Various Faces of Lichen Planus: A Clinical Study

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Abstract: Background: The clinical appearances of oral lichen planus (OLP) are very characteristic. Andreasen in 1968 divided OLP in reticular, papular, plaque, atrophic, erosive, and bullous types. Gandalfo et al and Carbone et al divided OLP into white lichen and red lichen. OLP lesions are not homogenous and some cases may present as a mixture of various clinical subtypes causing difficulty in categorizing them. Aims and objective: The present study attempts to elucidate the various clinical types of OLP and categorize them appropriately. Methods: An observational study was carried out in the department of Oral Medicine and Radiology on 60 patients, diagnosed of OLP based on clinical grounds. All selected patients were categorized in 3 clinical types; reticular (including plaque and papular variety), atrophic and erosive (including ulcerative and bullous variety). In case of simultaneous presence of subtypes the severe form was considered. Results: In our study, red lichen was more common than white lichen affecting 65% of patients with near about equal distribution of reticular (35%), atrophic (40%) and erosive (25%) lichen planus. Female predominance was found in all the types of OLP. The buccal mucosa was the most common site of involvement followed by gingiva, gingivobuccal sulcus and tongue. Conclusion: Since the variants of OLP have overlapping presentation having reticular striae as a diagnostic feature in all forms, it is best to classify OLP as red and white lichen to avoid differences amongst clinicians. [Jigna S NJIRM 2017; 8(1): 82-87]

Key Words: autoimmune, desquamative, koebner, oral lichen planus

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Introduction: Lichen planus (LP) is derived from the Greek word 'leichen' meaning tree moss and the Latin word 'planus' meaning flat. Erasmus Wilson first described LP in 1869,[1-2] as a chronic disease affecting the skin, scalp, nails, and mucosa, with possible rare malignant degeneration. Louis-Frédéric Wickham added to the description of the lesion stries et punctuations grisatres (grayish striae and dots), named Wickham striae in 1895.[3,4]

Oral lichen planus (OLP) can be defined as a chronic inflammatory T-cell mediated autoimmune mucocutaneous disease in which the cytotoxic CD8+ T cells trigger apoptosis of the basal cells of the oral epithelium.[5-6] OLP presents alone or with concomitant skin lesions which present as violaceous flat-topped papules in ankles, wrist, and genitalia, but characteristically the facial skin is spared.[1-4,5,7] The prevalence rates of OLP vary from 0.5% to 2.6% of the world population and 2.6% in India.[1,8,9,10] It is reported to be more common in females with age of onset generally between 30 to 60 years.[2,9,11,12] Clinically, OLP has specific and clearly identifiable features presenting as mixture of white and red lesions that usually exhibit multiple foci and almost always a bilateral symmetric pattern.[1,6,8,9-11,13,14]

Although the etiology and pathogenesis of OLP are not fully understood, OLP has been associated with multiple disease processes and agents, such as viral and bacterial infections, autoimmune diseases, medications, vaccinations and dental restorative materials.[3,4,5,15,16] Oral mucosal lichenoid lesions are also seen within the spectrum of chronic graft-versus-host disease following allogeneic bone marrow transplantation. In cases where the cause for oral lichenoid lesions cannot be identified and the diagnosis by exclusion is "idiopathic OLP".[6] An association between lichen planus, diabetes mellitus and vascular hypertension was suggested by Grinspan in 1963, and this triad was named as "Grinspan syndrome" by Grupper in 1965.[3]

