

# Comparison of Mouth Opening with Different Non-Surgical Treatment Modalities in Oral Submucous Fibrosis

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## ABSTRACT

**Background:** Oral submucous fibrosis (OSMF) is a chronic, complex, irreversible, highly potent pre-cancerous condition characterized by juxta-epithelial inflammatory reaction and progressive fibrosis of the sub mucosal tissues (lamina propria and deeper connective tissues). The condition is linked to oral cancers and is associated with areca nut chewing, the main component of betel quid. Various treatment modalities were compared the efficacy of intraoral administration of vitamin B combined with lycopene with intralesional triamcinolone acetonide combined with hyaluronidase and oral vitamin B complex with lycopene.

**Objectives:** To compare and evaluate the easy, safe and non invasive procedure for treatment of oral submucous fibrosis.

**Material and Methods:** Total of 30 patients with clinically diagnosed OSMF patients. Each group consisted of ten patients with an age ranging from 30 -75years. A thorough case history along with a detailed clinical examination was performed for all individuals. The inter-incisal mouth opening was recorded at initial visit. Each group of patients received different modalities of therapy for three weeks and mouth opening was measured after three weeks. modalities that were to be compared. Group A Patients were advised use mixture of Turmeric and Jaggery Application twice a day all over the oral mucosa. Group B patients were advised to use Topical Kenacort Application twice a day and Group C patients were advised to do Physiotherapy exercise twice daily. The patients were recalled after a period of three weeks and their inter-incisal mouth opening was

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recorded. The statistical calculation was performed using SPSS version 19.

**Results:** 30-45 years - It was found that kenacort application suited the best treatment modality for this age group as it showed a very good prognosis in the inter incisal mouth opening.

46-75 years - It was found that jaggery and turmeric application suited the best treatment modality for this age group as it showed a very good prognosis in the inter- incisal mouth opening.

**Conclusion:** In our study group jaggery and turmeric application found to be most easy effective and safe modality of treatment for OSMF patients.

**Keywords:** Oral submucos fibrosis, Turmeric, Kenacort, Precancerous condition.

## INTRODUCTION

Oral submucous fibrosis (OSMF) is a chronic, complex, irreversible, highly potent precancerous condition characterised by juxta-epithelial inflammatory reaction and progressive fibrosis of the submucosal tissue i.e. lamina propria and deeper connective tissue.<sup>1</sup> In initial phase of disease, mucosa feels leathery with palpable fibrotic bands. In advanced stage the oral mucosa loses its resiliency and becomes blanched and stiff. Other features of disease include xerostomia, recurrent ulceration and pigmentation of oral mucosa, dryness of mouth, burning sensation, decreased mouth opening and tongue protrusion<sup>1</sup> There are various treatments for OSMF including conservative therapy and surgical modalities. This paper is aimed towards evaluating, best non-surgical method for the treatment for OSMF patients who do not prefer invasive surgical methods.

## Materials and Methods

The present study was conducted in the Department of oral medicine and Radiology, school of Dental Sciences, Karad, India. The ethical committee clearance was obtained before commencing

the study. A written informed consent was obtained from the patients before conducting the study.

### The study population

A total of 30 patients with clinically diagnosed OSMF were with the age group of 30 – 75years were recruited for the study.

### Inclusion criterion

(1) Patients clinically diagnosed with oral submucous fibrosis showing reduced mouth opening.

(2) Patients who reported after 3 weeks for follow up.

### Exclusion criteria

(1) Patients who are systemically compromised (severe cardiovascular, hepatic, immunologic, renal, hematologic, or other organ disorders).

Through clinical examination was done using gloves and mouth mirror and vernier caliper was used to measure the inter-incisal mouth opening at initial visit. All 30 subjects were divided in to three groups consisting of ten in each group. Group A patients were advised use mixture of Turmeric and Jaggery Application twice

a day all over the oral mucosa. Group B patients were advised to use Topical Kenacort Application twice a day and Group C patients were advised to do Physiotherapy exercise like use of ice cream stick to open the mouth and ballooning twice daily. The patients were recalled after a period of three weeks and their inter-incisal mouth opening was recorded. The statistical analysis was performed using SPSS version 19.

