

# Distribution of Lichen Planus at Extra Oral Site in Oral Lichen Planus Patients

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**Abstract:** Background: Lichen planus(LP) is a mucocutanueous inflammatory disease of unknown origin. The skin and oral mucosa are the most frequently involved areas. Other mucous membranes (including the genital , esophagus , and conjunctiva) and skin appendages (e.g. scalp, hair and nails) can also be affected. Oral lichen planus (OLP) is a chronic inflammatory mucous disease .WHO consider OLP as a precancerous condition at 2005, but the premalignant potential of OLP is still debatable. Malignant transformation has been estimated to occur in 0.5 -2.9 % of the OLP patients. Materials and Methods: The study comprised from 60 OLP patients , the patients was diagnosed by clinical examination , Subjects were excluded if they were edentulous, pregnant, were took medications, or were receiving operative treatment,with no evidence of severe chronic periodontitis or autoimmune diseases such as SLE and RA. Results: The highest number of cases , 20 cases (33.3%) from 30-39 years ,The lowest number of cases appear at so young and old age patients as four cases (6.66%) .The highest frequency at sex distribution is female, it form (73.3%) .The highest number of oral lichen planus types at reticular form, it form (86.6%) . The highest number of distribution LP at other site of body in OLP patients at cutaneous part all over the body, it form (33.3%).The lowest frequency at nail and this consider as a rare case, it form (3.3%). Conclusion:Data was shown that LP at other site of body can associated with OLP in (86.6%) ,Nail lichen planus (NLP) appear as one case even it consider as a rare case.

**Keywords:** Lichen planus LP, Oral Lichen planus OLP, Nail lichen planus NLP

## 1. Introduction

Lichen planus(LP) is a mucocutanueous inflammatory disease of unknown origin. The skin and oral mucosa are the most frequently involved areas. Other mucous membranes (including the genital , esophagus , and conjunctiva) and skin appendages (e.g. scalp, hair and nails) can also be affected (1).

Lichen comes from the Greek word leichen( meaning flat ) and possibly the striking clinical color of the pimples on skin led to the designation lichen rubber (Latin; red).Planus refers to the clinical appearance of the skin papule ; flattened , smooth and depressed on the summit , as first described by Wilson in 1869 (2).

It affect primarily middle aged adults, and the prevalence is greater in women while children are rarely affected (2).

Cutaneous lichen planus Figure (1) is classically described as "The six P's" , namely purple , polygonal , planar (flat-topped), pruritic , papules and plaques (3 ) .

Lesions vary in size from 1 mm to 2 cm in diameter mostly distributed on the flexor surfaces of the limbs , ankle , thighs , lower back , trunk and neck may also affected . The lesions may remain localized to a few areas or there may be an acute eruption with appearance of lesions in corps. The lesions may remain discrete or as eruption with appearance of lesions in crops. The lesions may remain discrete or may occur in groups which coalesce to form large irregular papules. Pruritus is often prominent in LP but varies in severity depending on the types of the lesion and extent of involvement. Pruritus may precede the appearance of the lesions, although some patients are completely asymptomatic(2),Figure (2).



Figure 1: Cutaneous lichen planus

LP has a wide range of clinical appearances that correlate well with disease severity. Cutaneous lesions occur in 20% to 60% of patients/clients with oral lichen planus. Skin lesions tend to wax and wane and unlike oral lesions are relatively short-lived (six months to 2 years) tending to resolve on their own (4).





Figure 2: Lip and scalp lichen planus.

Oral lichen planus (OLP) is a chronic inflammatory mucous disease. WHO consider OLP as a precancerous condition at 2005, but the premalignant potential of OLP is still debatable. Malignant transformation has been estimated to occur in 0.5-2.9% of the OLP patients (5).

It is found in 1-2% of the general adult population, affects women more than men and occurs most often in middle-aged and older adults. Clinical presentation of OLP ranges from asymptomatic reticular white lichen (reticular, papules and plaques), to symptomatic atrophic-erosive red lichen (erythema, ulcerative and bullas) with symptoms of burning, irritation and pain, which may undergo malignant transformation (6), Figure (3).



Figure 3: Clinical appearance of oral lichen planus. Typical interlacing white keratotic lines with erosive area.

It appears in the mouth as bilateral white lesions on the buccal mucosa, tongue, and gingiva. *Wickham's striae* is the main characteristic feature for lichen. OLP can't be passed from one person to another. The disorder occurs when the immune system attacks cells of the oral mucous membranes for unknown reasons (7). Also, angiogenesis may be an integral component associated with the development of the OLP (8).

Evidence indicates that OLP is an autoimmune disease mediated by cytotoxic T cells attacking epithelial cells, causing disruption of the basement membrane, liquefaction degeneration of the basal cells and subepithelial band-like infiltration of predominantly (T) lymphocytes. The precise etiology, however, remains unclear (9).

Weight loss and/or nutritional deficiency may result from severe oral lichen planus or from esophageal LP. Depression may be a sequela of severe LP. Severity of disease often parallels a patient/client's level of stress (4).