One of the most important complication concerning the progression and prognosis of OLP is the development of oral squamous cell carcinoma (OSCC), with a frequency of malignant transformation of 0.4-5.3%, which led the World Health Organization (WHO) to classify OLP as a potentially malignant disorder.[8,9]
The clinical appearances of OLP are very characteristic. Andreasen in 1968 divided OLP in following six types; reticular, papular, plaque, atrophic, erosive, and bullous types.[1,2,8,9,10,12]Gandalfo et al and Carbone et al divided OLP into white lichen (reticular, plaque like and papular) and red lichen (atrophic, erosive and bullous).[9] Certain studies have classified OLP into three types, reticular, atrophic, and erosive.[8] The most common site affected is the buccal mucosa, and some cases involve other oral mucosal sites such as the tongue, gingivae, and lower lip (in decreasing order of frequency).[8]Gingival lesions present as fiery red erythema affecting the entire

width of the attached gingiva, a condition previously termed "desquamative gingivitis". Approximately 10% of the patients with OLP present lesions only in the gingiva and others are associated with atrophic or erosive OLP.[4] OLP lesions may also be associated with patchy brown melanin deposits in the oral mucosa (inflammatory melanosis), although this is uncommon in fair-skinned people.[6]OLP lesions are not homogenous and some cases may present as a mixture of various clinical subtypes. (Table 1).[3,4,8-7,10]The course of OLP is chronic with alternating periods of symptomatic remissions and exacerbations.[6,7,15] Periods of exacerbation are characterized by increased erythema or ulceration with increased pain and sensitivity whereas periods of quiescence are relatively asymptomatic with decrease in the extent of erythema or ulceration. Exacerbation of OLP has been linked to periods of psychological stress and anxiety, a predictable correlation with any condition that is related to an immune system imbalance.[6]For the diagnosis of OLP, the World Health Organization devised a set of clinico-pathologic criteria in 1978 that was revised in 2003.[1,8] However, in classical lesions, it is possible to achieve the diagnosis based solely on clinical appearance.[4,13]
The present study attempts to elucidate the various clinical types of OLP and categorizing them appropriately.

Methods: An observational study was carried out in the department of Oral Medicine and Radiology. 60 patients were selected and diagnosed on clinical grounds as described in table 1, irrespective of any other simultaneous oral mucosal lesions or systemic illness. All selected patients were categorized in 3 clinical types; reticular (including plaque and papular variety) (Figure 1, 2, 3), atrophic (Figure 4) and erosive (including ulcerative and bullous variety) (Figure 5). In case of simultaneous presence of subtypes the severe form was considered.

Along with this patients were also examined for desquamative gingivitis (erythematous or ulcerated area localized in the attached gingiva associated with small whitish keratotic areas) (Figure 6) and skin lesions (purplish, polygonal, planar, pruritic papules and plaques) (Figure 7).

The following clinical data were obtained: gender, age, race, clinical presentation of OLP, site affected, presence of symptoms, extraoral manifestations of the disease and systemic illness. Data regarding smoking habit and/or consumption of alcoholic beverages were also evaluated.

Result: Out of 60 patients, 21 (35%) patients were diagnosed of reticular lichen planus, 24 (40%) atrophic and 15 (25%) erosive (Table 2) which adds up to 21 (35%) patients with white and 39 (65%) patients with red lichen. Female predominance was found in all the types of OLP (Graph 1).The buccal mucosa was the most common site of involvement followed by gingiva, gingivobuccal sulcus and tongue (Table 3).

Fig: 1 Reticular form of oral lichen planus over; a) buccal mucosa, b) palate, c) labial mucosa (annular pattern), d) vermilion border of lips

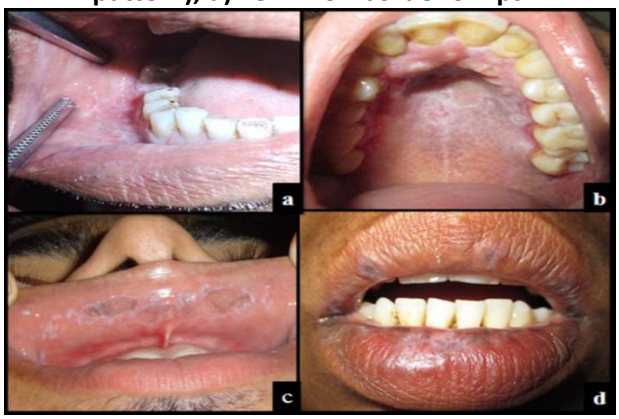


Fig: 2 Plaque type of reticular lichen planus over dorsum of tongue

Fig: 3 Papular type of reticular lichen planus over buccal mucosa

Fig: 4 Atrophic form of oral lichen planus over; a) lateral border of tongue, b) buccal mucosa

