Mucosal Lichen Planus: A Clinical Study of 145 Patients

Özge Aşkın[1], Defne Özkoca[1], Tuğba Kevser Üstünbaş Uzunçakmak[1], Özce Kutlu[2], Burhan Engin[1], Zekayi Kutlubay[1]

[1]Department of Dermatology, İstanbul University-Cerrahpaşa, Cerrahpaşa School of Medicine, İstanbul, Turkey
[2]Department of Pathology, İstanbul University-Cerrahpaşa, Cerrahpaşa School of Medicine, İstanbul, Turkey

Cite this article as: Aşkın Ö, Özkoca D, Uzunçakmak TKU, Kutlu Ö, Engin B, Kutlubay Z. Mucosal lichen planus: A clinical study of 145 patients. *Cerrahpaşa Med J.* 2021;45(2):124-128.

Abstract

Objective: Lichen planus is a disease of unknown origin that affects the skin and the mucous membranes; the oral mucosa is affected in particular. In this study, we aim to demonstrate the demographic characteristics, preferred localizations, and subtypes of mucosal lichen planus lesions and to examine the relationship between these variables.

Methods: Patients with a definitive histopathological diagnosis of oral or genital lichen planus were included in this retrospective study. Age, gender, localization, clinical subtype (erosive/keratotic), differential diagnosis, cutaneous involvement status, and hepatitis C virus (HCV) infection status of each patient were noted, and the statistical analysis was performed with SPSS version 21.

Results: A total of 145 patients were included in this study; 70 (48.3%) were female and 75 (51.7%) were male; 133 (91.7%) were located in the oral mucosa and 12 (8.3%) were located in the genital mucosa; 98 (67.6%) were erosive and 47 (32.4%) were keratotic. Cutaneous involvement was present in 15 (10.3%) of the patients and 130 (89.7%) did not have cutaneous involvement.

Conclusion: Our oral lichen planus patient series was similar to the previous literature in terms of age and localization; however, we observed a male predominance, unlike the previous articles. HCV positivity was not observed in any of our patients.

Keywords: Epidemiology, genital, lichen, mucosa, oral

Mukozal Liken Planus: 145 Hastalık Klinikopatolojik Çalışma

Öz

Amaç: Liken planus sebebi bilinmeyen bir hastalık olup deri ve müköz membranları etkileyebilir. Oral mukoza özellikle tutulmaktadır. Bu çalışmadaki amacımız mukozal liken planus lezyonlarının demografik özellikler, tutulum bölgesi ve subtipler ile ilişkisini incelemektir.

Yöntem: Bu geriye dönük çalışmaya kesin patolojik tanı almış olan oral ve genital liken planus hastaları dâhil edildi. Hastaların yaşı, cinsiyeti, lezyonların tutulum bölgesi, lezyonların subtipi (eroziv/keratotik), ayırıcı tanısı, deri tutulumu varlığı ve HCV enfeksiyonu durumu not edildi. İstatistik için SPSS 21 kullanıldı.

Bulgular: Çalışmaya toplam 145 hasta dahil edildi. Bu hastaların 70'i (%48,3) kadın ve 75'i (%51,7) erkek idi; 133 (%91,7) hastada oral lezyonlar mevcuttu; 12 (%8,3) hastada genital lezyonlar mevcuttu; 98 (%67,6) hastada eroziv subtip, 47 (%32,4) hastada keratotik subtip gözlemlendi. Hastaların 15 (%10,3)'ünde kutanöz tutulum mevcuttu.

Sonuç: Oral liken planus hasta serimiz yaş ve tutulum yeri açısından literatür ile benzerdir; ancak önceki yayınların aksine erkek hastalar çoğunlukta idi. Hiçbir hastamızda HCV pozitifliği gözlemlemedik.

