

Management of Oral Lichen Plannus: A Clinical Study

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Abstract: Lichen planus, a chronic autoimmune disease, affects the skin and mucous membrane. It is characterized by alternating periods of symptomatic remission and exacerbation. Different treatment modalities have been tried with limited success. Presently, treatment of lichen planus aimed at alleviating symptoms during periods of exacerbation and to prolonge the duration of remission. A regular follow-up of patients is required as there is high risk of malignant transformation in few types of oral lichen planus.

Key words: Lichen planus, mucocutaneous, local drug delivery

INTRODUCTION

Lichen planus is a chronic autoimmune, mucocutaneous disease. It can affect the oral mucosa, skin, genital mucosa, scalp and nails. In the majority of patients with oral lichen planus (OLP) there is no associated cutaneous lichen planus or lichen planus at other mucosal sites. This may be called "isolated" OLP¹. It commonly affects the middle-aged patients² and has a female predilection. OLP is also seen in children, although it is rare^{3,4}. The disease affects 0.5-2% of the population. The clinical history confirms the relationship between OLP and oral cancer, although the degree of the risk involved is controversial. Therefore, OLP should be considered a precancerous lesion, emphasizing the importance of periodic follow-ups in all the patients⁵. Various treatment modalities for lichen planus have been tried including topical and systemic steroids, retinoids, immunosuppressive drugs, surgery, lasers and photochemotherapy.

ETIOLOGY

The etiology of lichen planus still remains unknown. Lichen planus is believed to result from an abnormal T-cell-mediated immune response in which basal epithelial cells are recognized as foreign because of changes in the antigenicity of their cell surface⁶. Current data suggest that oral lichen planus is a T-cell-mediated autoimmune disease in which autocyotoxic CD8⁺ T cells trigger the apoptosis of oral epithelial cells⁷. The CD8⁺ cytotoxic T cells may trigger keratinocyte apoptosis through activation of the cells by an antigen associated with major histocompatibility (MCH) class I on basal keratinocytes⁷.

Oral lichen planus has been found to be associated with diseases and agents, such as viral and bacterial infections, autoimmune diseases, medications, vaccinations and dental restorative materials. Carrozzo et al⁸ have demonstrated a strong association between hepatitis C viral infection and OLP. However, the association of OLP with HCV infection appears to be dependent on geographical heterogeneity⁸. Moravvejet al⁹ in 2007 found statistically significant differences in *H. Pylori* infection between patients with lichen planus and a control group. However, an etiologic role for *H. pylori* in lichen planus is not yet properly established. Various studies have investigated the association of candida infection and oral lichen planus but failed to establish as an etiologic factor.

CLINICAL FEATURES

OLP was first described clinically by Wilson in 1869 as a chronic mucocutaneous disorder¹⁰. Cutaneous lichen planus is recurrent, itchy^{11,12} and not contagious¹³. In most of the patients, OLP is asymptomatic while some patients may report of a roughness of the lining of the mouth, sensitivity of the oral mucosa to hot or spicy foods, painful oral mucosa, red or white patches on the oral mucosa, or oral ulcerations. The clinical history

includes phases of remission and exacerbation¹⁴.

Six clinical forms of OLP have been described which are white forms namely reticular, papular, plaque-like and red forms namely the erosive (ulcerated), atrophic (erythematous) and bullous^{15,16}. Among the types, reticular and erosive are the main types¹⁷. It is not uncommon for the same patient to present with multiple forms of OLP. Mucosal lesions, which are multiple, generally have a symmetrical distribution, particularly on the mucosa of the cheeks, adjacent to molars, and on the mucosa of the tongue, less frequently on the mucosa of the lips (lichenouscheilitis) and on the gums (the atrophic and erosive forms localized on the gums manifest as a desquamative gingivitis), more rarely on the palate and floor of the mouth^{13,18}. However, this clinical appearance of desquamative gingivitis is not pathognomonic of erosive OLP and may represent the gingival manifestation of many other diseases such as cicatricial pemphigoid, pemphigus vulgaris, epidermolysis bullosa acquisita, and linear IgA disease^{19,20}. The most common type of OLP is reticular form with the characteristic feature of slender white lines (Wickham's striae) radiating from the papules. Patients with reticular lesions are often asymptomatic, but atrophic (erythematous) or erosive (ulcerative) OLP is often associated with a burning sensation and pain²¹. A greater malignant potential has been recognized for atrophic, erosive form of OLP and the plaques form on the back of the tongue^{5,22}. A regular follow-up of patients with OLP should be performed and in suspected cases, biopsy should be provided.

