ORIGINAL ARTICLE

Oral Lichen Planus: A Clinical Study

Doulat Rai Bajaj[1], Noor Ahmed Khoso[2], Bikha Ram Devrajani[3], Bhajan Lal Matlani[1] and Parkash Lohana[1]

ABSTRACT

Objective: To evaluate the clinical characteristics, predisposing/aggravating factors and malignant potential of oral lichen planus (OLP).

Study Design: Case series.

Place and Duration of Study: Department of Dermatology and Oral Pathology, Liaquat University Hospital, Hyderabad, from January 2006 to November 2007.

Methodology: Patients of either gender aged above 12 years, fulfilling the diagnostic criteria for OLP were enrolled for study. Patients not willing to participate or suspected to have drug-induced lichenoid reactions were excluded. History regarding the onset and duration, symptoms, addictions was elicited followed by oral, cutaneous and systemic examination. Biopsy was taken when the diagnosis was doubtful or malignancy was suspected. The data were analyzed using SPSS software version 11.0 for frequency and percentage.

Results: A total of 95 patients (40 male and 55 female), aged between 17 and 62 years were enrolled. Diabetes (n=05) and hypertension (n=04) were the accompanying comorbidities. Family history was positive in 3 patients only. Reticular form was the most common clinical type seen in 52 (54.7%), followed by erosive in 31 (32.6%) and atrophic/erythematous types in 12 (12.6%) patients. The disease caused pain, burning and other symptoms in 72 (75.7%) patients.

Buccal mucosa was the chief site of involvement (n=31). Other sites involved were tongue (n=20), lips (n=28), palate (n=9) and floor of mouth (n=03). Stress, spicy foods and poor oral hygiene aggravated disease in most (n=77) of the patients.

Conclusion: OLP is a chronic disease with diverse clinical manifestations and multiple site involvement. Associated pigmentation of surrounding mucosa was unique finding of this study. Long-term follow up is needed to assess the malignant potential. Stress was the most important factor aggravating the disease.

Key words: *Lichen planus. Oral lichen planus. Malignant transformation. Predisposing factors. Stress.*

INTRODUCTION

Lichen planus (LP) is a chronic autoimmune disease affecting mucosa, skin and its appendages.[1] Its prevalence varies from country to country and race to race; being reported 0.5% in Japanese, 0.73% in Jordanians, 2.9% in Indians and 0.38% in Malaysians.[2-5] Oral lichen planus (OLP) is reported to occur more frequently than the cutaneous form and tends to be more persistent and resistant to treatment. Andreasen classified it in six forms, which was later simplified by others into three types: reticular, atrophic and erosive.[6,7] The buccal mucosa, dorsum of tongue and gingiva are commonly affected. Certain factors are known to aggravate the disease. These include stress, smoking and spicy foods.[8]

Though the local prevalence of OLP is unknown yet it is not a rare disease in Pakistani population. These patients frequently present to dermatologist or oral/dental surgeon for their complaints. Most of these are addicted to habits of smoking and chewing betel nut, betel leaves and concocted tobacco leaves. There is also evidence of development of malignancy in lesions of OLP; especially in the erosive type. There is very scarce data regarding this disease in Pakistan.

The purpose of this study was to determine the clinical presentation, the predisposing and aggravating factors and the malignant potential of disease in patients presenting at Liaquat University Hospital.

METHODOLOGY

The study was conducted jointly at the Departments of Dermatology and Oral Surgery, Liaquat University Hospital, Hyderabad, from January 2006 to November 2007. All consecutive patients of either gender aged above 12 years, fulfilling the diagnostic criteria for OLP were enrolled for study. The diagnostic criteria proposed by Meij *et al.*[9] in 2003 based on the World Health Organization definition of OLP were used to identify the cases of OLP.[9] These included clinical as well as histopathological features. The clinical criteria included presence of bilateral, mostly symmetrical lesions, presence of lace-like network of slightly raised grey-white lines (reticular pattern), erosive, atrophic, bullous and plaque type lesions (accepted as a subtype only in the presence of reticular lesions elsewhere in the oral

Department of Dermatology[1]/Dentistry[2]/Medical Unit-II[3], Liaquat University of Medical and Health Sciences, Jamshoro.

***Correspondence:** Dr. Doulat Rai Bajaj, Bungalow No. A-12, Bagh-Muhammad Housing Scheme, Opposite Grid Station, Qasimabad, Hyderabad.*
E-mail: doulat01@yahoo.com

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cavity). Histopathological criteria included hypergranulosis, parakeratosis, acanthosis, 'liquefaction degeneration' of cells within basal layer and presence of lympho-histiocytic infiltrate in a band-like pattern at the level of papillary dermis and absence of epithelial dysplasia.

An informed consent was sought from the patients after due explanation of the purpose. The study was approved by university ethical committee. Non-willing patients and those with lichenoid lesions thought to arise as a hypersensitivity reaction to drugs and dental materials like amalgam, composite, acrylates were excluded from the study.

