

# COMPARISON OF EFFICACY OF ALOE VERA MOUTHWASH WITH TRIAMCINOLONE ACETONIDE 0.1% ON ORAL LICHEN PLANUS

DR. HAFIZA ANAM NASIR, MBBS

DEPARTMENT OF MEDICINE, NISTHAR HOSPITAL, MULTAN, PAKISTAN.

DR. ANNAM KHALID, MBBS,

DEPARTMENT OF MEDICINE, NISHTAR HOSPITAL, MULTAN, PAKISTAN.

DR. ANEEQA GHAFOR, MBBS

DISTRICT HEADQUARTERS HOSPITAL, KHANEWAL, PAKISTAN.

## Abstract;

**Background;** Oral lichen planus (OLP) is a relatively common inflammatory mucocutaneous disorder that frequently involves the oral mucosa. The exact etiology is uncertain, but the immunological system is believed to play a significant role in it. It has a protracted clinical course despite various available treatment modalities. The age of onset is usually between 3<sup>rd</sup> and 6<sup>th</sup> decade of life and it is commonly seen in Asian population. The prevalence of OLP is 1-2% in the general population and it is predominantly seen in females. **Objective:** To compare the efficacy of Aloe Vera Mouthwash With Triamcinolone Acetonide 0.1% on Oral Lichen Planus. **Material and methods:** Patients (n=86) with symptomatic oral lichen planus coming in outpatient department of General Medicine department were included in this study. After determining eligibility and obtaining consent, to guarantee blinding, the patients were randomly divided to an AV mouthwash group and a TA group by draws methods. The patients in the AV group were asked to rinse the mouth with 2 tablespoons of AV mouthwash for 2 minutes, 4 times a day and expectorate. The patients in the TA group were instructed to apply a thin layer of triamcinolone acetonide 0.1% paste on the oral lesions, 4 times daily. The treatment period for both groups were 3 months. Patients were evaluated on days 8, 16 and after completing the course of treatment (visit 1-3). Efficacy was observed after 2 months (last follow up). The data was entered and analyzed using computer program SPSS-18. **Results;** Of these 86 study cases, 33 (38.4%) were male patients while 53 (61.6%) were female patients. Mean age of our study cases was noted to be  $40.90 \pm 3.66$  years (with minimum age was 32 years while maximum age was noted to be 45 years). Reticular pattern of OLP was noted in 47 (54.7%) and plaque in 39 (45.3%) our study cases. Most of the patients had multiple site involvement such as buccal mucosa was involved in 70 (81.4%), tongue involvement in 29 (33.7%) of our study cases. Thirty eight (44.2%) belonged to rural areas while 48 (55.8%) from urban areas. Mean disease duration was noted to be  $11.14 \pm 4.15$  months (with minimum disease duration was 5 months while maximum disease duration was 18 months). Efficacy was noted in 49 (57%) of our study cases while efficacy was noted in 31 (72.1%) patients in group A while in 18 (27.9%) in group B ( $p=0.009$ ). **Conclusion;** Our study results support the use of aloe vera mouthwash for the treatment of oral lichen planus instead of Triamceonolone acetonide (0.1%). Aloe Vera mouthwash is safe, effective and reliable substitute of Triamceonolone acetonide (0.1%) which can be applied to all types of oral lichen planus (OLP) presentations and any site affected in oral cavity. This provides cost effective, efficient and safe mode of treatment as it does not involve any side effect which is helpful for the suffering patients.

