Use of diode lasers in treatment of oral submucous fibrosis: A new concept in surgical management

Sanjay Asnani, Uma Mahindra, Rakesh Oswal

ABSTRACT

Introduction: Oral submucous fibrosis is chronic, insidious disease affecting the oral cavity and sometimes the pharynx and rarely the tongue. Oral Submucous fibrosis is a well known clinical entity since the time of “Sushruta” as ‘Vidari’.

Case Report: A 20-year-old patient with oral submucous fibrosis was treated with contact diode laser under local anesthesia and was followed up for six months.

Conclusion: Oral submucous fibrosis is an established precancerous condition with increased prevalence in the Indian subcontinent. The treatment of oral submucous fibrosis is a challenging task for a clinician. Different authors have suggested variety of treatment modalities and have claimed success rates; still there is no universally acceptable protocol for the management of oral submucous fibrosis. In this case transection of bands was done by contact diode lasers under local anaesthesia and it offered good results. Diode lasers offered excellent results and had many advantages over conventional surgical treatment.
Use of diode lasers in treatment of oral submucous fibrosis: A new concept in surgical management

Sanjay Asnani, Uma Mahindra, Rakesh Oswal

ABSTRACT

Introduction: Oral submucous fibrosis is chronic, insidious disease affecting the oral cavity and sometimes the pharynx and rarely the tongue. Oral Submucous fibrosis is a well known clinical entity since the time of “Sushruta” as ‘Vidari’. Case Report: A 20-year-old patient with oral submucous fibrosis was treated with contact diode laser under local anesthesia and was followed up for six months. Conclusion: Oral submucous fibrosis is an established precancerous condition with increased prevalence in the Indian subcontinent. The treatment of oral submucous fibrosis is a challenging task for a clinician. Different authors have suggested variety of treatment modalities and have claimed success rates; still there is no universally acceptable protocol for the management of oral submucous fibrosis. In this case transection of bands was done by contact diode lasers under local anaesthesia and it offered good results. Diode lasers offered excellent results and had many advantages over conventional surgical treatment.

Keywords: Diode laser, Oral submucous fibrosis, Local anaesthesia

INTRODUCTION

Oral submucous fibrosis is a well known clinical entity since the time of “Sushruta” as ‘Vidari’ [1]. This condition is predominantly found in the Indian subcontinent. Joshi in 1953 was the first person to describe this entity in India. The highest incidence is found in the state of Kerala with an overall prevalence rate of 2.5% in various states of the country. JJ Pindborg defined it as “an insidious chronic disease affecting any part of the oral cavity and sometimes the pharynx. Although occasionally preceded by and/or associated with vesicle formation, it is always associated with juxta epithelial inflammatory reaction followed by a fibro elastic change of lamina propria, with epithelial atrophy leading to stiffness of oral mucosa and causing trismus and inability to eat” [2].

There is no definite treatment for this condition. The various treatment modalities are mainly medical, surgical, or a combination of both. Conservative/medical modality is the treatment of choice in patients with mild to moderate limitation in mouth opening. The non-surgical line of treatment includes usage of gold [4], iodides, hyluronidase, placental extract, and steroids like hydrocortisone and triamcinolone, vitamins, iron supplements [5]. Whereas surgical treatment is the method of choice in patients with marked limitation of mouth opening or in patients not responding to the conservative management [6]. Many surgical modalities like dermal graft [7], tongue flap [8], nasolabial flap [9] etc. are in vogue to cover the surgical defect created by
transection of fibrous bands in oral mucosa.

Considering the limited success of the various treatment modalities and being aware of the fact that surgical treatment is the only palliative treatment having a fixed, limited target of relieving the trismus to enable the patient to overcome the morbidity, there is perpetual quest for the newer surgical protocols.

We report a case of oral submucous fibrosis treated with contact diode laser under local anaesthesia for transection of fibrous bands.