CLINICAL STUDY

Cases reported to Department of Oral Medicine and Radiology, Tamil Nadu Government Dental College, Chennai with oral lichen planus from March 2010 to April 2011. A total number of 79 patients were diagnosed oral lichen palnus.

THERAPEUTIC OPTIONS

Currently, treatment for OPL is focused mainly to eliminate mucosal erythema, ulcerations and alleviate symptoms disease during periods of activity and, if possible, increase the periods of disease quiescence. Excellent oral hygiene maintenance is believed to reduce the degree of severity of the

Table 1: Age wise grouping of the patients with oral lichen planus (n=79)

AGE GROUP	MALE PATIENTS	FEMALE PATIENTS	TOTAL
< 10 years	0(0%)	0(0%)	0(0%)
10-20 years	0(0%)	3(3.79%)	3(3.79%)
21-30 years	5(6.32%)	6(7.59%)	11(13.92%)
31-40 years	8(10.12%)	9(11.39%)	17(21.51%)
41-50 years	10(12.65%)	11(13.92%)	21(26.58%)
51-60 years	7(8.86%)	9(11.39%)	16(20.25%)
>60 years	7(8.86%)	4(5.06%)	11(13.92%)
TOTAL	37(46.83%)	42(53.16%)	

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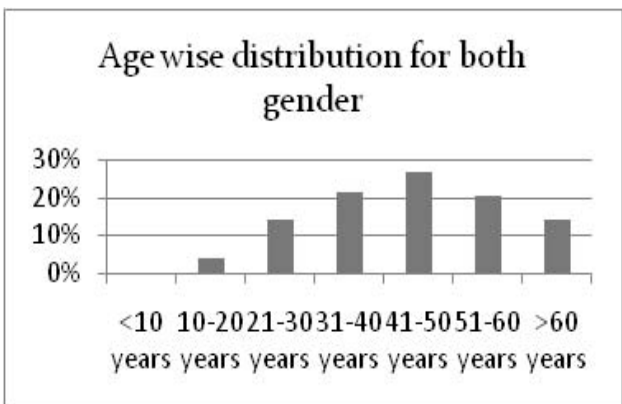
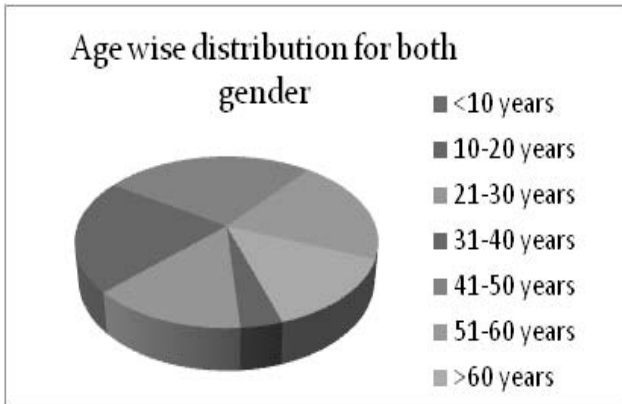
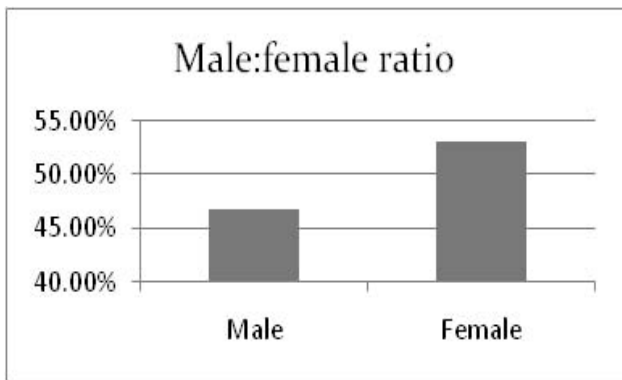
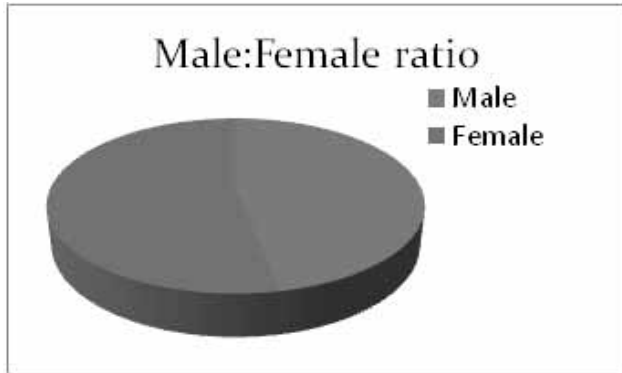