History included biodata of patient (name, age, address, occupation), the age of onset, duration and evolution of their disease, drug history and family history of disease. The history of chewing betelnut, betel leaves, concocted tobacco leaves or smoking was elicited from patients. Similarly, a history of the factors aggravating the disease like stress, eating spicy foods or smoking was also noted.

Patients were assessed clinically every time by either dermatologist or oral surgeon. The type and number of lesions with their locations were noted. When more than one clinical types of lesions were found in same patient such as reticular and erosive; the most severe form of the disease (i.e. erosive) was used to classify the lesions. A careful evaluation of all lesions for signs of malignancy was done. These included hardening of lesions, fixity to underlying structures, painlessness, bleeding, infiltration, and inexorable growth.

A thorough systemic examination was conducted every time by the same qualified physician to confirm the presence of concomitant systemic disease.

Biopsy was done in those patients where diagnosis was doubtful or signs of malignancy were noted. For this purpose an elliptical wedge of tissue including small area of normal mucosa was taken and submitted to laboratory for histopathological examination.

All data were entered into a pre-structured, close-ended proforma. The data were analyzed using SPSS software version 11.0 to calculate the mean age with standard deviation and frequencies of clinical types, sites affected and aggravating factors.

RESULTS

Of the 95 patients seen, 55 (57.9%) were female and 40 (42.1%) male; with a male to female ratio of 1:1.38.

The mean age at presentation was 34.41 ± 7.69 years for female and 36.05 ± 9.92 years for male patients with an overall age range of 17-62 years.

The duration of the disease at the onset was less than one year in 14 (46.7%) male and 16 (53.3%) female, between 1-5 years in 18 male and 28 female while it was more than 5 years in 8 male and 11 female patients. Diabetes and hypertension were present in 04 male and 05 female patients. Family history of the disease was positive in 03 patients only.

Clinical characteristics of OLP are shown in Table I. Reticular form was the most common clinical type seen in 24 male and 28 female patients, followed by erosive (31, 32.6%) and atrophic/erythematous in 12 (12.6%) patients.

Table I: Clinical characteristics of OLP.

Clinical form	Male n=40 (%)	Female n=55 (%)	Total number (%)
Reticular	24 (60.0)	28 (50.9)	52 (54.7)
Erosive	13 (32.5)	18 (32.7)	31 (32.6)
Erythematous	03 (7.5)	09 (16.4)	12 (12.6)

n= number of patients (%)

The disease caused symptoms in 72 (75.7%) patients. Among these, 35 (48.6%) had reticular, 29 (40.3%) erosive and remaining 08 (11%) the erythematosus form of disease. The symptoms in descending frequency were burning, pain, discomfort, irritation, swelling and bleeding on brushing.

Reticular form was associated with erosive form in 29 (55.8%) while it was unaccompanied by any other forms in remaining 23 (44.2%) patients. Here the erosions were mild and usually occurred in continuity with reticular form. Pigmentation of mucosa was associated with reticular forms.

Erosive lesions caused symptoms in majority of cases. Erosions were superficial in 21, while deep in 10 patients. These caused frank pain in all patients.

Buccal mucosa was the chief site of involvement seen in 31 (32.6%) patients. Multiple sites involvement was noted in 59% of patients. Details are shown in Table II.

Table II: Sites involved by each type of OLP.

Site	Reticular n=52 (%)	Erosive n=31 (%)	Erythematous n=12	Total n=95 (%)
Buccal mucosa	23 (44.2)	05 (16.1)	03 (25)	31 (32.6)
Dorsal tongue	03 (5.8)	06 (19.4)	04 (33.3)	13 (13.6)
Ventral & lateral tongue	04 (7.7)	03 (9.7)	00	07 (7.4)
Gingival	03 (5.8)	01 (3.2)	00	04 (4.2)
Upper lip	05 (9.6)	02 (6.5)	00	07 (7.4)
Lower lip	11 (21.2)	09 (29.0)	01 (8.3)	21 (22.1)
Hard palate	03 (5.8)	02 (6.5)	04 (33.3)	09 (9.47)
Floor of mouth	00	03 (9.7)	00	03 (3.2)

Data is expressed as n=number of patients (%).

Biopsy was required in 20 cases. The histopathological features present were typical of cutaneous LP, including prominent granular layer, acanthosis, liquefactive degeneration of basal cell layer, saw tooth appearance of rete ridges and band-like infiltrate of lymphocytes and histiocytes along the papillary dermis. In atrophic/erythematosus form, epidermal atrophy was the additional feature. Similarly, ulcerative forms showed varying degree of epidermal necrosis. Eosinophilic colloid bodies representing degenerated keratinocytes were seen in half of the cases biopsied. Two patients depicted dysplastic changes superimposed on typical histological features.

Regarding addictions betel nut and betel leaf chewing were the dominant habits noted in this study. Smoking was noted in 24 (25.3%) patients (21 males, 03 females), betel nut chewing in 31 (32.6%) patients (09 males, 22 females), betel leaf chewing in 29 (30.5%) patients (15 males, 14 females), concocted tobacco leaves chewing in 5 (5.3%) male patients while flavoured betel nut and herbal mixture chewing in 5 (5.3%) patients (04 males, 01 female). Stress, spicy foods and poor oral hygiene were identified as aggravating factors in most of the patients.

