

Assessment between Aloe Vera Gel and Intralesional Hydrocortisone in the Management of Stage II Oral Submucous Fibrosis

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ABSTRACT

Objective: To assess the effect of aloe vera gel and intralesional hydrocortisone in the management of stage II oral submucous fibrosis patients in terms of mouth opening and burning sensation.

Subject and Methods: A total of 38 patients were equally divided into two groups; i.e Group A was treated with herbal antioxidant aloe vera gel, while Group B was treated with traditional intralesional hydrocortisone. Patients of stage II OSMF were diagnosed clinically on the basis of presenting symptoms. Mouth opening and burning sensations were recorded at start of treatment and postoperatively for 3 months period. All findings were recorded on proforma.

Results: In both groups males were in majority as compared to females. Total of 13 males and 6 females, 14 males and 5 females were reported in Group A and B respectively (P Value 0.5190. Mean age of patients in group A was 25.19 ± 6.33 , while in group B it was 28.93 ± 5.82 . Significant improvement in mouth opening and burning sensation was found equally in both groups.

Conclusion: Aloe vera gel applied topically and intralesional hydrocortisone are equally effective in reducing the symptoms of stage II OSMF patients.

Keywords: Oral Submucous Fibrosis, Aloe Vera, Intralesional Hydrocortisone, Mouth Opening, Burning Sensation

INTRODUCTION

Oral submucous fibrosis (OSMF) is a premalignant disease of the oral mucosa that develops over time.¹ According to Pindborg and Sirsat, oral submucous fibrosis (OSMF) is a progressive chronic fibrotic illness that affects the oral mucosa, pharynx, and upper part of the oesophagus.² It's linked to a juxta-epithelial inflammation response, fibroelastic alterations in the lamina propria layer, and epithelial atrophy, which contributes to stiffness of the oral mucosa, trismus, and trouble opening the mouth.³

It's a precancerous syndrome that's quite widespread in India.⁴ The prevalence has been estimated to be around 13% of the overall community, ranging from 0% to 4% relying on geographical proximity in areas such as Southeast Asia, South Africa, and the Middle East Asia.⁵ According to epidemiologic research, the condition is more common in Asian nations such as India, Bangladesh, Sri Lanka, Pakistan, Taiwan, and China, where the incidence of areca nut intake is substantially greater.⁶

OSMF's pathophysiology is unknown, moreover it is thought to be a complex condition including areca nut chewing, chilli consumption, genetic susceptibility, participation of several immunological systems, and shortages in critical nutritional elements.⁷ The oral epithelium becomes atrophic and more prone to damage as a result of OSMF.

The clinical diagnosis is based on (a) trouble swallowing hot and spicy meals, (b) discomfort opening the mouth, (c) incapacity to extend the tongue, (d) blanching of the oral mucosa, (e) diminished tissue flexibility and mobility, and (f) the appearance of fibrous bands on palpation.⁸

To yet, no viable treatment has been promoted; nevertheless, particular therapeutic options include steroids, placental extracts, IFN gamma, pentoxifylline, lycopene, surgical excision, and others.⁹ Intralesional steroid injections are the most often used treatment for OSMF, especially in instances with palpable fibrotic bands in the oral cavity. Although steroid injections are the most common form of therapy, they are extremely unpleasant and contribute to low patient compliance since they need many visits.¹⁰

Plants have been a key resource of medicines since the dawn of humanity, and many terminal oral illnesses had a

favourable outcome when managed with alternative medicine like Ayurveda, that has been widely recorded in the research. Aloe vera is one such ayurvedic remedy.¹¹ Aloe Vera is a mannoprotein that contains a number of amino acids known as "wound healing hormones." Polysaccharides are found in the gel of the leaves, and they promote wound healing while also acting as anti-inflammatory, immunomodulators, and antioxidants. Furthermore, Aloe vera sterols have a great potential to control inflammation in a way that is comparable to cortisone but without the adverse consequences. All of Aloe vera's features point to its potential for managing OSMF.¹²

The findings of this analysis are expected to provide a better and less intrusive alternative to intralesional steroids in the treatment of stage II OSMF illness.

MATERIAL AND METHODS

This comparative prospective clinical study was carried out at department of Oral Medicine and Oral Diagnosis at Liaquat University of Medical and Health sciences Jamshoro for a period of 1 year i.e from March 2021 to March 2022. A total of 38 patients of either gender having age range of 18 to 60 years with stage II OSMF (characterized by blanching with restricted mouth opening in between 25-35 mm) were enrolled in the study. Patients with stage I and III, patients with immunocompromised d history and those who have well established lesion that looks suspicious were excluded from study. This study was carried out after permission of departmental ethical review committee. A total of 38 patients were further divided into two groups as under;

Group A (19 Patients): Treated with Aloe Vera GEL. (About one teaspoon ful of aloe vera gel were locally applied 3 times a day for three months. Patients were advised to avoid eating or drinking for fifteen minutes after applying the aloe vera gel).

Group B (19 Patients): Treated with intralesional hydrocortisone injection. (SoluCortef 100 mg mixed with lignocaine was injected bi weekly for three months).

Both groups were assessed for mouth opening and burning sensation before beginning therapy and at monthly visits for the next three months.

Mouth opening was measured by the distance between the centre of the incisal margins of the maxillary central incisors and the mandibular central incisor at maximally expanded mouth was determined.