Anahtar Kelimeler: Epidemiyoloji, genital, liken, mukoza, oral

Lichen planus is a disease of unknown origin that affects the skin and the mucous membranes; the oral mucosa is affected in particular. The genital mucosa, esophagus, conjunctiva, hair, and nails may be affected as well.[1] This disease is common and seen in nearly 1% of the population.[2,3] The disease pathology is still unknown; genetic, environmental, and infectious factors are thought to play a role.[2] Hepatitis C virus (HCV) infection has been associated with lichen planus.[4] The cutaneous lesions are usually self-limiting; however, the mucosal lesions are often chronic and treatment-resistant.[5] Mucosal lesions usually affect middle-aged adults and are important for their malignant potential.[3,6] There are 6 clinical subtypes of oral lichen planus lesions, which can be grouped into 2 categories as keratotic and erosive.[7]

In this study, we aim to demonstrate the demographic characteristics, preferred localizations, and subtypes of mucosal lichen planus lesions. We secondarily aim to examine the relationship between these variables.

Received: May 7, 2021 **Accepted:** July 3, 2021
Corresponding author: Defne Özkoca, Department of Dermatology, İstanbul University-Cerrahpaşa, Cerrahpaşa School of Medicine, İstanbul, Turkey
e-mail: defneozkoca@yahoo.com
DOI: 10.5152/cjm.2021.21043

Material and Methods

Patients with a definitive histopathological diagnosis of oral or genital lichen planus and who have applied to the Cerrahpaşa Medical Faculty Dermatology Department outpatient clinic between January 2014 and January 2020 were included in this retrospective study. The definitive histopathological diagnoses were given with clinicopathological correlation, which is a sine qua non in our faculty. The age, gender, localization, clinical subtype (erosive/keratotic), differential diagnoses, cutaneous involvement status, and HCV infection status of each patient were noted. The approval of İstanbul University-Cerrahpaşa, Cerrahpaşa School of Medicine, Ethics Committee was taken before the study was initiated (December 3, 2020-158708).

Statistical analysis

Statistical Package for the Social Sciences (SPSS Corp., Armonk, NY, USA) version 21 was used in the statistical analysis. Kolmogorov–Smirnov, Shapiro–Wilk, Q–Q plot, and histogram graphics were used to assess normality. Continuous variables were shown with mean and standard deviation. Categorical variables were shown with frequency and percentile. T-test and Mann–Whitney *U*-test were used to compare independent continuous variables. Chi-square test and Fisher's exact test were used to compare categorical variables. All tests were bidirectional and *P*-values less than .05 were accepted as statistically significant.

Results

Demographics

A total of 145 patients were included in this study. The mean age of these patients was 52.3 with a standard deviation of 14.7 years. Of these 145 patients, 70 (48.3%) were female and 75 (51.7%) were male. According to the localization, 133 (91.7%) were located in the oral mucosa and 12 (8.3%) were located in the genital mucosa. Within the oral mucosa, 101 (75.9%) were buccal, 10 (7.5%) were on the lips, 15 (11.3%) were on the tongue, 10 (7.5%) were on the gingiva, and 4 (3%) were located at different locations (i.e. the soft and the hard palate, retromolar area). Within the genital mucosa, 4 (33.3%) were at the vulva and 4 (33.3%) were at other locations (i.e., the glans penis, labium major or minor). According to the clinical subtype, 98 (67.6%) were erosive and 47 (32.4%) were keratotic. Topical treatment was used by 135 (93.1%) patients and systemic treatment was used by 10 (6.9%) patients. Systemic retinoic acid was used by 8 (5.5%), systemic steroid was used by 1 (0.7%), and hydroxychloroquine was used by 1 (0.7%) patient. Cutaneous involvement was present in 15 (10.3%) patients; 130 (89.7%) did not have cutaneous involvement. The differential diagnoses were as follows: lichen sclero-atrophicus 5 (3.4%), leukoplakia 5 (3.4%), squamous cell carcinoma 10 (6.9%), lichenoid drug eruption 14 (9.7%), pemphigus vulgaris 4 (2.8%), and others (i.e. discoid lupus erythematosus and factitious dermatitis) 2 (1.4%).