All patients were treated with varying combinations of topical steroid ointments in orabase, systemic steroids, intralesional steroids, iron-B complex preparations and antiseptic gargles. These ameliorated pain and discomfort. In 4 patients, azathioprine was also added to regimen. Patients with suspected secondary overgrowth because of extensive mouth slough, responded to combined miconazole oral gels and systemic fluconazole for 2-3 weeks. This complication was especially seen in patients taking oral steroids for long- time.

DISCUSSION

Oral lichen planus is a chronic debilitating form of lichen planus. It runs a very protracted course. The findings of present study suggest that racial and regional differences between people all over world do not affect the clinical characteristics of disease like lichen planus. There are many similarities between this study and those done by others. For example, increased prevalence of OLP at middle and old age, the female pre-ponderance, lack of familial association, and the favoured location of lesions.[10,11]

There is no consensus on a single set of criteria for the diagnosis of OLP. Some investigators use only the clinical criteria, while others use both clinical and histopathological criteria.[12,13] In this study, clinical criteria were mainly used for the diagnosis of OLP.

The dominant type of OLP in this study was reticular form. This is consistent with other studies.[14] It caused symptoms when occurred on tongue or associated with erosive forms. The white network of lines surrounded by lilac rim of pigmentation was the usual finding. Biopsy from these lesions showed typical histopathological findings of LP. This was also observed by others and was the basis for taking biopsy always from the reticular lesions.[15]

Erosive form was the most symptomatic form of OLP in this study. It caused pain and burning in almost all patients. This is in keeping with other studies.[16] The concomitant presence of reticular or pigmented forms made diagnosis of OLP easy. In isolated erosive lesions, biopsy was required because of its close resemblance to other muco-erosive diseases like pemphigus, pemphigoid and linear IgA disease. Erosive form also had longer duration of disease and multiple site involvement; a feature also reported by Seoane *et al.*[17]

Similarly, erythematous forms caused little problem in diagnosis when concomitant reticular or pigmented forms were present. However, isolated lesions have to be biopsied to confirm the diagnosis.

The unique feature of this study was the associated pigmentation of oral mucosa. It was prominent feature in reticular form. It was noted in 63 patients. The higher frequency of pigmentation in this study could be related to racial factors, skin type and habit of chewing tobacco, and betelnut and leaves by the local population. The pigmentation was patchy, ranged from brown to black in colour and seen especially on buccal mucosa. Other less affected sites were adjacent gingivae, lateral and dorsal aspect of tongue and hard palate. Only studies from India reported similar findings.[18,19]

In this study, most of the patients complained of pain and discomfort (n=80), burning sensation (n=72), roughness (n=22), tingling (n=20). These findings match very well with the study by Eisen, in which most of the patients complained of these symptoms.[16]

In this study, buccal mucosa was the single-most common site involved followed by lower lip, tongue, hard palate, upper lip, gingiva and floor of mouth. Lesions on the soft palate were not seen.[19] In Eisen and others' series buccal mucosa was the most common site followed by tongue, gingiva and lower lip.[16] The discrepancy may be due to racial and geographical differences and limited sample of this study. In our study, OLP confined to single site was infrequent occurrence; mostly the patients had multiple site involvement.

A small number of patients had associated diabetes and hypertension. These figures are comparable to a study by Chainani *et al.* but are below than that in a Chinese study.[20] The reason may be a small sample size and younger patients in this study. No other systemic disease was found in the studied patients as were reported by Chainani *et al.*[20]

The studied patients reported addiction to smoking and habits of chewing betel nut, betel leaf, concocted tobacco leaves and flavoured betelnut-herbal mixture. These may be linked to development of OLP.

The different factors reportedly aggravated disease in studied patients. These included stress, spicy foods and poor oral hygiene. Stress was the most frequent cause of exacerbation in the studied population; an observation reported by others also.[21,23] Indeed patients with OLP exhibit greater degree of anxiety, depression and other psychological disturbances. The pain or discomfort caused by lesions is not the only factor for their anxiety. More concerning is the fear for development of malignancy and contagious nature of

disease. These can be minimized by effective patient education.[22]

The risk of malignant transformation in OLP is controversial, some reporting low while others as high as 5.3%.[23,24] Two patients were found to have dysplastic changes on biopsy. Both had erosive lesions on buccal mucosa, a finding consistent with a Chinese study.[20]

However, long-term follow-up of disease is needed for proper evaluation for malignant potential.

CONCLUSION

OLP is a chronic disease with diverse clinical manifestations. It runs a protracted course with unsatisfactory response to treatments available. Multiple site involvement is frequent. The pigmentation of surrounding mucosa was unique finding of this study. Long-term follow-up is needed to assess the malignant potential. Stress is the most important factor aggravating the disease.

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