Table 2: Frequency of occurrence of types of oral lichen planus

Reticular	Papular	Plaque-like	Erosive	Atrophic	Bullous
55(69.62%)	2(2.53%)	3(3.79%)	10(12.65%)	7(8.86%)	2(2.53%)

symptoms and duration associated with OLP. Reticular type is often asymptomatic and seldom requires treatment.

CORTICOSTEROIDS

Currently, corticosteroids are the drug of choice for the treatment of OLP. It may be employed in the form of topical superficial application or intralesional injection; or systemic or combination of topical and systemic. Topical corticosteroids are the mainstay in treating mild to moderately symptomatic lesions. Options (presented in terms of decreasing potency) include 0.05% clobetasol propionate gel²³, 0.1% or 0.05% betamethasone valerate gel²⁴, 0.05% fluocinonide gel, 270.05% clobetasol butyrate ointment or cream, and 0.1% triamcinolone acetonide ointment²⁵.

Patients can apply the prescribed topical corticosteroids upto 4 times a day because topical agents adhere poorly to the moist mucous membranes. In patients with widespread symptomatic lesions, in whom direct mucosal application of topical medication would be too uncomfortable, options include 1.0 mg/mL aqueous triamcinolone acetonide or 0.1 mg/mL dexamethasone elixir²⁶.

Intralesional injection of corticosteroid²⁵ for recalcitrant or extensive lesions involves the subcutaneous injection of 0.2-0.4 mL of a 10 mg/mL solution of triamcinolone acetonide by means of a 1.0-mL 23- or 25-gauge tuberculin syringe.

The advantage of topical steroid application is that side effects are fewer than with systemic administration.

Systemic corticosteroids are probably the most effective treatment modality for patients with diffuse erosive OLP or multi-site disease, but the literature on their use is limited to non-randomized clinical trials. Both methylprednisolone and prednisone have been employed for recalcitrant severe erosive OLP²⁷. Systemic prednisone can be used to control the ulcers and erythema in OLP but it is not better than treatment with topical triamcinolone acetonide alone²⁸. Systemic corticosteroids may be indicated in patients whose condition is unresponsive to topical steroids or in patients with mucocutaneous disease and in high doses (1.5-2 mg/kg/daily), but adverse effects are possible even with short courses^{29,30}.

IMMUNOSUPPRESSANTS

Tacrolimus is a macrolide immunosuppressant with a mechanism of action similar to that of cyclosporine, but is 10 to 100 times more potent and is better able to penetrate the mucosal surface.³¹ Treatment with topical tacrolimus 0.1% ointment four times daily induced a better initial therapeutic response than triamcinolone acetonide 0.1% ointment in patients with symptomatic OLP. However, relapses occurred frequently in both groups within several weeks after the cessation of both the treatments³².

RETINOIDS

Retinoids are metabolites of vitamin A. They have been noted to have antikeratinizing and immunomodulating effects^{33,34,35}. Retinaldehyde 0.1%³⁶, isotretinoin gel 0.1%³⁷ have been tried in OLP and they showed good clinical efficacy. OLP has been treated with fenretinide and tazarotene gel 0.1% successfully^{38,39}. These studies suggested that topical retinoid might be a suitable therapeutic agent in the treatment of hyperkeratotic OLP.

LASERS

Excimer 308 nm lasers could be an effective choice in treating symptomatic OLP⁴⁰⁻⁴². Treatments with these lasers are painless and well tolerated.

SURGERY

Surgical excision, cryotherapy, CO2 laser, and ND:YAG laser have all been used in the treatment of OLP. In general, surgery is reserved to remove high-risk dysplastic areas⁴³.

PHOTOCHEMOTHERAPY

In this method, clinician uses ultraviolet A (UVA) with wavelengths ranging from the 320-400 nm, after the injection of psoralen. It was first used in the treatment of recalcitrant OLP⁴⁴. One potential drawback of PUVA therapy is the risk of the squamous cell carcinoma (SCC) development in a condition with premalignant potential, and until more extensive studies have been performed, it must be considered as an experimental method^{45,46}.