Gender

The mean age of the male patients was 52 ± 15.3 years, and the mean age of the female patients was 52.6 ± 14.18 years. Localization of the oral lesions were independent of gender; the differences in terms of gender in buccal, lip, tongue, and gingival localizations were statistically insignificant ($P = .210$, $P = .378$, $P = .997$, and $P = .663$, respectively). There was no statistically significant difference in the clinical subtype, treatment, and differential diagnosis in terms of gender.

Localization

The mean age of oral lichen planus patients was 51.7 years, and the mean age of genital lichen planus patients was 58.5 years; this difference was statistically insignificant ($P = .105$). Of the oral mucosal lichen planus patients, 66.2% were erosive and 33.8% were keratotic. Of the genital lichen planus patients, 83.3% were erosive and 16.7% were keratotic. The difference between the 2 groups was statistically insignificant ($P = .224$). There was no difference in terms of cutaneous involvement between oral or genital lichen planus patients ($P = .359$).

Table 1. Distribution of the Patients According to Localization and Clinical Subtype

	Erosive	Keratotic
Oral	88 (66%)	45 (34%)
Buccal	59 (64%)	42 (89%) (*P = .001*)
Lips	9 (10%)	1 (2%)
Tongue	13 (14%)	2 (4%)
Gingiva	9 (10%)	1 (2%)
Retromolar	4 (4%)	0 (0%)
Genital	10 (83%)	2 (17%)
Vulva	3 (3%)	1 (2%)
Labium majus/ minus, Penis	4 (4%)	0 (0%)

Erosive versus keratotic subtypes

There was no difference in terms of age between the erosive and keratotic subtypes ($P > .05$). Of the oral lichen planus patients with the erosive subtype, 67.2% were buccal, and with the keratotic subtype, 89.4% were buccal. Buccal localization was statistically more common in the keratotic subtype than the erosive subtype ($P = .001$). Table 1 summarizes the distribution of the patients according to localization and clinical subtype.

The differential diagnoses of lichen scleroatrophicus, lichenoid drug eruption, and squamous cell cancer were considered more in the keratotic subtype than in the erosive subtype ($P = .003$, $P < .001$, $P < .001$, respectively). There was no statistically significant difference in terms of other differential diagnoses.

Cutaneous involvement

The mean age of the patients with cutaneous involvement was 49.8 ± 15.5 years, and the mean age of patients without cutaneous involvement was 52.6 ± 14.7 years; the difference was statistically insignificant ($P = .370$). The relationships between the presence of cutaneous involvement and localization, clinical subtypes, treatment, and differential diagnoses were statistically insignificant.

Hepatitis C virus infection

None of our patients was positive for HCV.

Discussion

Previously, 4 retrospective studies have been performed regarding the clinical characteristics of oral lichen planus. The first study was performed by Lozada-Nur and Miranda in 1997. They have reported that the disease was the most common in 50-55 years old adults and had a female predominance. Furthermore, the most commonly involved sites were the buccal mucosa and the gingiva.[7] Similar to the authors, we report an average age of 51.7 years. In contrast to the authors, we report a slight male predominance. Buccal mucosa was also a commonly involved region in our study. The authors also report an association of oral lichen planus with the HCV infection.[8] On the contrary, none of our patients was positive for HCV. Twenty-three years have passed since Lozada-Nur and Miranda's study. HCV treatment has been advancing with the research of new drugs; this may explain the difference.[9]

Another study was performed by Eisen[10] in 2002. A total of 723 patients were included in their study, and 75% of these patients were female. The age of onset of male patients was 47 years; the age of onset of female patients was 57 years. Again, we report a male predominance in oral lichen planus. The author has reported an earlier male onset of the disease; however, we have found no significant difference in terms of age between the genders. Eisen[10] has reported that the erosive form encompasses 40% of the oral lichen planus patients. Here we report that 67.6% of all mucosal lichen planus patients are of the erosive subtype. Similar to our study group, none of Eisen's[10] patients was positive for HCV.