## RESULTS

Out of 30 patients, 27 were males and 3 were females. When the different non-surgical treatment modalities were compared, it was found that turmeric and jaggery application was the best treatment when compared to kenacort application and physiotherapy but with no statistical significance. ( $p=0.5314$ ) [Graph 1].

The three non surgical treatment modalities were compared within the age group of 30- 45 years. It was found that kenacort application was suited as the best treatment modality for this age group as it showed a very good prognosis in the inter incisal mouth opening. The data collected revealed that it was statistically significant. ( $p=0.1838$ ) [Graph 2].

The relation between the 3 non-surgical method for the age group of 46-50 years found that jaggery application was suited as the best treatment modality for this age group as it showed a very good prognosis in the inter-incisal mouth opening. The data collected revealed that it was significant graphically ( $p=0.1353$ ) [Graph 3].

The relation between the 3 non-surgical method for the age group of 61-75 years found that jaggery application was suited as the best treatment modality for this age group as it showed a very good prognosis in the inter- incisal mouth opening .The data collected revealed that it was significant graphically. ( $p=0.5588$ ) [Graph 4].

## DISCUSSION

Schwartz in 1962 first reported OSMF in modern literature and Joshi in 1953 described the entity in India.<sup>2,3</sup> Arecanut chewing of is one of the most important factors responsible for OSMF. Consumption of areca nut in variable forms has been established by many studies.<sup>4,7</sup> Areca nut plays a role in OSMF by generating free radicals as well as by causing immunosuppression. It affects patients with all ages but more common in second and third decades with male predominance which was also observed in our study. In our study group out of 30 patients, 27 were males and 3 were females. The results of our study was in consistent with Lai *et al* study who reported 96.67% male preponderance.<sup>8</sup> All the patients included in this study were using areca nut in variable forms. This was also reported by Canniff *et al* in their article on pathogenesis and management of oral submucous fibrosis.<sup>1</sup>

The treatment of OSMF includes topical or intralesional corticosteroids because of their anti-inflammatory and immunosuppressant properties. Iron and antioxidants also helps in treating OSMF. Physiotherapy exercises like forceful mouth opening exercises by using ice cream sticks and ultrasound also helps in reducing symptoms of OSMF. Kakar *et al* reported that patients treated with hyaluronidase showed quicker improvement in symptoms but a combination of dexamethasone gave better and long term results.<sup>9</sup> Hyaluronidase degrades the fibrous matrix promoting lysis of fibrinous coagulum and activating specific plasmatic mechanism. Relief of symptoms of stiffness in oral cavity occurs through softening and diminishing fibrous tissue.

In a series of cases studied by Khanna JN, Andararade NN in 1995, cases revealed improvement in clinical symptoms and mouth opening after triamcinolone injection while advanced stages treated surgically gave encouraging results in mouth opening.<sup>10</sup>

Administration of turmeric powder offers protection against benzopyrene induced increase in micronuclei in circulating lymphocytes and it is an excellent scavenger of free radical *in vitro*. Turmeric oil & turmeric oleoresin both act synergistically *in vivo* to offer protection against DNA damage.<sup>11</sup>

Muscle stretching exercises includes forceful mouth opening with the help of sticks, ballooning of mouth, hot water gargling. This is thought to put pressure on fibrous bands. Forceful mouth opening have been tried with mouth gag & acrylic surgical screw.