**Keywords;** Oral lichen planu, Aloe vera, Triamcenolone acetonide.

## Introduction;

Lichen planus is a chronic immune-mediated mucocutaneous disease, which can affect the oral mucosa in 50% of cases. The exact etiology is still unknown, but it is reported that immune system disturbances may

play a significant role in its pathogenesis.<sup>1,2</sup> Lichen planus may be categorized as affecting mucosal or cutaneous surfaces. Cutaneous forms are those affecting the skin, scalp, and nails<sup>3,4</sup> Mucosal forms are those affecting the lining of the gastrointestinal tract (mouth, pharynx, esophagus, stomach, anus), larynx, and other mucosal surfaces including the genitals, peritoneum, ears, nose, bladder and conjunctiva of the eyes.<sup>5-7</sup>

Oral lichen planus (also termed oral mucosal lichen planus) is a form of mucosal lichen planus, where lichen planus involves the oral mucosa, the lining of the mouth. This may occur in combination with other variants of lichen planus. Six clinical forms of oral lichen planus are recognized. Reticular, the most common presentation of oral lichen planus, is characterised by the net-like or spider web-like appearance of lacy white lines, oral variants of Wickham's striae This is usually asymptomatic. Erosive/ulcerative, the second most common form of oral lichen planus is characterised by oral ulcers presenting with persistent, irregular areas of redness, ulcerations and erosions covered with a yellow slough. This can occur in one or more areas of the mouth. In 25% of people with erosive oral lichen planus, the gums are involved, described as desquamative gingivitis (a condition not unique to lichen planus). This may be the initial or only sign of the condition. Papular, with white papules. Plaque-like appearing as a white patch which may resemble leukoplakia. Atrophic, appearing as areas. Atrophic oral lichen planus may also manifest as desquamative gingivitis. Bullous, appearing as fluid-filled vesicles which project from the surface.

These types often coexist in the same individual. Oral lichen planus tends to present bilaterally as mostly white lesions on the inner cheek, although any mucosal site in the mouth may be involved. Other sites, in decreasing order of frequency, may include the tongue, lips, gingivae, floor of the mouth, and very rarely, the palate. Patients can present with discomfort or pain, soreness while eating or drinking acidic or spicy food stuffs and burning sensations. The common remedies for the disease include systemic corticosteroids, immunosuppressives, retinoids, phototherapy and topical steroids. Corticosteroids are considered as the first-line treatment of oral lichen planus (OLP)<sup>8</sup>. But the most common adverse effects of corticosteroid therapy, are local irritation, tingling, burning sensation, steroid-related fungal infection, taste alterations and nausea.<sup>9</sup> Aloe vera (AV; named *Aloe barbadensis* in Latin), is a plant which contains polysaccharides, anthraquinone, lectin, superoxide dismutase (an antioxidant enzyme), glycoprotein, amino acids, vitamin C and E and minerals.<sup>10</sup>

According to the good therapeutic effects of AV on many different diseases and its antioxidant and anticancer effects, in this study, we decided to evaluate the therapeutic effects of AV mouthwash in comparison with triamcinolone acetonide 0.1% (TA) on OLP lesions. Because AV does not possess the immunosuppressive and other side effects of common treatments of OLP, and according to newly explained etiology considering oxidative stress in OLP pathogenesis,<sup>11</sup> replacement of AV in the treatment of OLP lesions can be a significant advance in the management of this chronic premalignant disease of oral cavity. Mansourian et al<sup>7</sup> reported 74 % efficacy in patients with OLP treated with aloe vera mouth wash. Thongprasom et al<sup>12</sup> reported efficacy in 42.1 % with triamcinolone acetonide.

Aim of this study is to find a more efficacious treatment modality in terms of patient visits, cost and side effects. No study on aloe vera yet has been conducted in our population where the problem is quite common. The results of this study will generate useful database of our local population and this population will be benefited once more efficacious treatment is proposed.