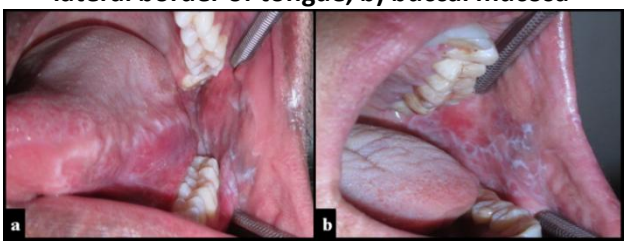


Fig: 5 Erosive form of oral lichen planus over; a) lateral border of tongue, b) palate, c) labial mucosa

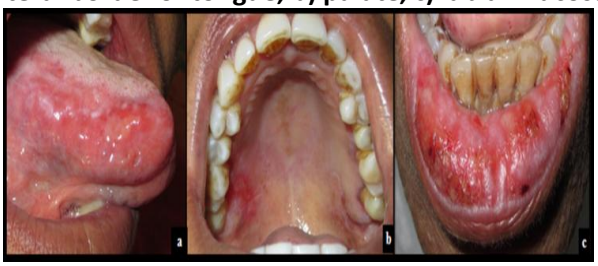


Fig: 6 Desquamative gingivitis

Fig: 7 Skin lesions of lichen planus

Fig: 8 Pigmentation associated with oral lichen planus

Table 1: Clinical variants of oral lichen planus.

Type	Description
Reticular form	Most common type of OLP. Presents as interlacing white keratotic lines (known as Wickham's striae) or in an annular pattern with an erythematous border. The striae are typically located bilaterally on the buccal mucosa, mucobuccal fold, gingiva and, less commonly, the tongue, palate and lips.
Plaque-like form	A variant of reticular, which clinically resembles leukoplakia but has a multifocal distribution. Commonly found on the dorsum of the tongue and on the buccal mucosa.
Papular form	It presents with small white papules (0.5mm to 1.0 mm of diameter) with fine striae in its periphery.
Erosive form	The next most common type. It presents as a mix of erythematous and ulcerated areas surrounded by finely radiating keratoticstriae. The lesions migrate over time and tend to be multifocal.
Atrophic form	Appears as diffuse, red lesions with mucosal atrophy resembling a combination of two clinical forms, such as the presence of white striae characteristic of the reticular type surrounded by erythematous area.
Bullous form	The most unusual clinical form, exhibiting blisters that increase in size and tend to rupture, leaving the surface ulcerated and painful. Common sites are buccal mucosa and the lateral borders of the tongue and the periphery of the lesion is, in general, surrounded by fine keratinized striae.

Table 2: Age and gender wise distribution of 60 patients with oral lichen planus (OLP).

OLP	Below 20yrs		20-30yrs		30-60yrs		More than 60yrs		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
Reticular	0	0	3	2	4	11	0	1	21 (35%)
Atrophic	1	0	0	3	2	16	0	2	24 (40%)
Erosive	0	0	0	1	3	9	0	2	15 (25%)
Total	1	0	2	5	4	14	0	4	60 (100%)
	1 (1.67%)		9 (15%)		45 (75%)		5 (83.33%)		60 (100%)

