

# Role of Physiotherapy in the Management of Oral Submucous Fibrosis: A Case Control Study

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## ABSTRACT

**Introduction:** Oral submucous fibrosis is a disorder with no definitive treatment. So a treatment that results in symptomatic improvement in these patients is very important. The aim of the present study was to evaluate the use of physiotherapy in the management of oral submucous fibrosis patients.

**Material and methods:** 30 patients of OSMF were randomly divided in two groups. Group I – received physiotherapy and were on regular follow up. Group II- patients did not receive physiotherapy but were recalled and were under follow up.

**Results:** Significant improvement was observed in patients with physiotherapy after a period of 4 weeks.

**Conclusion:** Conservative management with physiotherapy is effective for oral submucous fibrosis.

**Keywords:** Role of Physiotherapy, Management of Oral Submucous Fibrosis

## INTRODUCTION

Oral submucous fibrosis is a potentially malignant disorder that is characterized by blanching and stiffness of oral mucosa, trismus, and burning sensation in the mouth.<sup>1</sup> It also produces hypomobility of the soft palate and tongue, and loss of gustatory sensation<sup>1</sup>. Occasionally there can be mild hearing impairment due to blockade of the eustachian tube. Although the etiology is not very clear but a definitive association of the same with areca nut (*Areca catechu*) consumption in variable forms has been established by many studies.<sup>1-5</sup> The biological basis for OSMF remains unclear but cytotoxic, apoptotic and proliferative effects from areca nut agents have been proposed for it.<sup>6-11</sup> Active oxygen species and reactive free radicals mediate alterations that lead to mutations and produce the genotypic and phenotypic manifestations of the disease. Both surgical and pharmacological treatment has been used in the management of OSMF. Conservative management has shown significant improvement in mouth opening and providing symptomatic relief to the patients.<sup>13-16</sup> Physiotherapy along with micronutrients supplements has also been reported to show significant improvement in mouth opening in these patients.

Aim-Oral submucous fibrosis is a disorder with intricate pathogenesis and no perfect treatment. Both surgical and conservative treatment modalities have been tried. Surgical treatment have reported in scarring and further decrease in mouth opening in long standing cases. So a conservative treatment that can increase the mouth opening in these patients without any side effects is required. Hence the present study was carried out to evaluate the role of physiotherapy in these OSMF patients.

## MATERIAL AND METHODS

30 patients who presented with signs and symptoms of OSMF in the department of Oral Medicine and Radiology in Hazaribagh college of dental sciences were included in the study after obtaining informed consent during a period of one year. Ethical approval was obtained from institutional board. These 30 patients were randomly divided in two groups. Group I patients were advised physiotherapy treatment and were recalled after four weeks (Table 1). The exercises included in this study were tongue blade exercise, china ball exercise, blowing the mouth and tongue protrusion exercises. Group II patients were not advised physiotherapy but were kept on regular follow up. All the patients were counselled to discontinue the habit and were subjected for oral prophylaxis to remove stains so that the investigators would notice if the patient resumes the habit.

Mouth opening for all the patients were recorded as an interincisal distance measured between mesioincisal edge of the maxillary and mandibular incisors. The measurements were made using vernier callipers and a metal scale. These recordings were tabulated at recall visit. Graph I shows the difference in mouth opening at the recall visit.

## STATISTICAL ANALYSIS

Data was entered in Microsoft excel and presented as mean±SD and in percentage. Paired t test was analysed using SPSS (version 16).p value of less than 0.05 was accepted as indicating significance.

## RESULTS

Out of 30 patients included in this study there was 3 drop outs. Data collected from remaining patients were used for calculation of the results.

Habit – all the patients gave a positive history of use of areca nut in various forms.

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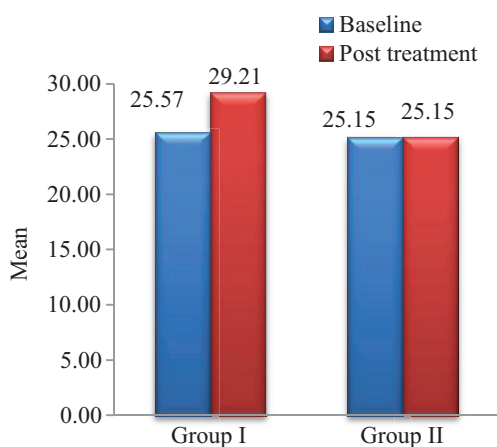
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**How to cite this article:** Nidhi, K Srikrishna, Vishal Kumar. Role of Physiotherapy in the Management of Oral Submucous Fibrosis: A Case Control Study. International Journal of Contemporary Medical Research 2019;6(1):A22-A24.

**DOI:** <http://dx.doi.org/10.21276/ijcmr.2019.6.1.38>

	Baseline (mm)	Post treated (mm)	P value
Group I (n=14)	25.57±6.02	29.21±6.46	<0.0001 (S)
Group II (n=13)	25.15±7.55	25.15±7.65	1 (NS)

**Table-1:** Showing comparison of two groups in relation to mouth opening



**Graph-1:** Showing improvement in mouth opening in two groups.

Mouth opening – It is a primary sign of OSMF so improvement in mouth opening was taken as a major parameter to determine the effectiveness of physiotherapy. Improvement was noticed in the group I receiving physiotherapy.

A statistically significant difference in mouth opening of group I between baseline (25.57±6.02) and post physiotherapy (29.21±6.46) with  $p < 0.0001$  was observed whereas in group II there was no significant difference (graph-1).

## DISCUSSION

OSMF is a poorly understood disease, the aetiology and the pathogenesis is complicated and is not understood till date. So the treatment modalities available are also very inadequate. All the patients included in this study gave a positive history of use of 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>5</sup> Similar results were found by the study done by A. Kumar.<sup>12</sup> Thus it supports the association of areca nut with OSMF suggesting its aetiological role in causation of the disease. In the present study out of 30 patients 27 were male patients. This was consistent to the results of Lai et al who reported 96.67% male preponderance.<sup>17</sup> Most of the patients were in age group of 20 to 30 years. This was similar to the reports of Borle and Borle where most of the patients were less than 30 years.<sup>11</sup> Similar results were shown by Maher et al where 70% patients were less than 30 years.<sup>13</sup> Patients in group I showed significant improvement after physiotherapy. This was similar to a study carried out in Nepal on 54 oral submucous fibrosis patients which showed substantial improvement in mouth opening following physiotherapy exercises.<sup>14</sup> Another study done by Nidhi et al showed Conservative management with micronutrients and physiotherapy is very effective for oral submucous fibrosis.<sup>15</sup> Studies also show that conservative treatment options are effective only in cases where mouth opening has not been much compromised but in cases where mouth opening is very less the conservative

options are not very effective.<sup>4</sup> Some other studies have also shown the effectiveness of physiotherapy when combined with surgical approaches.

## CONCLUSION

This study concludes that physiotherapy is a non invasive option that yields significant improvement in signs and symptoms of OSMF. So physiotherapy along with cessation of chewing betel quid can be used for symptomatic relief of OSMF patients.

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**Source of Support:** Nil; **Conflict of Interest:** None

**Submitted:** 09-12-2018; **Accepted:** 21-01-2019; **Published:** 28-01-2019