#### **Material and methods:**

Patients (n=86) with symptomatic oral lichen planus coming in outpatient department of General Medicine department of Nishtar Hospital Multan and DHQ Hospital, Khanewal were included in this study. Patients with oral lichen planus of any duration and clinical features like white lacy pattern on erythematous base on buccal mucosa of either sex aged 20-45 years were included in this randomized controlled trial using non-probability consecutive sampling technique. Patient with previous history of any systemic disease including heart disease, renal disease, pre existing cases of hypertension, Diabetes mellitus, neurological disorders, lesions in direct contact with amalgam restorations those using any treatment for oral lichen planus or any immunosuppressive drug during the 4 weeks were excluded from our study. After determining eligibility and obtaining consent, to guarantee blinding, the patients were randomly divided to an AV mouthwash group and a TA group by draws methods. Both medications had identical sealed package. The patients in the AV group were asked to rinse the mouth with 2 tablespoons of AV mouthwash for 2 minutes, 4 times a day and expectorate. The patients in the TA group were instructed to apply a thin layer of triamcinolone acetonide 0.1% paste on the oral lesions, 4 times daily. The patients were advised not to eat, drink or smoke for 20 minutes after each application and continue treatment for 1 month. The patients were asked to report immediately if there was any side effect at any time of the study until 6 months after treatment. Patients were assessed for any possible side effects at each appointment.

All of the patients were monitored and checked for their compliance to drugs. History of any systemic diseases, demographic information and clinical data related to lesions were recorded for each patient. The treatment period for both groups were 3 months. Patients were evaluated on days 8, 16 and after completing the course of treatment (visit 1–3). Efficacy was observed after 2 months (last follow up). The data was entered and analyzed using computer program SPSS-18.

### Results;

Our study included a total of 86 patients having oral lichen planus (OLP) meeting inclusion and exclusion criteria of our study. Of these 86 study cases, 33 (38.4%) were male patients while 53 (61.6%) were female patients. Mean age of our study cases was noted to be  $40.90 \pm 3.66$  years (with minimum age was 32 years while maximum age was noted to be 45 years). Mean age of male patients was  $40.42 \pm 4.00$  years while that of female patients was  $41.19 \pm 3.44$  years ( $p=0.350$ ). Our study results have indicated that majority of study cases i.e. 69 (80.2%) had their age ranging from 36 – 45 years. Reticular pattern of OLP was noted in 47 (54.7%) and plaque in 39 (45.3%) our study cases. (Table No. 3). Most of the patients had multiple site involvement such as buccal mucosa was involved in 70 (81.4%), tongue involvement in 29 (33.7%) of our study cases. Thirty eight (44.2%) belonged to rural areas while 48 (55.8%) from urban areas. Mean disease duration was noted to be  $11.14 \pm 4.15$  months (with minimum disease duration was 5 months while maximum disease duration was 18 months). Disease duration was more than 6 months in 63 (73.3%) of our study cases. Efficacy was noted in 49 (57%) of our study cases while efficacy was noted in 31 (72.1%) patients in group A while in 18 (27.9%) in group B ( $p=0.009$ ).

**Table No. 1** Distribution of study cases by efficacy.

(n=86)

Efficacy (n=86)	Group A		Group B	
	Frequency	Percentage	Frequency	Percentage
Yes n=49 (57%)	31	72.1	18	41.9
No n=37 (43%)	12	27.9	25	58.1
<b>Total</b>	<b>43</b>	<b>100</b>	<b>43</b>	<b>100</b>

\* $p=0.009$

### Discussion;

Lichen planus is a mucocutaneous disease characterized by nonspecific inflammation<sup>12</sup>. Several protocols for monitoring the disease have been described. They are usually based on the clinical aspect, the number of areas involved and the severity of symptoms. Several studies report the malignant potential of OLP. However, this topic is still quite controversial. The frequency of malignant transformation varies between 0 and 3.5%, and erythematous and erosive lesions show the highest index<sup>13, 14</sup>.