CASE REPORT

A 20-year-old male patient was reported in the department of oral and maxillofacial surgery with a chief complain of limited mouth opening since last three years and burning sensation on consumption of hot and spicy food. A detailed history was taken regarding tobacco chewing habit and dietary habit. It was revealed that patient consumed tobacco in the form of quid since last five years and also consumed excessive chillies. On examination fibrous bands were palpated on the right and left buccal mucosa extending up to the retromolar region. His preoperative mouth opening was recorded and was 18 mm (Figure 1). Biopsy was taken under local anesthesia to confirm oral submucous fibrosis. After confirmation of biopsy report treatment was explained to the patient and transection of fibrous bands was done bilaterally by contact diode laser under local anesthesia and the raw area was not grafted and was allowed to epithelize on its own (Figure 2). Patient was kept on oral antibiotics and analgesics for 5 days and postoperative physiotherapy exercise was started after 48 hours, atleast for 7–8 times in a day at the interval of one hour. Patient was told to continue the exercise for a period of one year. Mouth opening was recorded at the interval of 1 week, 1 month and 6 months. A significant improvement in mouth opening was recorded at the end of 6 months and it was around 4 cm (Figure 3). Healing of the surgical site was completed in 4 weeks and also there was relief from burning sensation as the patient was kept on oral antioxidants for the same.

DISCUSSION

Oral submucous fibrosis is an established precancerous condition with increased prevalence in the
Indian subcontinent. An estimated 2.5 million people suffer from this disease in India [3]. Prevalence rates of oral submucous fibrosis (OSMF) ranging from 0 to 17.6% have been reported in various population subsets. Betel nut chewing habit is the dominant etiological factor as majority of the patients are habituated to betel nut chewing in one form or the other.

The onset of the disease is insidious and is often of 2 to 5 years duration. The most common initial symptom is burning sensation of the oral mucosa, aggravated by spicy food. Vesiculation, excessive salivation, ulceration, altered pigmentation, recurrent stomatitis, defective gustatory sensation, and dryness of the mouth have also been indicated as early symptoms.

The treatment of oral submucous fibrosis is a challenging task for a clinician. All the documented treatment modalities, ranging from medicinal treatment to surgical treatment are purely symptomatic in nature and total cure of the disease is still elusive. Different authors have suggested variety of treatment modalities and have claimed success rates; still there is no universally acceptable protocol for the management of OSMF. This is mainly due to the fact that the etiology of the disease is not fully understood and the disease is progressive in nature.

The basic aim of any type of treatment modality is to relieve the symptoms which include hampered function in the form of trismus, burning sensation in mouth, difficulty in mastication, deglutition and speech. Relieving such type of symptoms makes it a more difficult surgical problem. Surgeon should not only aim to relieve trismus but also should monitor for malignant transformation of this condition.

Recently, diode lasers have been used for excision of soft tissue lesions in oral cavity, also have been used for gingivectomies, curettage of the pockets, debridement of the root canals, for carrying out frenectomies, bleaching, etc. But there are a few literatures available regarding their role in treatment of oral submucous fibrosis. In present case transection of bands was done by contact diode lasers under local anesthesia and it offered good results. There was significant improvement in mouth opening at the end of six months. The diode laser which was used in this case was of 5 watts and was kept on continuous mode. Diode laser offered several advantages over conventional surgical procedures like:

1. The procedure done is a minor outpatient procedure under local anesthesia.
2. Hemostatic nature of the surgery which allows surgery to be performed more precisely and accurately because of increased visibility and accessibility of the surgical site.
3. Decreased post-operative pain and swelling.
4. Causes a reduction in bacterial counts thereby promoting quicker, more predictable healing with minimal post operative infection and inflammation.
5. Leads to healing with minimal scarring.

The only disadvantage of this technique is availability and its cost effectiveness.

In past KTP 532 lasers have been used for the treatment of oral submucous Fibrosis and have shown good results but in all the studies the procedure was carried out under general anesthesia which required increased hospital stay whereas in our case the procedure was carried out under local anaesthesia which had many advantages as mentioned above.

Diode contact laser system can be used to rehabilitate grade III and early grade IV cases of OSMF. However, further more research is required for this system. A large sample size and long-term follow-up would give better insights for its use.

**CONCLUSION**

Till today, there is no modality which can be labeled as definitive treatment for oral submucous fibrosis. But this protocol is worth of consideration and may give better results keeping in view the importance of post-operative mouth opening exercises and patient compliance.