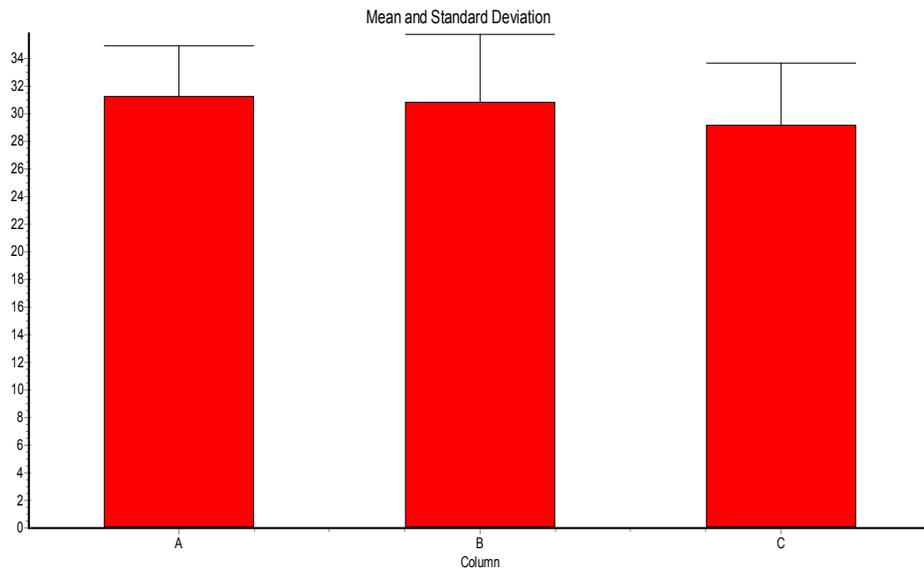
In our study we compared three different non surgical modalities safety, effectiveness. As per our knowledge till now none of the studies have compared combination of turmeric and jaggery application with topical kenacort and physiotherapy. In our study group it was observed that out of all three modalities turmeric with jaggery application found to be best non invasive, safe therapy for OSMF patients.

## CONCLUSION

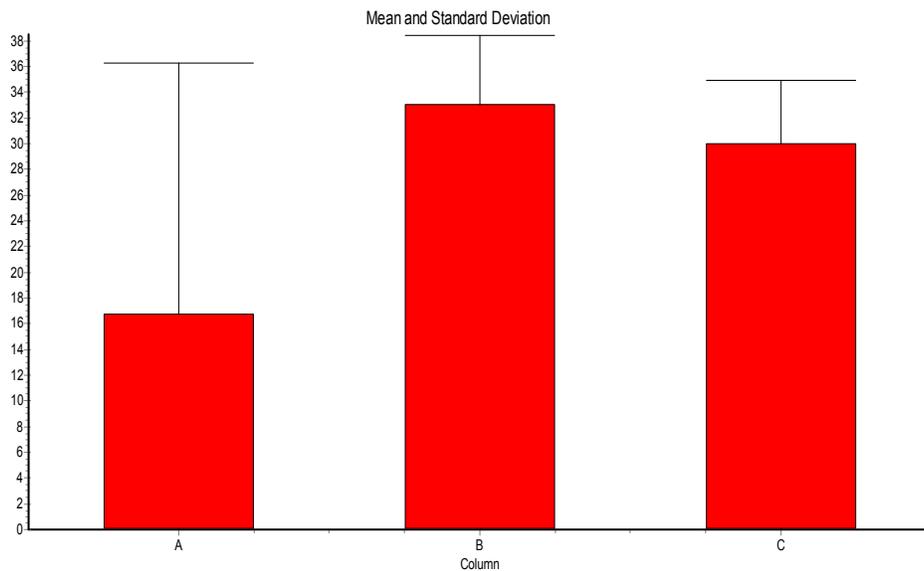
OSMF is a crippling disease of oral cavity, having multifactorial etiology with arecanut chewing the most elicited one. Oral submucous fibrosis is one of the most poorly understood and unsatisfactorily treated oral diseases. Though variety of treatments available for OSMF the most effective easy one which is affordable by the patient is important when treating the patient. In our patients application of turmeric with jaggery was found to be most effective safe modality in OSMF patients.