Our study included a total of 86 patients having oral lichen planus (OLP) meeting inclusion and exclusion criteria of our study. Oral lichen planus (OLP) is reported to be more common in female patients than male patients. In our 86 study cases, 33 (38.4%) were male patients while 53 (61.6%) were female patients. Werneck et al<sup>15</sup> reported 66 % female patients having OLP, this female gender predominance is in accordance with our study results. Chainani-Wu et al<sup>16</sup> reported 67% female gender predominance which is similar to that of our study results. Xue et al<sup>17</sup> from China reported 65.9 % female patients with OLP which is again in compliance with our study findings. Eisen et al<sup>18</sup> reported 75 % female patients and 25 % male patients which is similar to that of our study results.

Mean age of our study cases was noted to be  $40.90 \pm 3.66$  years (with minimum age was 32 years while maximum age was noted to be 45 years). Mean age of male patients was  $40.42 \pm 4.00$  years while that of female patients was  $41.19 \pm 3.44$  years ( $p=0.350$ ). Our study results have indicated that majority of study cases i.e. 69 (80.2%) had their age ranging from 36 – 45 years. Werneck et al<sup>15</sup> reported 58.8 years mean age of female patients while 55.8 years mean age of men. Our study have also reported similar trend of increasing age in female patients but our mean ages are less than that of Werneck et al, the reason for this difference can be explained in terms that our study included only 20 – 45 years old patients as per inclusion criteria of our study. Chainani-Wu et al<sup>16</sup> reported mean age to be 55 years which is slightly higher, again due to the same reason of our methodology. Munde et al<sup>19</sup> reported Mean age at presentation was 35.5 years for males and 39.1 years for females. The mean age at diagnosis was 36.9 years which is similar to that of our study results.

Reticular pattern of OLP was noted in 47 (54.7%) and plaque in 39 (45.3%) our study cases. Werneck et al<sup>15</sup> reported 52.38 % reticular pattern and 33 % plaque. These findings of Werneck et al<sup>15</sup> are similar to that of our study results. Chainani-Wu et al<sup>16</sup> reported similar findings which are in compliance with that of our study results. Xue et al<sup>17</sup> reported 51.3 % patients having reticular pattern which is same like that of our study results.

Different studies have reported multiple site involvement in patients with OLP<sup>14, 15-18</sup>. In our study, most of the patients had multiple site involvement such as buccal mucosa was involved in 70 (81.4%), tongue involvement in 29 (33.7%) of our study cases. Werneck et al<sup>15</sup> reported buccal mucosa was affected in 81 % patients which is close to our study results while tongue was affected in 33.4 % of the study cases which is again in compliance with that of our study results. Similar findings were reported by Xue et al<sup>17</sup>. Munde et al<sup>19</sup> reported 88 % involvement of buccal mucosa and tongue in 23.4 % of the study cases which is similar to that of our study results. Thirty eight (44.2%) belonged to rural areas while 48 (55.8%) from urban areas. Mean disease duration was noted to be  $11.14 \pm 4.15$  months (with minimum disease duration was 5 months while maximum disease duration was 18 months). Disease duration was more than 6 months in 63 (73.3%) of our study cases.

Efficacy was noted in 49 (57%) of our study cases while efficacy was noted in 31 (72.1%) patients in group A while in 18 (27.9%) in group B ( $p=0.009$ ). Mansourian et al<sup>7</sup> reported 74 % efficacy in patients with OLP treated with aloe vera mouth wash. Thongprasom et al<sup>12</sup> reported efficacy in 42.1 % with triamcetonolone acetonide. Similar results have been reported by Reddy et al<sup>20</sup> who also documented aloe vera to most more effective than triamcetonolone acetonide which is similar to that of our study results.

### Conclusion;

Our study results support the use of aloe vera mouthwash for the treatment of oral lichen planus instead of Triamcetonolone acetonide (0.1%). Aloe Vera mouthwash is safe, effective and reliable substitute of Triamcetonolone acetonide (0.1%) which can be applied to all types of oral lichen planus (OLP) presentations and any site affected in oral cavity. This provides cost effective, efficient and safe mode of treatment as it does not involve any side effect which is helpful for the suffering patients.

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