Table 3: Distribution of variants of oral lichen planus according to site

Site		Reticular lesions (n=86)				Erosive lesions (n=29)	Atrophic lesions (n=58)	Total (n=173)
		Striae (n= 72)	Plaque (n=5)	Papular (n=7)	Annular (n=2)			
Buccal mucosa		48	0	7	1	15	19	90 (52%)
Labial mucosa		0	0	0	1	1	0	2 (1.15%)
Vestibule		10	0	0	0	2	12	24 (14.4%)
Tongue	Dorsum	1	5	0	0	0	0	6 (3.4%)
	Ventral	1	0	0	0	2	0	3 (1.7%)
	Lateral border	1	0	0	0	5	3	9 (5.2%)
Palate		3	0	0	0	2	1	6 (3.4%)
Gingiva		3	0	0	0	2	23	28 (16.1%)
Lip		5	0	0	0	0	0	5 (2.9%)
Total		72 (83.7%)	5 (5.8%)	7 (8.13%)	2 (2.3%)	29	58	173 (100%)
Grand		86 (49.7%)				29 (16.76%)	58 (33.5%)	173 (100%)

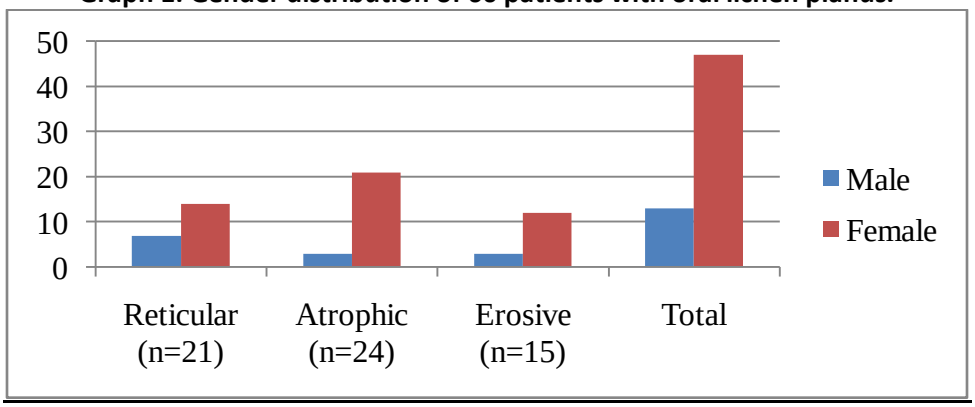
Table 4: Coexistence of variants of OLP with pigmentation, desquamation and skin lesions.

Types of OLP	Pigmentation (n=27)	Desquamation (n=27)	Skin lesion (n=6)
Reticular OLP (n=21)	10 (37%)	1 (3.7%)	2 (33.33%)
Atrophic OLP (n= 24)	11 (40.7%)	18 (66.67%)	3 (50%)
Erosive OLP (n=15)	6 (22.2%)	8 (29.6%)	1 (16.67%)
Total (n=60)	27 (45%)	27 (45%)	6 (10%)

Table 5: Systemic diseases affecting patients with OLP.

Types of OLP	Diabetes (n=4)	Hypertension (n=7)	Hypothyroidism (n=2)
Reticular OLP (n=10)	1 (25%)	1 (14.3%)	1 (50%)
Atrophic OLP (n= 13)	2 (50%)	3 (42.8%)	0
Erosive OLP (n=7)	1 (25%)	3 (42.8%)	1 (50)
Total	4 (6.67%)	7 (11.67%)	2 (3.3%)
Grand	11 (18.33%)		

Graph 1: Gender distribution of 60 patients with oral lichen planus.



Discussion: Oral lichen planus (OLP) predominantly is a disease of the middle aged and elderly,[3,7,16] as seen in our study (Table 2) with mean age 45.36years and female predominance which was consistent with the literature. Female predominance can be explained on the basis of factors like hormonal changes, stress and anxiety.

