# Oral Lichen Planus in Turkish Patients: Prevalence and Clinical and Histopathologic Characteristics

## Türk Hastalarda Oral Liken Planus: Prevalans, Klinik ve Histopatolojik Özellikler

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**ABSTRACT Objective:** To investigate the prevalence of oral lichen planus (OLP) lesions in the oral mucosa of adult Turkish dental patients and to determine the association of those lesions with cutaneous lichen planus. **Material and Methods:** The dental and medical histories were recorded for 5018 patients referred to our institution between June 2004-September 2005 for dental treatment; all patients completed a questionnaire. Clinical examination of each patient was performed. In patients with a mucosal change interpreted as lichen planus by clinical examination, a biopsy specimen was obtained. Patients diagnosed with OLP were examined by a dermatologist to identify cutaneous lichen planus. **Results:** Fifty-eight (1.15%) patients were diagnosed with OLP after the clinical and histopathological assessment of 5018 patients. There was no gender-related difference in the incidence of OLP ($p > 0.05$) according to the Chi-square test. Eleven patients showed signs characteristic of cutaneous lichen lesions. Seven oral lichenoid lesions were attributed to lichenoid reaction. The lesions were most common on the buccal mucosa. The most prevalent type was the reticular. Histopathological examination of the specimens obtained from 4 patients with OLP showed epithelial dysplasia. **Conclusion:** Clinicians must be vigilant in assessing patients for the signs of OLP because of its relatively high dysplastic potential.

**Key Words:** Oral lichen planus, prevalence, histopathology

**ÖZET Amaç:** Diş tedavisi için başvuran yetişkin Türk hastaların oral mukozalarında görülen liken planus lezyonlarının prevalansını ve bu lezyonların kutanöz liken planusla olan ilişkisini araştırmak. **Gereç ve Yöntemler:** Haziran 2004-Eylül 2005 tarihleri arasında fakültemize başvuran 5018 hastanın her birinden dental ve medikal hikaye alındı ve tüm hastaların bir form doldurması istendi. Hastaların klinik dental muayeneleri yapıldı. Klinik muayene ile liken planus olabileceği düşünülen mukoza değişikliklerinden biyopsi alındı. Oral liken planusun teşhis edildiği hastalar, kutanöz liken planusun tespit edilebilmesi amacıyla dermatolog tarafından değerlendirildi. **Bulgular:** Toplam 5018 hastanın klinik ve histopatolojik olarak değerlendirilmesi sonucunda, 58 (%1.15) hastada oral liken planus teşhis edildi. Ki-kare testine göre oral liken planusun sıklığında cinsiyetler arasında fark görülmedi ($p > 0.05$). Oral liken planuslu hastaların 11'inde kutanöz liken lezyonları gözlendi. Oral liken lezyonlarının 7'si likenoid reaksiyon olarak yorumlandı. Oral liken planus en sık olarak bukkal mukozada gözlendi. En sık retiküler tip izlendi. Oral liken planusun teşhis edildiği 4 hastadan alınan örneklerde yapılan histopatolojik inceleme sonucunda epitelyal displazi görüldü. **Sonuç:** Liken planusun göreceli olarak yüksek displastik potansiyeli nedeni ile klinisyenlerin, hastaların değerlendirilmesinde liken planus bulguları konusunda dikkatli davranması gerekmektedir.

**Anahtar Kelimeler:** Oral liken planus, prevalans, histopatoloji

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Lichen planus is a common chronic inflammatory disease of the skin and mucous membranes. It affects from 0.1% to 4% of individuals, depending on the population studied and is usually a disease of mid-

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dle-aged and elderly people. A female predominance of 2:1 has been identified.[1,2] The cause and pathogenesis of lichen planus are unknown, although evidence suggests that it is an immunologic disorder, possibly an autoimmune disease, in which T lymphocytes destroy the basal cell layer of the affected epithelium.[3]

OLP lesions are usually bilateral and involve the buccal mucosa in about 80% to 90% of all cases. In descending order of frequency, the sites affected include the tongue, gingivae, alveolar ridge, lips, floor of the mouth, and less frequently the palate. There are 4 types of OLP: atrophic, erosive, striated (reticular), or plaque-like.[2-4] The skin lesions of lichen planus initially consist of small, flat-topped red papules with a depressed central area. Before they resolve, the papules may change in color from red to yellow or brown. Bilateral distribution on the flexor surfaces of the extremities is common, and the fingernails are occasionally involved.[2,3]

Oral lichenoid reactions are lesions that resemble those of OLP but may be unilateral or asymmetrical and may develop in unusual sites. Drugs (nonsteroidal anti-inflammatory agents, antihypertensive medications) or dental materials may cause lichenoid lesions, which may also be a manifestation of diseases such as lupus erythematosus.[5,6] Oral lichenoid lesions characteristically occur where the oral mucosa is in contact with an offending restoration. Removal of the restoration frequently results in regression of the lesion and this suggests a type IV hypersensitivity reaction.[4,6]

The aim of this study was to investigate the prevalence of OLP in Turkish dental patients and to determine the relationship between those lesions and cutaneous lichen planus.