A study of 674 oral lichen planus patients was performed in China. The authors, like the previous literature, report a female predominance of 65.9%.[11] On the contrary, we report a slight male predominance. Furthermore, we report a cutaneous involvement of 10.3% in mucosal lichen planus patients. Likewise, the authors report an 11.4% cutaneous involvement in oral lichen planus patients.[11]

Another study concerning oral lichen planus patients was performed by Barbosa et al.[12] in 2015. The authors report that 57.1% of the oral lichen planus patients belonged to the erosive subtype.[12] We also report an erosive subtype of 67.6%. Of their 37 patients, only 1 was positive with HCV.[12] Previous literature was supportive of HCV playing a pathogenic role in oral lichen planus.[13-16] However, a recent study from Iran failed to show an association between HCV infection and oral lichen planus.[17] In alignment with this result, none of our patients was positive for HCV.

Lauritano et al.[18]'s study in 2016 demonstrated that females were more commonly affected with oral lichen planus than males, which is in alliance with previous literature, because of the autoimmune pathogenesis of the disease. The average age of onset was 59.2 years. The buccal mucosa was the most frequently affected location.[18] In short, the mean age of our patients was in alliance with the previous epidemiological data of oral lichen planus patients in the literature. Again, buccal mucosa was reported to be the most common localization similar to previous studies. In contrast to the previous works, we report a slight male predominance.

One previous study regarding the epidemiological characteristics of genital lichen planus patients by Cassol Spanemberg et al.[19] reported a series of 40 patients with genital lichen planus lesions in which 23 (57.5%) were women and 17 (42.5%) were men. The vulva was the most commonly affected part in females and glans penis was in males. Fifty-five percent of the lesions were erosive. Our series has 12 genital lichen planus patients. Of these, 8 (67%) were female and 4 (33%) were male; the mean age of the patients was 58.5 years. Ten (83%) of these 12 lesions were of the erosive subtype. All of the patients received topical therapy. Our study differs from Cassol Spanemberg et al.[19]'s study in which female patients have a higher percentage; likewise,

the erosive subtype was more common in our study. Cassol Spanemberg et al.[19] failed to report the mean age of the patients and omitted the keratotic subtype. Indeed, novel studies with greater sample sizes are needed.[19]

Conclusion

Our oral lichen planus patient series was similar to the previous literature in terms of the age and localization; however, we observed a male predominance unlike the previous articles. HCV positivity was not observed in any of our patients. To our knowledge, our article is one of the few articles to study genital lichen planus.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of İstanbul University-Cerrahpaşa (Date: December 3, 2020, No: 158708).

Informed Consent: Written informed consent was obtained from the parents of the patients who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – Ö.A., B.E.; Design – Ö.A., B.E., Z.K.; Supervision – Ö.A., T.K.Ü.U., B.E., Z.K.; Resources – B.E., Z.K.; Materials – D.Ö., Ö.K.; Data Collection and/or Processing – D.Ö., Ö.K.; Analysis and/or Interpretation – D.Ö.; Literature Search – D.Ö., T.K.Ü.U.; Writing Manuscript – D.Ö.; Critical Review – Ö.A.

Conflict of Interest: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

Etik Komite Onayı: Bu çalışma için etik komite onayı İstanbul Universitesi-Cerrahpaşa'dan (Tarih: 3 Aralık 2020, No: 158708) alınmıştır.

Hasta Onamı: Yazılı hasta onamı bu çalışmaya katılan hastaların ailelerinden alınmıştır.

Hakem Değerlendirmesi: Dış bağımsız.

Yazar Katkıları: Fikir – Ö.A., B.E.; Tasarım – Ö.A., B.E., Z.K.; Denetleme – Ö.A., T.K.Ü.U., B.E., Z.K.; Kaynaklar – B.E., Z.K.; Malzemeler – D.Ö., Ö.K.; Veri Toplanması ve/veya İşlemesi – D.Ö., Ö.K.; Analiz ve/veya Yorum – D.Ö.; Literatür Taraması – D.Ö., T.K.Ü.U.; Yazıyı Yazan – D.Ö.; Eleştirel İnceleme – Ö.A.

Çıkar Çatışması: Yazarlar çıkar çatışması bildirmemişlerdir.

Finansal Destek: Yazarlar bu çalışma için finansal destek almadıklarını beyan etmişlerdir.

