Journal of Pakistan Association of Dermatologists 2012;**22**:30-34.

Original Article

Frequency of oral lichen planus in patients with noninsulin dependent diabetes mellitus

Ijaz Ahmed*, Sarwat Nasreen*, Umer Jehangir, Zarnaz Wahid†**

*Department of Dermatology, Ziauddin University, Karachi.
**Department of Medicine, Ziauddin University, Karachi.
†Department of Dermatology, Dow University of health Sciences, Karachi.

Abstract

Background The association between diabetes mellitus and lichen planus (LP), especially oral lichen planus, has been the subject of much research but the conclusion is controversial. The reported frequency of oral LP in diabetes mellitus varies from 1.6% to 85%.

Objective To determine the frequency of oral lichen planus in patients with noninsulin dependent diabetes mellitus as compared with normal subjects.

Patients and methods Freshly registered cases of noninsulin-dependent diabetes mellitus with suspected lesions of oral lichen planus, fulfilling the selection criteria, belonging to both sexes, aged 40-70 years were enrolled. After an informed consent, enrolled patients were examined following a detailed history and were subjected to biopsy and histopathology. Any relevant investigations were performed where required. An equal number of age- and sex-matched controls were also studied for oral LP.

Results 86 patients comprising 49 (57%) females and 37 (43%) males, aged 40 to 70 years, mean age being 51.3 years, were studied in three age groups i.e. 40-50 years, 51-60 years and >60 years. Among these patients 8 (6.9%) had histopathologically confirmed oral lichen planus ($P<0.05$). Only 1 (1.2%) subject from the control group had the histopathologically confirmed disease. There were 5 females (62.5%) and 3 males (37.5%). Buccal mucosa was involved in 7 patients (87.5%).

Conclusion Oral lichen planus has a significant association with noninsulin dependent diabetes mellitus as compared to normal population.

Key words
Oral lichen planus, noninsulin-dependent diabetes mellitus, Lichen planus.

Introduction

Diabetes mellitus is a chronic disease involving multiple systems of the body with cutaneous manifestations being quite common.[1] Lichen planus (LP) is a mucocutaneous disorder, with intraoral manifestations being a regular feature. Skin lesions prevail along with oral mucosal lesions. Prevalence of lichen planus, as an oral disease, is 1-2%. Oral lichen planus has been reported to occur independently from the cutaneous form and tends to be persistent and resistant to treatment.[2] Lateral border, dorsum of tongue, gingiva, hard palate and vermilion border are the common sites of involvement and manifests as reticular, plaque-like or papular intraoral lesions.[3] Buccal mucosa however, remains the most common site of involvement.[4] The association between diabetes mellitus and LP, especially oral LP, has been the subject of

Address for correspondence
Dr. Ijaz Ahmed
36/2, Khayaban E Shujaat,
DHA Phase V, Karachi.
E mail: ramza.ijaz@gmail.com
ijaza_az@hotmail.com
Ph# 0322-2815054

much research.[5,6] Autoimmune background of LP as well as diabetes mellitus supports similar pathogenesis for both the diseases.[7,8] Oral LP has been reported in insulin-dependent diabetic patients as well as in patients with noninsulin-dependent diabetes mellitus (NIDDM) but with a higher frequency in comparison with normal subjects. The relationship between oral LP and diabetes mellitus although extensively studied has revealed controversial results.[8] The frequency of oral LP in diabetes mellitus has been reported to be variable from 1.6%[9] to 85%.[10] However, some studies verify this association and others do not.[10] Cutaneous manifestations of diabetes mellitus have also been studied in our country.[11,12] Wahid *et al*.[11] reported a low frequency of oral LP in patients with diabetes mellitus. Likewise Bajaj *et al*.[2] also reported a nonsignificant association of the two conditions in our part of the world.

Therefore, it can be emphasized that oral LP has an association with diabetes mellitus irrespective of its subtype. So, studies have been conducted worldwide on this association. However, there is a relative lack of data regarding the frequency of oral lichen planus in patients with diabetes mellitus in our part of the world. Current study was targeted to determine the frequency of oral LP in patients with NIDDM as compared with a control population.