## MATERIAL AND METHODS

This study consisted of 5018 patients (age range, 17-85 years) referred to the Ankara University Faculty of Dentistry between June 2004-September 2005 for dental treatment. The dental and the general medical history of the patients were recorded and each patient completed a questionnaire. Clinical examinations were performed on all subjects. In patients with mucosal changes interpreted as lichen planus by clinical examination, a biopsy specimen was obtained and it was analyzed histopathologically. Following clinical and histological examination, 58 patients were diagnosed with OLP and they were consulted with a dermatologist for evaluation of cutaneous lichen planus. Data obtained from the 58 patients were transferred to an SPSS software program (Statistical Package for the Social Sciences, version 10.0, SSPS Inc, Chicago, Ill, USA) and were evaluated statistically. Chi-square test was used to analyze the data.

This study was approved by the Ethical Committee of the Ankara University Faculty of Dentistry. Written informed consent was provided by each patient.

## RESULTS

Fifty-eight (1.15%) patients were diagnosed with OLP after the clinical and histopathological assessment of 5018 patients. Of the 58 subjects, 30 (52.5%) were female and 28 (47.5%) were male. No difference was detected according to the gender of the patients with OLP ($p > 0.05$). The mean age of the patients with OLP was 50.9 years for females and 51.5 years for males. The medical history obtained from 42 patients with OLP revealed various systemic diseases. Nine of those patients had more than one systemic disease. The most frequent systemic disease was hypertension.

The patients with OLP were examined by a dermatologist; 11 patients showed signs characteristic of cutaneous lichen lesions. The cutaneous signs noted in those patients, the clinical types of OLP, and the distribution of the patients by age and gender were presented in Table 1.

A lichenoid reaction was suspected in 7 (5 women and 2 men) patients with OLP because those lesions were unilateral and localized, and adjacent amalgam restorations were observed without cutaneous signs of lichen planus. The most common site of the oral lichenoid lesions was the buccal mucosa. In those 7 patients, the amalgam restorations were replaced with composite fillings. After 3 months, lesions had resolved.

**TABLE 1:** Systemic signs of oral lichen planus.

| Patient no | Systemic Sign | Lesion Type | Gender | Age (year) |
|---|---|---|---|---|
| 1 | Longitudinal ridging of fingernails | Erosive | Male | 44 |
| 2 | Longitudinal ridging of fingernails | Reticular | Male | 44 |
| 3 | Longitudinal ridging of fingernails | Erosive | Male | 57 |
| 4 | Longitudinal ridging of fingernails<br>Papular lesion on the arm | Reticular and partially eroded | Male | 51 |
| 5 | Longitudinal ridging of fingernails | Reticular | Female | 21 |
| 6 | Longitudinal ridging of fingernails | Erosive | Male | 45 |
| 7 | Longitudinal ridging of fingernails<br>Papular lesion on the arm | Reticular | Male | 42 |
| 8 | Longitudinal ridging of fingernails<br>Pterygium in 2 fingernails | Reticular and partially eroded | Female | 66 |
| 9 | Pterygium in right-hand fingernail | Reticular | Female | 55 |
| 10 | Papular lesion on the arm | Erosive | Male | 42 |
| 11 | Papular lesions on the arm and legs | Reticular | Male | 32 |

The sites of OLP lesions were shown in Table 2. In the present study, the most common site of OLP lesions was the buccal mucosa followed by the dorsum of the tongue and the lower lip (Figures 1, 2 and 3). Nineteen patients had more than one lesion. Table 3 shows the distribution of oral lichen lesions by clinical form.

Histopathological examination of the specimens obtained from 4 patients with OLP showed epithelial atypia. Those lesions were considered premalignant and were extirpated surgically; no lesion had recurred at follow-up examinations at 6, 12, and 14 months after surgery. In addition, lesions from 6 of the patients with OLP yielded evidence of a *Candida* infection.