At 1 month, 2 month, and 3 month periods, the presence, absence, or reduction of clinical parameters such as burning sensation with the lesion was assessed.

RESULTS

In this study a total of 38 cases of OSMF were selected as per inclusion criteria and were randomly placed in 2 groups. Group A, aloe vera gel group revealed mean age of 25.19 ± 6.33year, while Group B Intralesional hydrocortisone group revealed mean age of 28.93 ± 5.82 years. There was no statistically significant variation in patient age between the two groups (p=0.337). In both groups, the majority of individuals were men. There is no statistically significant difference between the groups in terms of gender (p=0.622). Table 1 summarises the results linked to age and gender.

The disparity in mouth opening between the two groups before treatment was not statistically significant. At the three-

month follow-up period, both groups demonstrated a steady progress in mouth opening, as shown in Table 2. Burning sensation was seen reduced and absent in respectively in both groups as shown in Table 3.

Table 1: Demographic Statistics

Variables	Group a Aloe vera gel	Group b Hydrocortisone	P value
Age	25.19 ± 6.33	28.93 ± 5.82	0.337
Gender	13 (68.42%)	14 (73.68%)	0.519
Male	06 (31.57%)	05 (26.31%)	
Female			

Table 2: Treatment Effect on Mouth opening (in mm)

Mouth opening	Group a Aloe vera gel	Group b Hydrocortisone	P value
Before treatment	25.34±4.21	25.71±5.21	0.001
After 1 month	28.46±4.34	29.14±4.28	
After 2 month	31.61±4.39	32.15±4.23	
After 3 month	34.33±4.19	35.06±4.63	

Table 2: Treatment Effect on Burning Sensation

Burning sensation	Group a Aloe vera gel			Group b Hydrocortisone		
	Present	Absent	Reduced	Present	Absent	Reduced
Before treatment	19	00	00	19	00	00
After 1 month	08	03	08	08	04	07
After 2 months	06	04	08	06	05	08
After 3 months	03	07	09	03	08	08

DISCUSSION

Oral submucous fibrosis (OSMF) is a high risk precancerous disorder that is mostly encountered in India. Antioxidants have been shown to be effective in the treatment of OSMF in a multitude of trials. As a result, the purpose of this research was to assess the effectiveness of the herbal antioxidant aloe vera to standard intralesional hydrocortisone in the treatment of OSMF.

Aloe vera is a mannoprotein that contains multiple amino acids called "wound healing hormones." The polysaccharides in the gel of the leaves help to cure wounds and have anti-inflammatory, immunomodulatory, antioxidant, and gastroprotective qualities. Furthermore, Aloe vera sterols have a great potential to control inflammation in a way that is comparable to cortisone but without the adverse consequences.¹²

For the treatment of oral submucous fibrosis, this was a prospective, comparative trial. This was done on patients with Grade II OSMF who had previously been identified with limited mouth opening.

Majority of the patients reported in this current study were male in both groups. This is due to likely more consumption of areca nut, tobacco and chemical constituents by male counterpart. This finding of male predominance is well supported by the data of Wahab N⁶, Tahir M¹³, Yang et al¹⁴, Mehrotra et al¹⁵, Patil S¹⁶ and Singh N¹¹.

The preponderance of the participants in this study were between the ages of 21 and 30, which was comparable to previous investigations. A study carried out by Bhatt et al¹⁷ showed maximum patients were between 26–30 years of age. In contrast, a Pakistani study carried out by Wahab N⁶ showed maximum patients in age group of 11-20 years. A local Pakistani study in Karachi city carried out by Tariq H¹⁸ shows the mean age of participants was 33.64±12.58. Areca nut is flexibly available in different regions of Pakistan with addictive sweeteners added to it, and it is easily accessible to children since it is marketed by street merchants in front of institutions.¹⁹

Improved mouth opening was achieved with the use of aloe vera and intralesional hydrocortisone. On follow-up examination, both groups improved their mouth opening in this research. Between the two groups, there was no significant difference in

mean mouth opening. In his research, Singh N¹¹ found that using aloe vera gel improved mouth opening by 9.1%. Sudarshan R¹² patients who were administered aloe vera exhibited a 20 percent improvement. In a previous research, Alam et al²⁰ found considerable improvement with aloe vera, which is comparable to the findings of the current investigation. Tillakarathne WM¹⁰ gave his patients corticosteroid injections intralesionally and saw a 12-month increase in their mouth opening.

By the end of the trial, both groups had improved their burning sensation. When the findings were examined, unfortunately, they were statistically insignificant (P = 0.001). In our investigation, both participants had a considerable reduction in burning sensation, which is equivalent to the findings of Patil S¹⁶ and Tahir M¹³. In the aloe vera group, Sudarshan R¹² demonstrated an 80% reduction in burning sensation.

To determine any long-term unique benefits of aloe vera gel and intralesional hydrocortisone, larger follow-up investigations with a larger sample size should be conducted.

CONCLUSION

This study concluded that aloe vera gel applied topically and intralesional hydrocortisone are equally effective in reducing the symptoms of stage II OSMF patients. For the effective therapy of OSMF, aloe vera gel might be utilised as a recommended substitute to intralesional steroids. More study is needed to determine the usefulness of the natural antioxidant aloe vera.

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