Patients and methods

Current clinicopathological study was conducted on patients attending outpatient department of Dermatology and outpatient department of Medicine, Ziauddin University Hospital, KDLB Campus, Karachi. Duration of the study was 6 months from 1st October 2010 to 31st March 2011. Patients referred from medical outpatient department suffering from NIDDM with suspected lesions of oral lichen planus were enrolled. Patients were selected by non-probability consecutive sampling. Patients aged 40 to 70 years, belonging to both sexes with NIDDM of duration more than 5 years were included. Only freshly registered known cases of noninsulin dependent diabetes mellitus were included in the study. Patients taking corticosteroids or immunosuppressive drugs were excluded. Patients with past history of addiction or intake of drugs predisposing to lichenoid eruptions were also ruled out. Patients suffering from any other dermatological or systemic disease were also excluded.

After an informed consent, selected patients were examined following a detailed history. In all these clinically diagnosed cases, scrapings were taken for microscopy with KOH to rule out oral candiadiasis. All the clinically suspected patients were subjected to biopsy and histopathology for confirmation of oral lichen planus.[13] Any relevant investigations were performed where required. The findings were recorded on a predesigned pro forma. An equal number of age- and sex-matched controls were also studied in order to compare the frequency with normal subjects.

SPSS version 10 was used to analyze the data. Variables included were presence or absence of oral lichen planus, age, sex and duration of diabetes.

Effect modifiers were controlled through stratification of age in groups of 40-50 years, 51-60 years, and > 60 years, gender (male and female) and duration of diabetes (5-10 years, 11-15 years, and more than 15 years) to observe effect on the outcome.

Results

A total of 86 patients were enrolled for the study comprising 49 (57%) females and 37 (43%) males. Patients enrolled aged between 40 to 70 years with the mean age being 51.3 years. Patients were studied in three age groups i.e. 40-50 years, 51-60 years and >60 years (**Table 1**). Among these groups 51 patients (59.3%) were aged between 40-50 years, 29 (33.7%) were in the age group 51-60 years and remaining 6 patients (7%) were aged above 60 years. The duration of diabetes from the date of diagnosis was 5-10 years in 72 (83.7%) patients and 11-15 years in 14 (16.3%) patients (**Table 1**).

Among these patients 8 (6.9%) had histopathologically confirmed oral LP planus (P<0.05). Only 1 (1.2%) subject from the control group had the histopathologically confirmed disease. There were 5 (62.5%)females and 3 (37.5%) males. Buccal mucosa was involved in 7 (87.5%) patients while gingival mucosa in 3 (37.5%) patients. Among the patients presenting with oral lichen planus 6 (75%) patients were in the age range 40-50 years, 2 (25%) patients between 51-60 years while none of the patients aged above 60 years had oral lesions.

Seven of these (87.5%) patients had diabetes for 5-10 years and 1 (12.5%) had the same for 11-15 years.

Table 1 Age groups and duration of illness in the study population (n=86).

	N (%)
Age (years	
40-50	51 (59.3)
51-60	29 (33.7)
>60	6 (7)
Duration of disease (years)	
5 -10	72 (88.7)
11-15	14 (16.3)

Discussion

With an estimated 60 million people worldwide, all populations and age groups are affected by diabetes mellitus,[14] It has been estimated by World Health Organization (WHO) that its incidence will rise to 300 million by the year 2025.[15,16] Oral LP is a chronic debilitating form of the disease with a protracted course.[2]

Buccal mucosa remains the most common site of involvement but lower lip, tongue, hard as well as soft palate, gingiva and floor of mouth may also be affected.[2] Oral LP has been reported in insulin dependent diabetics as well as in patients with NIDDM but with a higher frequency in comparison with normal subjects. Much research work is being done on the association between diabetes mellitus and oral LP.[5,6] Autoimmune background of LP as well as diabetes mellitus further supports the association.[7,8] The relationship between oral LP and diabetes mellitus although studied extensively still remains controversial. [8]

