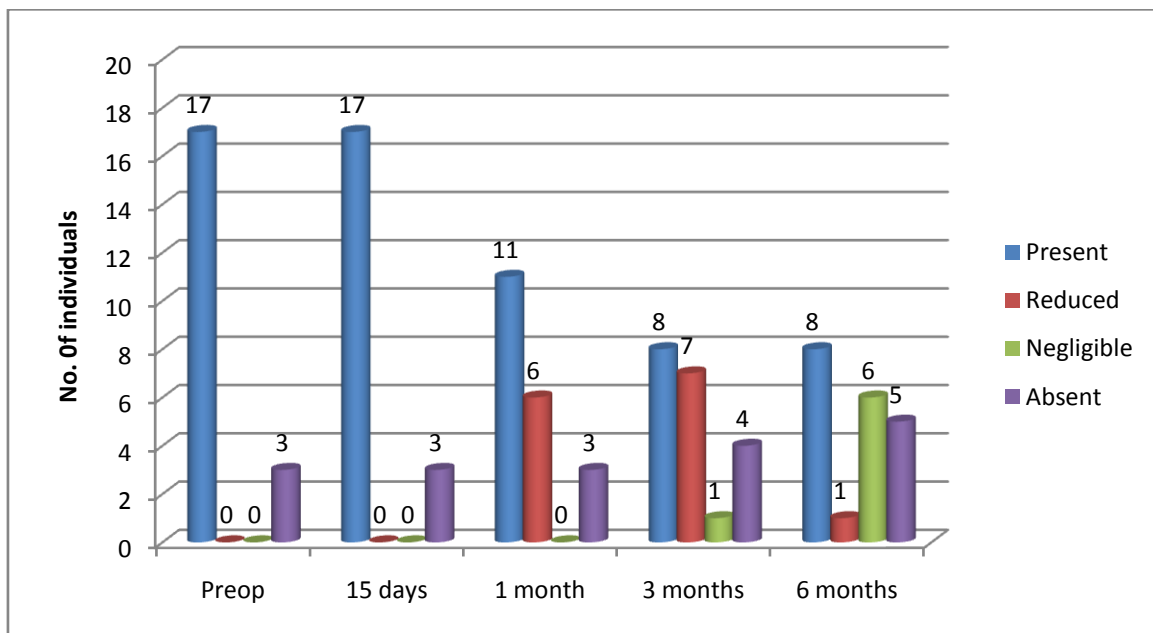
Out of the 20 patients, healing was partially complete in 10 % cases at the end of 15 days, but complete healing occurred in 95% of cases (19 patients) at 3 months follow-up. Only in

1 patient healing took longer than 3 months. But after 6 months, in all 20 patients (100%), healing occurred satisfactorily without any complication



During pre-operative examination 85% of the individuals had burning sensation which reduced to 40 % at the end of 3 months and then remained same even after 6 months follow-up. Only

15 % of the patients were without burning sensation which increased to 25 % at the end of 6 months.



V. DISCUSSION:

OSMF is a potentially malignant disorder and crippling condition of the oral mucosa. It is a chronic insidious scarring disease of oral cavity characterized by progressive inability to open mouth

OSMF is predominantly seen in people of South Asia and Southeast Asia⁵. OSMF is frequently located in buccal mucosa and the retromolar areas. It also commonly involves the soft palate, palatal fauces, uvula, tongue, and labial mucosa. A predominance of women suffering from oral submucous fibrosis has been observed in several



studies⁶. But patients included in this study, were 90% males and 10% females

Oral submucous fibrosis has the following characteristics:

- mucosal blanching
- burning, hardening,
- and the presence of characteristic fibrous bands,
- gradual inability to open the mouth
- uvula often reduced in size- 'bud- like' or 'hockey stick appearance'
- soft palate mobility is greatly reduced
- patient looks anemic and debilitated
- masseteric hypertrophy, sunken cheeks and elongated gonial angles may be seen

OSMF's morbidity/mortality is associated with significant masticatory dysfunction and discomfort, as well as an increased risk of developing squamous cell carcinoma. OSMF has a malignant transformation rate of 7%-30%.⁷ Erythroplakia and lichen planus are rarely associated with OSMF. Presence of leukoplakia with OSMF increases the risk of oral malignancy.⁸

The Diode laser has penetration upto 1.5 mm at a Power of 6-8 watts, in continuous mode. The temperature rise of affected tissues is above 50 ° and less than 100° . This temperature will cause protein denaturation . Denatured protein acts as a dressing layer for the treatment site that may decrease pain and enhances less risk of secondary infection.

Review on various interposition materials has shown that the split thickness grafting has high recurrence from contracture. The palatal island flaps based on the greater palatine artery , has many limitations . The bilateral tongue flaps causes dysphasia, disarticulation, risk of post operative aspiration, limited amount of donor tissue, as well as chances of dehiscence. Buccal fat pad is easy to harvest but in severe cases there is atrophy of buccal fat. Nasolabial flaps are a good option for reconstruction after the release of fibrous bands. But they have the disadvantage of an extra-oral scar

VI. CONCLUSION:

Management with Diode laser is an upcoming method that provides equally effective result with many advantages like being compact, portable, cost effective and most importantly has high patient compliance as it does not require hospitalization and the post operative pain is definitely less

The benefits of laser surgery include a relatively bloodless field and thus excellent visibility, reduced need for general anesthesia, less chances of bacterial infection, reduced mechanical

tissue trauma, no need of sutures, quicker healing, reduced post-operative edema, scarring and tissue shrinkage.

Greater compliance positively affects mouth opening giving good outcome and this, in turn, affects patient satisfaction. Thus, this study has demonstrated that DIODE LASER is an efficacious modality for managing oral submucous fibrosis in patients with good compliance. But, more studies with larger number of patients and a longer follow up is required to substantiate the results.

BIBLIOGRAPHY:-

- [1]. Pundir S, Saxena S, Aggrawal P. Oral submucous fibrosis a disease with malignant potential – report of two cases. *J Clin Exp Dent* 2010; 2(4):215–8
- [2]. Khanna JN, Andrade NN. Oral submucous fibrosis: a new concept in surgical management. Report of 100 cases. *Int J Oral Maxillofac Surg.* 1995; 24: 433-9.
- [3]. Kumar A, Bagewadi A, Keluskar V, Singh M. Efficacy of lycopene in the management of oral submucous fibrosis. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2007;103:207-13.
- [4]. Sunil Srichand, Mohan V Jugade, Arunprabhu Ganeshan. Benefit of using muscle relaxants in the routine treatment protocol of oral submucous fibrosis: A Pilot study. *Indian J Otolaryngol Head Neck Surg.* 2011; 63(4):317-320.
- [5]. Sultana N, Pallagatti S, Mohamed AI. P53 expressions in oral submucous fibrosis and oral squamous cell carcinoma. *Int J Oral Maxillofacial Pathol* 2011; 2 (1):9–14
- [6]. Gupta PC, Mehta FS, Daftary D. Incidence rates of oral cancer and natural history of oral precancerous lesions in a 10 year follow up study of Indian villages: *Community Dent Oral Epidemiol* 1980;8:287-333
- [7]. Pindborg JJ, Sirsat SM. Oral submucous fibrosis. *Oral surg oral med Oral Path.* 1966; 22: 764-779.
- [8]. More C, Thakkar K. oral submucous fibrosis- An insight. *J Pearl Dent.* 2010; 1(3).