*********

**Author Contributions**
Sanjay Asnani – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Uma Mahindra – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published
Rakesh Oswal – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

**Guarantor**
The corresponding author is the guarantor of submission.

**Conflict of Interest**
Authors declare no conflict of interest.

**Copyright**
© Sanjay Asnani et al. 2014; This article is distributed under the terms of Creative Commons Attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.ijcasereportsandimages.com/copyright-policy.php for more information.)

**REFERENCES**

1. Mukherjee AL. Oral submucous fibrosis. A search for etiology. Ind J Otolaryngology 1972;24:1:11–5.
2. Gupta SC. “Mist” an etiological factor in oral submucous fibrosis. Ind J Otolaryngology 1978;30(1):5–6.
3. Shahid R Aziz. Oral submucous fibrosis: case report and review of diagnosis and treatment. J Oral Maxillofac Surg 2008;66:2386–9.
4. Marawetz G, Katsikers N, Weinberg S, Listrom R. Oral submucous fibrosis. J Oral Maxillofacial Surgery 1987;16:609–14.
5. Borle RM, SR Borle. Management of Oral Submucous Fibrosis: A conservative approach. J Oral Maxillofac Surg 1991;49:788–9.
6. 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.
7. Yen DJ. Surgical treatment of submucous fibrosis. Journal of Oral Surgery 1982 September:269–72.
8. Golhar S, Manohar MN, Narkhede S. Tongue flap in oral submucous fibrosis. Ind J Otolaryngol 1989;41:104–7.
9. Kavarana NM, Bhathena HM. Surgery for severe trismus in submucous fibrosis. British Journal of plastic surgery 1987;40:407–9.
Edorium Journals: An introduction

Edorium Journals Team

About Edorium Journals
Edorium Journals is a publisher of high-quality, open access, international scholarly journals covering subjects in basic sciences and clinical specialties and subspecialties.

Invitation for article submission
We sincerely invite you to submit your valuable research for publication to Edorium Journals.

But why should you publish with Edorium Journals?
In less than 10 words - we give you what no one does.

Vision of being the best
We have the vision of making our journals the best and the most authoritative journals in their respective specialties. We are working towards this goal every day of every week of every month of every year.

Exceptional services
We care for you, your work and your time. Our efficient, personalized and courteous services are a testimony to this.

Editorial Review
All manuscripts submitted to Edorium Journals undergo pre-processing review, first editorial review, peer review, second editorial review and finally third editorial review.

Peer Review
All manuscripts submitted to Edorium Journals undergo anonymous, double-blind, external peer review.

Early View version
Early View version of your manuscript will be published in the journal within 72 hours of final acceptance.

Manuscript status
From submission to publication of your article you will get regular updates (minimum six times) about status of your manuscripts directly in your email.

Our Commitment

Six weeks
You will get first decision on your manuscript within six weeks (42 days) of submission. If we fail to honor this by even one day, we will publish your manuscript free of charge.

Four weeks
After we receive page proofs, your manuscript will be published in the journal within four weeks (31 days). If we fail to honor this by even one day, we will publish your manuscript free of charge and refund you the full article publication charges you paid for your manuscript.

Mentored Review Articles (MRA)
Our academic program “Mentored Review Article” (MRA) gives you a unique opportunity to publish papers under mentorship of international faculty. These articles are published free of charges.

Most Favored Author program
Join this program and publish any number of articles free of charge for one to five years.

Favored Author program
One email is all it takes to become our favored author. You will not only get fee waivers but also get information and insights about scholarly publishing.

Institutional Membership program
Join our Institutional Memberships program and help scholars from your institute make their research accessible to all and save thousands of dollars in fees make their research accessible to all.

Our presence
We have some of the best designed publication formats. Our websites are very user friendly and enable you to do your work very easily with no hassle.

Something more...
We request you to have a look at our website to know more about us and our services.

We welcome you to interact with us, share with us, join us and of course publish with us.

CONNECT WITH US

Edorium Journals: On Web
Browse Journals

This page is not a part of the published article. This page is an introduction to Edorium Journals and the publication services.