In the current study, among the 86 patients studied, 8 (6.9%) patients and 1 (1.2%) subject from the control group had histopathologically confirmed oral LP (P<0.05). Souza *et al*.[17] have reported the frequency of oral LP to be 6.1% in NIDDM as compared to controls. Therefore, the finding in our study is comparable to the study mentioned. However, Van Dis *et al*.[9] have reported a comparable frequency of 4% and 3% in noninsulin dependent diabetics and the controls, respectively.[9] In another study, the frequency of oral LP in a similar set of patients was 2.8% as compared to the control group (1.8%).[18] Therefore, the finding in our study is statistically significant in contrast to the studies mentioned.[9,18] On the contrary, Romero *et al*.[19] have reported a frequency as high as 27.4% in a similar series of patients. Therefore, it can be emphasized that the overall figures regarding the

frequency of oral LP in NIDDM are variable. Studies conducted in this regard irrespective of the type of diabetes mellitus have revealed a wide variation ranging from 1.6% to 85%.[9,19,20,21]

The association of diabetes mellitus and LP has also been studied the other way around.[22] Ara *et al*.[22] have observed that 10% of the patients with oral LP turn out to be suffering from diabetes mellitus. Thus studies conducted either way prove the association and an autoimmune background of diabetes mellitus as well as oral LP.[22]

In our study, more females were affected as compared to males. The finding in our study is comparable to the report from Souza *et al*.[17] However, higher number of females in the original sample size may also account for the female preponderance.[21] There are other studies not mentioning the sex related incidence of this association.[22]

In this study, buccal mucosa and gingival mucosa were the only sites of involvement and buccal mucosa had a higher frequency. Ara *et al*.[22] also reported buccal mucosa to be involved with the highest frequency i.e. 96%. Furthermore gingival mucosa was involved in 12% of the patients in the study mentioned.[22] Therefore, our findings are comparable to the said study.[22] In general, buccal mucosa is reported to be the most common site for oral LP.[2] Eisen *et al*.[23] have also reported similar sites of involvement for oral LP.

Among the patients presenting with oral LP majority ranged in between the age 40-50 years. This finding is at par with those suggested by Ara *et al*.[22] Similarly, Souza *et al*.[17] have reported their association in the age range 40-50 years in a similar set of patients. Therefore the finding in our study is comparable to the studies mentioned.[17,22] Began *et al*.[24] have also reported a comparable age for a similar series of patients.

All the patients in our study suffering from diabetes mellitus and associated oral LP had diabetes mellitus for a period more than 5 years. This finding is consistent with the reports from Souza *et al*.[17] who claim that 75% of their patients had diabetes mellitus for a period more than 5 years.

Therefore, oral lichen planus has a significant association with noninsulin dependent diabetes mellitus as compared to normal subjects. Other reports also suggest a similar association between oral lichen planus and insulin dependent diabetes mellitus. Although systemic conditions are known to be associated with oral mucosal changes but a similar association with diabetes mellitus is still lacking.[21,25] However, the association of oral LP and diabetes mellitus remains a subject of research due to a common autoimmune background of both the diseases.

Conclusion

It can be concluded from the current study, that oral LP has a significant association with NIDDM mellitus as compared to normal population. Buccal mucosa remains the most common site of involvement. Majority of these patients have ages between 40-50 years and have a past history of diabetes mellitus for more than 5 years. However, further studies are required to confirm the association with both insulin dependent and noninsulin dependent types of diabetes mellitus.