LOCAL DRUG DELIVERY

The oral cavity has been proposed as a potential topical delivery site for local and systemic delivery of therapeutic agents. Drug delivery via the oral mucosa has several advantages and disadvantages and is summarized in table below⁴⁷.

Advantages	Disadvantages
• Accessible	• Permeability barrier of the oral mucosa
• Self-administrable	• Saliva washes away drug
• Oral mucosa repairs rapidly after damage or injury	• Mastication and speech may dislodge delivery device
• Different areas of oral cavity have different permeability characteristics	• Taste important consideration
• Highly hydrated environment to dissolve drug	• Highly enzymatic environment
• Sustained delivery possible	• Relatively small surface area
• Potential reduction of systemic side effect	• Risk of choking or swallowing on delivery device

CASES PRESENTATIONS

CASE 1: A clinically and histopathologically diagnosed erosive lichen planus in a 52 years male patient (Figure 1a,1b) treated with topical application of 0.1% triamcinolone acetonide followed by intralesional injection. Two weeks of treatment completely heals the lesion (Figure 1c,1d).



Figure 1a (Pre-treatment) Figure 1b (Pre-treatment)



Figure 1c (Post-treatment) Figure 1d (Post-treatment)

CASE 2: Lichen planus of gingiva (Figure 2a) manifesting as desquamative gingivitis in a 38 years male patient treated with local drug delivery system (costume tray made from polyethylene sheets) with 0.1% triamcinolone acetonide. Costume tray (Figure 2b) is loaded with 0.1% triamcinolone acetonide (Figure 2c) and then inserted in the mouth (Figure 2d). Review of patient after 1 week (Figure 2e) and 2 weeks (Figure 2f) shows marked reduction in symptoms and erythema.



Figure 2a Figure 2b



Figure 2c (Pre-treatment) Figure 2d (Pre-treatment)



Figure 2e (1 week) (Post-treatment) Figure 2f (2 weeks) (Post-treatment)

CASE 3: Clinically diagnosed reticular type lichen planus (Figure 3a) in a 32 years female patient treated with topical application of clobetasolpropionate 0.05%. Review of patient after 1 week (Figure 3b), 2 weeks (Figure 3c) and 3 weeks (Figure 3d) shows resolution of erythema and Wickham's striae. There is some evidence of post-treatment melanosis.

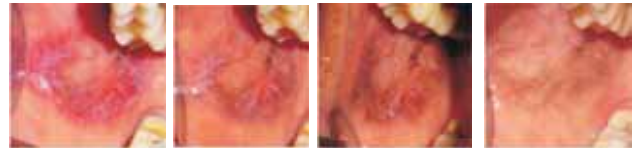


Figure 3a (Pre-treatment) Figure 3b (Post-treatment) Figure 3c (Post-treatment) Figure 3d (Post-treatment)

CASE 4: An erosive lichen planus (Figure 4a,4b) in a 72 years male patient treated with 0.1% triamcinolone acetonide intralesional injection shows resolution of the lesion after 1 week review (Figure 4c,4d).



Figure 4a (Pre-treatment) Figure 4b (Pre-treatment) Figure 4c (Post-treatment) Figure 4d (Post-treatment)

DISCUSSION

Our short study is in acceptance with the previous data of prevalence of oral lichen planus which shows highest in middle age female patients. Reticular type OLP is most commonly found. No patient below 10 years is affected by oral lichen planus. The low prevalence of OLP in younger age groups may be attributed to lower stress level, lack of much permanent dental restorations, simplicity in food habits and overall well-being of general health.

Although steroid therapy remains the backbone of treatment of OLP, its use must be justified. Steroid therapy either topical or systemic can cause adrenal suppression if used for prolonged periods. A thorough medical history should be taken before the commencement of the steroid therapy to avoid medical complications. The lowest-potency

steroid that proves effective should be used.

Patients with oral lichen planus should be counseled about the causes, nature and course of the condition and response to different treatment modalities. Causative agents like dental restorations or drugs must be identified and proper corrective approaches should be followed. Patients experience high rates of recurrences after the cessations of treatment and this should not discourage them for getting further treatment. Regular follow-ups allow the clinicians to examine and evaluate the patients thoroughly. Any suspicious lesions must be sent for biopsy for histopathological examination as there is high chances of transformation, in few forms of lichen planus, into squamous cell carcinoma.

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