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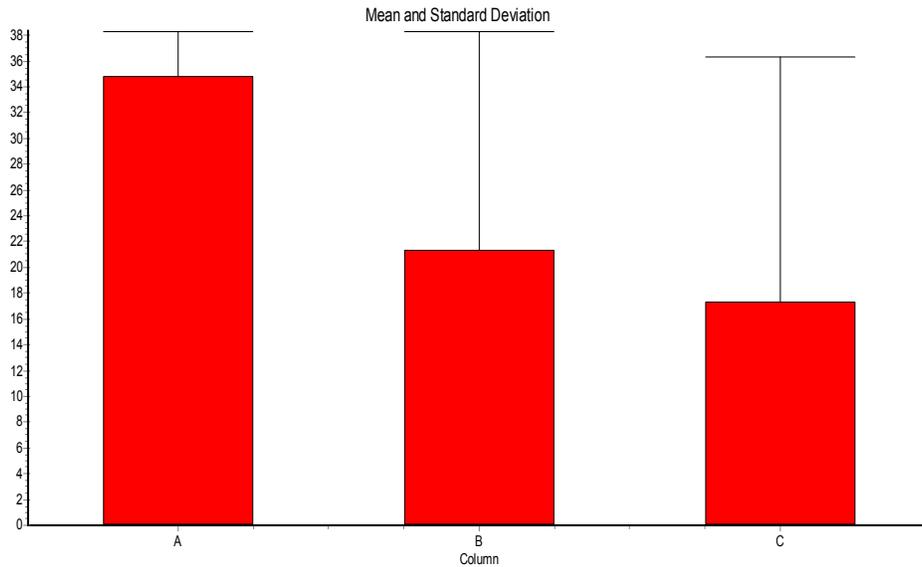
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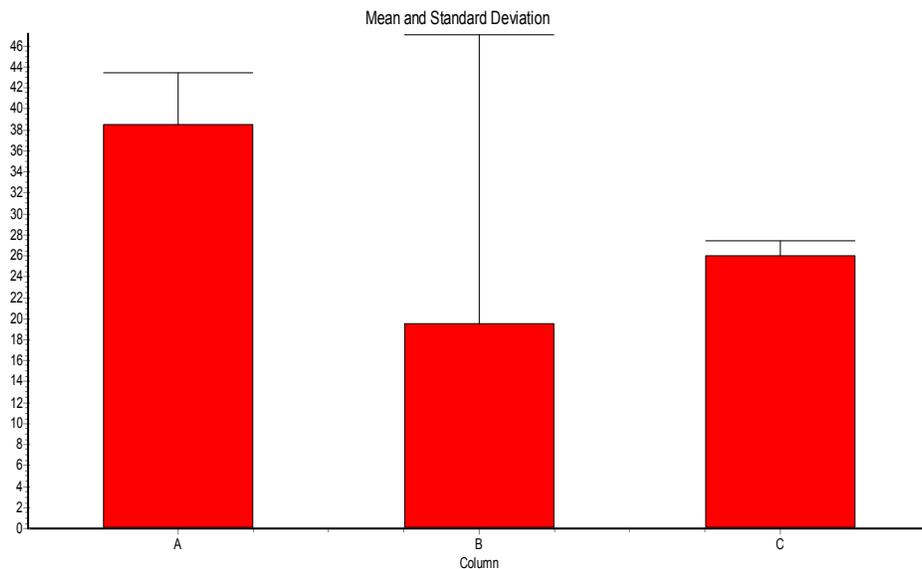
**Graph 1.** Relation between the 3 non-surgical method



**Graph 2.** Relation between the 3 non-surgical method for the age group of 30-45 years



**Graph 3.** Relation between the 3 non-surgical method for the age group of 46-50 years



**Graph 4.** Relation between the 3 non-surgical method for the age group of 61-75 years