References

1. Le Cleach L, Chosidow O. Clinical practice. Lichen planus. *N Engl J Med*. 2012;366(8):723-732. [CrossRef]
2. Tziotzios C, Lee JYW, Brier T, et al. Lichen planus and lichenoid dermatoses: clinical overview and molecular basis. *J Am Acad Dermatol*. 2018;79(5):789-804. [CrossRef]
3. Carrozzo M, Porter S, Mercadante V, Fedele S. Oral lichen planus: A disease or a spectrum of tissue reactions? Types, causes, diagnostic algorhythms, prognosis, management strategies. *Periodontol. 2000*. 2019;80(1):105-125. [CrossRef]
4. Kusari A, Ahluwalia J. Lichen Planus. *N Engl J Med*. 2018;379(6):567. [CrossRef]
5. Davari P, Hsiao HH, Fazel N. Mucosal lichen planus: an evidence-based treatment update. *Am J Clin Dermatol*. 2014;15(3):181-195. [CrossRef]
6. Zendell K. Genital lichen planus: update on diagnosis and treatment. *Semin Cutan Med Surg*. 2015;34(4):182-186. [CrossRef]
7. Adamo D, Calabria E, Coppola N, et al. Psychological profile and unexpected pain in oral lichen planus: A case-control multicenter SIPMO studya. *Oral Dis*. 2021. [CrossRef]
8. Lozada-Nur F, Miranda C. Oral lichen planus: epidemiology, clinical characteristics, and associated diseases. *Semin Cutan Med Surg*. 1997;16(4):273-277. [CrossRef]
9. Busschots D, Toghanian S, Bielen R, et al. Eliminating viral hepatitis C in Belgium: the micro-elimination approach. *BMC Infect Dis*. 2020;20(1):181. [CrossRef]
10. Eisen D. The clinical features, malignant potential, and systemic associations of oral lichen planus: a study of 723 patients. *J Am Acad Dermatol*. 2002;46(2):207-214. [CrossRef]
11. Xue JL, Fan MW, Wang SZ, et al. A clinical study of 674 patients with oral lichen planus in China. *J Oral Pathol Med*. 2005;34(8):467-472. [CrossRef].
12. Barbosa NG, Silveira ÉJ, Lima EN, et al. Factors associated with clinical characteristics and symptoms in a case series of oral lichen planus. *Int J Dermatol*. 2015;54(1):e1-e6. [CrossRef]
13. Al Robaee AA, Al Zolibani AA. Oral lichen planus and hepatitis C virus: is there real association? *Acta Dermatovenerol Alp Pannonica Adriat*. 2006;15(1):14-19.
14. Chainani-Wu N, Lozada-Nur F, Terrault N. Hepatitis C virus and lichen planus: a review. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2004;98(2):171-183. [CrossRef]
15. Carrozzo M, Gandolfo S, Carbone M, et al. Hepatitis C virus infection in Italian patients with oral lichen planus: a prospective case-control study. *J Oral Pathol Med*. 1996;25(10):527-533. [CrossRef].
16. Dupond AS, Lacour JP, Lafont C, Ortonne JP. Prevalence of hepatitis C virus in oral erosive lichen. *Ann Dermatol Venereol*. 1998;125(10):676-678.

17. Nosratzahi T, Raiesi M, Shahryari B. Lack of association between oral Lichen Planus and hepatitis B and C Virus infection - a report from Southeast Iran. *Asian Pac J Cancer Prev*. 2018;19(6):1633-1637. [CrossRef]
18. Lauritano D, Arrica M, Lucchese A, et al. Oral lichen planus clinical characteristics in Italian patients: a retrospective analysis. *Head Face Med*. 2016;12:18. [CrossRef]
19. Cassol-Spanemberg J, Blanco-Carrión A, Rodríguez-de Rivera-Campillo ME, et al. Cutaneous, genital and oral lichen planus: A descriptive study of 274 patients. *Med Oral Patol Oral Cir Bucal*. 2019;24(1):e1-e7. [CrossRef]