**TABLE 2:** Site and number of oral lichen lesions.

| Lesion Site | Lesions (n) |
|---|---|
| Right buccal mucosa | 49 |
| Left buccal mucosa | 45 |
| Dorsum of the tongue | 12 |
| Inferior surface of the tongue | 1 |
| Floor of the oral cavity | 2 |
| Lower lip | 8 |
| Upper lip | 1 |
| Retromolar region | 1 |
| ingivae | 5 |
| Alveolar crest | 1 |

## DISCUSSION

The worldwide prevalence of lichen planus in the general population has been estimated to range from 0.9% to 1.2% and that of OLP from 0.1% to 2.2%.[7] In this survey, 58 of 5018 (1.15%) patients were diagnosed with OLP; this is compatible with data in the literature.[1,2,7]

Lichen planus often affects the oral mucosa and oral lesions can occur without the concomitant appearance of skin lesions. About 50% of the patients with skin lesions have oral lesions and about 25% of all patients with lichen planus have only oral lesions.[7] Of our 58 patients with OLP, 11 (18.9%) had various skin lesions. A higher prevalence of OLP in women has been reported by most investigators.[8,9] In this study, however, there was no difference regarding the gender of the patients with OLP ($p > 0.05$).

The clinical appearance of and histopathological changes associated with oral lichenoid reaction and OLP are similar and there is no reliable method of differentiating those entities.[9] In 90% of patients reviewed in the study by Issa et al,[9] the lesions of lichenoid reaction improved markedly or healed completely and the symptoms resolved within 1 week to 3 months after their amalgam restorations were replaced.[9] In this study, seven OLP lesions (1 lesion per patient) were attributed to lichenoid re-

**FIGURE 1 and 2:** Oral lichen planus lesions on the buccal mucosa.

action because they were unilateral, localized, and adjacent to amalgam restorations, and there was no cutaneous sign of lichen planus. In those 7 patients, the amalgam restorations were replaced with composite fillings; thereafter, the lesions healed completely.

Although OLP can develop at any oral site, it occurs most often on the buccal mucosa, tongue, and gingivae; palatal and lip lesions are uncommon.[7,10-13] This study revealed that the most common site of OLP lesions was the buccal mucosa (77.5%). Other investigators have shown that OLP lesions are almost always bilateral.[7] In the present study, in 48 (82.75%) patients the OLP lesions developed bilaterally in the buccal mucosa.

OLP is classified according to its clinical features as reticular, papular, plaque-like, bullous, atrophic, erosive, or ulcerative. Reticular OLP, which is the most common form, primarily affects the buccal mucosa.[7,10,13] Most of the OLP lesions in our patients were reticular and the other types identified (in descending order of frequency) were hyperkeratotic, partly eroded, erosive, atrophic, and plaque-like forms. However, some studies suggest that the erosive form is more common.[12,14]

Although many studies have demonstrated the premalignant nature of OLP, many others have stated the opposite.[7,12,15-20] Various authors believe that inflammation present in OLP may cause cell alterations similar to those seen in epithelial atypia, making it even more difficult to differentiate from

**FIGURE 3:** Oral lichen planus lesion on the dorsum of the tongue.

lichenoid dysplasia.[20,21] Lichen planus and lichenoid dysplasia should be considered two different entities. The presence of epithelial atypia is currently believed to be the factor that classifies a lesion as having malignant potential; thus lichenoid dysplasia, rather than lichen planus, should be classified as premalignant.[20] In this study, the lesions of four patients with OLP showed epithelial atypia on histological examination and were considered to be lichenoid dysplasia. Those lesions were extirpated surgically and none had recurred at follow-up. A previous study examined 2238 dental patients for the existence of oral mucosal lesions in a Turkish population.[22] There were 50 (19 male and 31 female) patients with oral lichen planus and one lesion showed malignant transformation.

The present study did not look at the serum markers of hepatitis, liver functions and blood glu-

**TABLE 3:** Distribution of oral lichen planus lesions by clinical form.

| Clinical Form of Lesion | Gender | | | | Patients (n) | |
|---|---|---|---|---|---|---|
| | Female | | Male | | Total | |
| | n | Age (y) | n | Age (y) | n | Age (y) |
| Reticular | 10 | 45 | 14 | 55.9 | 24 | 48.75 |
| Plaque | - | - | 2 | 59 | 2 | 58 |
| Hyperkeratotic, partly eroded, ulcerous | 13 | 47.9 | 4 | 53.75 | 17 | 49.82 |
| Atrophic | 1 | 61 | 3 | 45 | 4 | 52,5 |
| Erosive | 6 | 49.9 | 5 | 43.5 | 11 | 45 |
| Total | 30 | 50.95 | 28 | 51.53 | 58 | 51.24 |

cose levels in OLP patients. Therefore, information regarding the association of OLP with systemic diseases could not be obtained.

In conclusion, the present study revealed that the prevalence of OLP was 1.15%. There was no difference regarding the gender of the patients with OLP ($p>0.05$). The most common site of oral lichen lesions was the buccal mucosa and the most common clinical form was reticular. We observed lichenoid dysplasia in four patients with OLP. Therefore, because of its dysplastic potential, OLP must be considered a serious disease and should be the focus of further investigation.

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