References

1. Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes: Estimates for the year 2000 and projection for 2030. *Diabetes Care* 2004;**27**;1047-53.
2. Bajaj DR, Ahmed N, Devrajani BR *et al*. Oral lichen planus: A clinical study. *J Coll Physicians Surg Pak* 2010;**20**:154-7.
3. Rasool S, Katpur S, Ali A, Bashir F. Oral lichen planus. *J Coll Physicians Surg Pak* 2007;**17**:764-5.
4. Isaac JS, Qureshi NR, Isaac U. Oral lichen planus: A study of 150 cases. *Pak Oral Dental J* 2003;**23**:145-50.
5. Hattem S V, Aart H, Boots M A. Skin manifestations of diabetes. *Cleveland Clin J Med* 2008;**75**;772-87.
6. Chainani-Wu N, Silverman S, Lozada Nur F *et al*. Oral lichen planus: patient profile, disease progression and treatment responses. *J Am Dental Assoc* 2001;**132**:901-9.
7. Nasreen S, Ahmed I, Wahid Z. Associations of lichen planus. *J Pak Assoc Dermatol* 2007;**17**:16-20.
8. Manfredi M, McCullough MJ, Vescovi P *et al*. Update on diabetes mellitus and oral diseases. *Oral Dis* 2002;**10**:187-200.
9. Van Dis ML, Parks ET. Prevalence of oral lichen planus in patients with diabetes mellitus. *Oral Surg Med Oral Pathol Oral Radiol Endod* 1995;**79**:696-700.
10. Seyhan MO, Zcan H, Sahin I *et al*. High prevalence of glucose metabolism disturbance in patients with lichen planus. *Diabetes Res Clin Pract* 2007;**77**:198-202.
11. Wahid Z, Kanjee A. *Cutaneous manifestations of diabetes mellitus*. *J Pak Med Assoc* 1998;**48**:304-5.
12. Ahmed K, Muhammad Z, Qayyum I. Prevalence of cutaneous manifestations of diabetes mellitus. *J Ayub Med Coll* 2009;**21**:76-9.
13. Vander Meiji EH, Schepman KP, Vaander Waal I. The possible premalignant character of oral lichen planus and lichenoid lesions: a prospective study. *Oral Surg Oral Med Oral Radiol Oral Endod* 2003;**96**:164-71
14. Mansour A, Hamidi K, Al Aseady A. Prevalence of Pityriasis versicolor among diabetics in Basrah. *Arch Med Sci* 2008;**4**:443-6.
15. Eckhard M, Lengler A, Leirsch J *et al*. Fungal foot infections in patients with diabetes mellitus- results of two independent investigations. *Mycoses* 2007;**50**:14-9.
16. Naheed T, Akber N, Shehzad M *et al*. Skin manifestations amongst diabetic patients admitted in general medical ward for various other medical problems. *Pak J Med Sci* 2002;**18**: 291-6.
17. Souza AD, Leita AR, Neto RS *et al*. Diabetes mellitus and oral mucosa alterations: Prevalence and risk factors. *Diabetes Res Clin Prac* 2011;**92**;100-5.
18. Etrou Amerikuanao C, Markopolus AK, Belazi M *et al*. prevalence of oral lichen planus in diabetes mellitus in according to the type of diabetes. *Oral Dis* 1998;**4**;37-40.
19. Romero MA, Seone J, Varella Centelles P, Garcia Pola MJ. Prevalence of diabetes mellitus amongst oral lichen planus patients. Clinical and pathological characteristics. *Med Oral* 2002;**7**:121-9.
20. Albrecht M, Banoczy J, Dinya E, Tama S Jr. Occurrence of oral leukoplakia and lichen planus in diabetes mellitus. *J Oral Pathol Med* 1992;**21**:364-6.
21. Manesez Souza M G, Lopes Costa AL, Roncalli AG. Clinical study of oral manifestations and related factors in type II diabetes mellitus. *Braz J Otorhinolaryngol* 2011;**77**:145-52.
22. Ara SA, Mamatha GP, Rao B. Incidence of diabetes mellitus in patients with diabetes mellitus. *J Dental Clin* 2011;**3**:29-33.
23. Elisen D. The clinical features, malignant potential and systemic associations of oral lichen planus. *J Am Acad Dermatol* 2002;**46**;207-14.
24. Bgan-Sebastian J, Milian Masanet M, Pennarocha Diago M. A clinical study of 205 patients with oral lichen planus. *J Oral Maxillofacial Surg* 1992;**50**;116-8.
25. Torrente Castelles E, Figureido R, Berini Aytes L, Gay Escoda C. Clinical features of oral lichen planus. A retrospective study of 65 cases. *Med Oral Pathol Cir Bucal* 2010;**15**:685-9.