## 2. Material and methods

### Subjects

All subjects were Iraqi and were recruited from the Merjan hospital/ Dermatology department/Babil/ Iraq, between 5-january-2017 to 1-may-2017.

The patient group comprised 60 OLP patients with no evidence of severe chronic periodontitis or autoimmune diseases such as SLE and RA. Oral lichen planus was diagnosed by clinical examination. Subjects were excluded if they were edentulous, pregnant, have any other autoimmune diseases, were taking medications, or were receiving operative treatment.

### Clinical Diagnosis

#### OLP lesions commonly present as:-

- Asymptomatic white striae (Wickham's striae).
- Bilateral symmetrical distribution.
- Distributed on the buccal mucosa along the occlusal line.
- Commonly involves the buccal mucosa (upto 90%), gingiva and tongue.
- Less common sites include the palate, lip and floor of the mouth.
- -Unilateral presentation of OLP is atypical (10).

#### LP lesions commonly present as:-

- Small, purplish, polygonal, flat-topped papules, and/or as hypertrophic, scaly skin patches.
- The most common sites are the flexor surfaces of the wrist and elbow, the anterior surfaces of the tibia and ankle, and the lumbar region.
- Affected skin may be itchy, and discoloration may remain after papules have cleared.
- Other cutaneous variants include hypertrophic, bullous, atrophic, linear, and follicular forms.
- Lesions on the scalp, while rare, can cause temporary or permanent hair loss.
- LP of the ears can contribute to hearing loss.
- LP of the fingernails or toenails may result in ridges, thinning or splitting of nails, and temporary or permanent nail loss.
- The vulva, vagina, or penis may be affected. Lesions on the female genitalia can cause burning and pain with intercourse; such lesions are usually red and eroded, but occasionally appear as white areas. Purple or white annular patches, or flat topped shiny papules, occur on the glans penis (bulbous tip of the penis). Long-term erosive lichen planus of the genitalia can lead to vulvar or penile cancer.
- Lichen planus of the mucous membranes of the eyes, while rare, can cause scarring and blindness.
- LP of the esophagus, while rare, may result in narrowing or the formation of a tight, ring-like band that can make swallowing difficult (4).

### 3. Results

#### Age distribution

Sixty individuals participated as patients with OLP in the present study including the following age results as show in Table (1):-

Their ages ranged from 10-70 years with a mean±SD of 43.2±16.33 years for patient group. The highest frequency of age was distributed from 30-39 years, it form twenty patients (33.3%) was observed to be in the age group. Frequency from 10-19, 20-29, 70-79 years as four patient for each one with percent (6.66%) .The lowest frequency of age appear at so young and old age patients .

**Table 1:** Distribution of patient and healthy samples according to age groups.

Age group (year)	Patient group (no.= 60)
10-19	4 (6.66%)
20-29	4 (6.66%)
30-39	20 (33.3%)
40-49	8 (13.3%)
50-59	12 (20%)
60-69	8 (13.3%)
70-79	4 (6.66%)
mean±SD	43.2±16.33

#### Sex distribution

Frequency distribution of patient and healthy groups according to sex is shown in Table (2) :-forty four patients (73.3%) were females and sixteen (26.6%) were males in patient group.

**Table 2:** Frequency distribution of patient and control groups according to sex

Gender	Patient group (no.= 60)
Male	16 (26.6%)
Female	44 (73.3%)

#### Types of oral lichen planusdistribution

Among the 60 OLP patients as show in table (3) :- (86.6 %) have reticular form of OLP, (6.66%) have erosive form of OLP,(6.66%) with reticular form of OLP with melanin pigmentation, figure (4).

**Table 3:** Frequency distribution of patient groups according to types of OLP

Types of OLP	Patient group (no.= 60)
Reticular form	52 (86.6 %)
Erosive form	4(6.66 %)
Reticular form with melanin pigmentation.	4 (6.66 %)



**Figure 4:** Show the R & L. side of patient have reticular type of OLP with melanin pigmentation.

#### Distribution of LP at other site of body in OLP patients

Among the 60 OLP patients , many of them was found have LP at another part of body as show in table (4) that describe the site distribution throughout the body among the patient group.

Twenty patients (33.3%) have LP at cutaneous part all over the body. Twelve patients (20%) have LP at (cutaneous & lip) parts. eight patients (13.3%) don't have any LP at another part of body. Seven patients (11.6%) have LP at (cutaneous & scalp) parts. Six patients (10.0%) have LP at (lip & scalp) parts. Six patients (10.0%) have LP distributed at (lip , face ,palm & scalp) parts. One patient (3.3%) have LP at nail figure (5),(6),(7).