Of 60 patients, 8.3% patients were asymptomatic. Amongst complains like burning sensation, ulceration and bleeding gums, the most common presenting complain of OLP patients was burning sensation irrespective of the type with 50 (83.33%) patients having duration of complain, less than 6months. This finding substantiated the fact that lichen planus experiences periods of remission and exacerbation.
The buccal mucosa was the most common site of involvement followed by gingiva, gingivobuccal sulcus and tongue which could be attributed to the fact that these sites are more vulnerable to mechanical trauma or irritants such as sharp cusps, sharp filling margins or rough surfaces and even poorly fitting dental prostheses. This phenomenon is termed Koebner phenomenon or isomorphic response characterized by the occurrence of LP changes in areas subjected to trauma.[1-2,6,10]

Most common lesions observed on buccal mucosa were reticular striae followed by atrophic forms of OLP. Plaque form of lichen planus was more commonly seen on dorsum of tongue.These findings of the study were consistent with the literature.[3,5,8,9] The plaque type of lichen planus over dorsum of tongue could be differentiated from leukoplakia due to the presence of reticular striae. We encountered papular form of OLP in only 4% patients, all of them presenting with reticular striae at the periphery. Hence papular lesions may be thought to be initial presentation of the disease that gradually enlarge and come together to form reticular or plaque like pattern.[1] Of the 45% patients presenting with desquamative gingivitis, 81.48% were associated with red lichen, a finding consistent with literature (Table 4). The low intensity chronic irritation resulting from the plaque or dental calculus can be considered as Koebner phenomenon resulting in desquamative presentation.[1-2,6,10] Although gingiva was the next common site to be involved, isolated gingival lesion was found only in six patients of which five patients presented atrophic lesions and one presented reticular form. Since lateral border of tongue and ventral surface of tongue were affected more by red lichen (atrophic and erosive), increased susceptibility to trauma could be considered as a probable reason.

Literature suggests reticular lichen planus to be the most common, however in the present study, red lichen was more common than white lichen affecting 65% of patients with near about equal distribution of reticular (35%), atrophic (40%) and erosive (25%) lichen planus. Since atrophic OLP may appear as a mixture of clinical subtypes as described in table 1,[7,10] categorizing atrophic and reticular form may cause confusion amongst clinicians leading to differences in the findings.

There is evidence of basilar hyperpigmentation and melanin incontinence in lichen planus, however it is unclear whether lichen planus associated pigmentation should be characterized as post inflammatory or inflammatory pigmentation.[17] In our study, pigmentation was found surrounding the lesions in 45% patients (table 4) mostly presenting with atrophic form of OLP. The pigmentation was diffuse, brown to black and found in close proximity to the reticular striae (Figure 8). Since only 15% patients had habit of sopari/ tobacco chewing or smoking, pigmentation could not be associated with habit and can be considered inflammatory melanosis.

About 30% to 50% of patients with OLP also have cutaneous lesions, the presence of which can aid in diagnosis (Table 4). Clinicians should carefully examine the skin of hands, feet, legs and also enquire about any genital lesions of patients suspected with OLP.[3,7] In the present study only 10% patients presented with skin lesions and only three patients could say whether oral lesions or skin lesions appeared first. When only oral lesions are present, distinct clinical appearance can be valuable in diagnosis.

OLP has been associated with systemic diseases like hypertension and diabetes, however, associations between OLP and systemic diseases may be co-incidental as OLP is relatively common in older adults and many drugs used in the treatment of systemic diseases trigger oral lichenoid lesions as a side effect.[6] In our study only 18.33% patients were suffering from systemic illness; diabetes, hypertension and hypothyroidism (Table 5).

Though the definitive diagnosis of OLP depends on histo-pathologic examination of the affected tissue, performing a biopsy of lesional tissue, particularly if the OLP is of the erosive form, can be challenging. It is important to obtain an elliptical wedge of mucosa extending beyond the affected area, to avoid stripping the superficial epithelial layer from the underlying connective tissue.[7] Also, acquiring a biopsy means creating a wound site and delaying the treatment until the wound heals.

OLP lesions with classical appearance can be diagnosed solely on the basis of clinical appearance and since it may occur in association with skin lesions the dermatologist as well as the dentists must have a thorough knowledge of its clinical presentation. Since the variants of OLP have overlapping presentation having reticular striae as a diagnostic feature in all forms, it is best to classify OLP as red and white lichen to avoid differences amongst clinicians.

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