**Table 4:** L.P at other site of body distribution associated with OLP lesions.

Types of LP at other site associated with OLP lesions.	Patient group (no.= 60)
LP only at cutaneous part all over the body	20 (33.3%)
LP at cutaneous parts & lip	12 (20.0%)
NO	8 (13.3%)
LP at cutaneous parts & scalp.	7 (11.6%)
LP at lip & scalp.	6 (10.0%)
LP at lip & face & palm & scalp.	6 (10.0%)
LP at nail.***	1 (1.6%)



**Figure 6:** OLP for the same child with NLP



Figure 5: 10 years child patient with LP at nail associated with OLP

#### 4. Discussion

The samples in this study collected from participants, their age ranged between 10 years and over. The patient group represent patients having oral lichen planus lesion and their mean age was 43.2 years. Oral lichen planus was diagnosed by clinical examination, Subjects were excluded if they were edentulous, pregnant, were taking medications, or were receiving operative treatment, with no evidence of severe chronic periodontitis or autoimmune diseases such as SLE and RA.

The clinical findings revealed that 86.6% from cases were above 30 years of age and the lowest frequency of age appear at so young and old age patients, and this was in consistent with the reported studies (11,12). Most autoimmune diseases affect young and middle aged individuals. Each autoimmune disease is different, and disorders such as rheumatoid arthritis are found more commonly in elderly people. While contradicted finding was reported by Xue, J.L et al at 2005, As they considered old age patient have a great percent (13).

Predominance of OLP patients was observed in among female (73.3%); and (26.6%) of OLP were males, with a female to male ratio was 2.8:1 and this was in agreement with other studies (13-15) that considered autoimmune disease more in middle age female as it known fact that women are at higher risk of developing autoimmune diseases, since they tend to affect women about 75% more than men. It is not entirely clear why women are more vulnerable to autoimmunity, although some researchers speculate that women's enhanced immune systems and specific hormones may make them more subject to autoimmune diseases.

The reticular type was the most frequent clinical form observed, they form (86.6%) followed by the erosive type and reticular form with melanin pigmentation (6.66%). This finding was also noticed in harmony by other investigators (11-13). As reticular type considered as early and simplest form of OLP, All the cases in this study is new cases not diagnosed before.

The OLP may be associated with lichen planus at other sites of body, the cutaneous part all over the body form the most frequent, they form (33.3%), while LP at nail form (3.3%) cause it found in one case.

LP commonly involves the oral mucosa, but extraoral sites may be affected including the skin, scalp, genital area and nails. Forty percent lesions occur on both oral and cutaneous surfaces, 35% occur on cutaneous surfaces alone and 25% occur on mucosa alone ("isolated" OLP)(16).

Cutaneous LP lesions usually develop within several months of OLP lesions. There is no correlation between extent or severity of OLP and cutaneous LP(16). Cutaneous LP lesions are typically flat-topped, purple papules with white striae called Wickham's striae. They occur most often on the arms, legs and back and are usually pruritic(16). Generalized involvement may occur along with significant postinflammatory mucocutaneous hyperpigmentation(16). Cutaneous LP lesions typically resolve within 1-2 years but OLP lesions may persist for more than 20 years.

OLP is chronic with periods of exacerbation and remission (17). Stress was identified most frequently by patients as a cause of their acute disease flares(16). OLP rarely undergoes spontaneous remission. Close follow-up and monitoring with monthly visits are necessary for patients with severe symptoms, poorly controlled erosive disease and those on systemic therapy. Once disease activity and symptoms are fairly well controlled, OLP patients should be evaluated every 6-12 months(16).

A 10-year-old boy was diagnosed with NLP in association with OLP, he have onychodystrophy of fingernails with poor response to topical agents. The nail lesions had occurred and progressed for 3 years. Physical examination revealed soft, thin, splitting, brittle nails, including swelling with erythematous change (Figure 7). Asymptomatic slightly raised whitish plaques were noted over the bilateral buccal mucosa (Figure 6). No other skin lesions were found. A nail matrix biopsy was suggested, but the patient refused due to concerns over possible nail deformity after the biopsy. Some recent studies have suggested that a diagnosis of nail LP may be made when it exists together with typical cutaneous/mucous membrane LP disease.





**Figure 7:** soft, thin, splitting and brittle nails for the same child

Lichen planus can affect nails in about 10% of the cases (18). Nail involvement in LP in isolation is uncommon and has always been associated with typical skin or mucocutaneous lesions. Rarely nail lichen planus may occur in the absence of skin, oral or genital lesions. The majority of nails changes results from damage to the nail matrix, or nail root. Nail changes can occur with or without skin involvement. The nails when affected tend to become deformed. Commonly only two or three fingernails or toenails are involved. Occasionally all the nails could be affected (18).

Longitudinal ridging and grooving, Pitting, Nail thinning, Nail becomes fragile and nail loss, brown discoloration, depressions of the nail plate, inflammation of the proximal nail folds which becomes erythematous. The skin of the fingertips shows a honeycomb appearance due to multiple, small, punctate and hyperkeratotic depressions (19).

There may be no symptoms at all or sometimes itching, stinging sensation, burning and pain in the fingertips. In severe cases, the nail may be temporarily or permanently destroyed. Lichen planus on the nails causes the nails to become extremely brittle and more prone to cracks and splits (20).

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