

Association of Diabetes Mellitus in Patients with Oral Lichen Planus. A Cross-Sectional Study

Diabetes Mellitus
in Patients with
Oral Lichen
Planus

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ABSTRACT

Objective: To find out the incidence of oral lichen planus in patients having diabetes mellitus.

Study Design: Cross-sectional Study.

Place and Duration of Study: This study was conducted at the Oral Medicine out-patient clinic in Islam Dental College, Sialkot over a span of eleven months from October 2020 to September 2021.

Materials and Methods: 500 diabetic patients with an age range of 45-65 years were examined clinically for the features of oral lichen planus using mouth mirror and explorer in the dental clinical settings. Patients having no pain with white striations on mucosa were considered for reticular lichen planus while patients having burning and pain were considered for ulcerative lichen planus.

Results: Among 500 diabetic patients, 18 patients (3.6%) were found with Oral lichen planus and these patients were having type II diabetes.

Conclusion: It was found that the prevalence of oral lichen planus in Diabetic patients was only 3.6% percent which is significant. But alone elevated sugar levels can't be the entire reason as other factors like stress, anxiety etc to which these diabetic patients might have been exposed can also play a role in causing this oral condition.

Key Words: Oral lichen planus, Diabetes mellitus, Grinspan's syndrome, White lesion

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INTRODUCTION

Oral lichen planus is a chronic muco-cutaneous disease targeting both the skin as well as oral mucous membrane. Oral lichen planus was first described in 1869 by Erasmus Wilson^{1,2}. It was considered to be the combination of two words "lichien" and "planus" meaning flat moss depending upon its clinical appearance. This condition has been classified into seven different clinical variants i.e, reticular, erosive, ulcerative, bullous, plaque like, popular and desquamative gingivitis^{3,4}. Among these seven clinical variants, reticular is considered to be the most commonly occurring with white striations on the oral mucosa called Wickham' striae⁵.

Out of these seven variants, reticular, plaque like and popular are considered to be asymptomatic while the

others exhibit clinical features including widespread ulceration with burning and pain⁶.

No exact etiology of the disease is known but it has various pre-disposing factors that can lead to or have clinical association with this oral pathology. Among various studied pre-disposing factors, one is considered to be diabetes mellitus^{7,8}.

Diabetes mellitus is a metabolic condition characterized by hyperglycemia due to absolute or relative deficiency of insulin along with polyuria, polyphagia and polydipsia^{9,10}. Insulin has a role in breaking sugar in the cells into energy and water. Absolute deficiency of insulin leads to type I diabetes mellitus while relative deficiency leads to type II diabetes mellitus¹¹.

It has been reported that diabetes mellitus is associated with oral lichen planus. In some of the patients, oral lichen planus, diabetes and hypertension co-exist leading to the condition called Grinspan's Syndrome¹². Diabetes is treated with oral hypoglycemic drugs and some of these can produce lichenoid drug eruptions which are clinically and histologically similar to oral lichen planus¹³.

MATERIALS AND METHODS

The study was conducted at out-patient clinic of oral medicine department at Islam dental college, Sialkot and 500 patients with an age range of 45-65 years were enrolled in the study. These patients are positive for diabetes mellitus and their blood glucose levels were

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measured and confirmed by tests. It was taken into care while including the patients in the study that they did not have any other systemic condition other than diabetes or diabetes related conditions. Dental mirror, dental unit, tweezer, explorer and gauze were used to examine the oral cavity of diabetic patients.

All the patients were clinically examined under the light using mouth mirror and oral lichen planus was diagnosed on clinical appearances along with features. No pain or burning with Wickham's striae was made criteria for diagnosing reticular pattern of oral lichen planus while burning, pain and ulceration with white striations was made for ulcerative lichen planus.

Inclusion Criteria: Patients having diabetes mellitus, no signs of malignancy or any other systemic illness and no mental illness were included in the study.

Exclusion Criteria: Patients having no diabetes, any other associated systemic condition, signs of malignancy, any other oral pathological lesion were excluded from the study.

RESULTS

Out of 500 patients, 170 (34%) were males and 330 (66%) were females. Among these diabetic patients 67 (13.4%) patients were having IDDM with 21 (31.34%) males and 46 (68.65%) females. Also, out of these patients, 433 (86.6%) had NIDDM with 102 (23.55%) males and 331 (76.44%) females (Table 1)

Table No.1: No of male and female patients according to type of diabetes

Gender	No. of diabetic patients	No. of patients with Type I DM	No. of patients with Type II DM
Male	170 (34%)	21 (31.34%)	102 (23.55%)
Female	330 (66%)	46 (68.65%)	331 (76.44%)
Total	500	67 (13.4%)	433 (86.6%)

Table No.2: No of male and female patients according to prevalence of oral lichen planus

Gender	No. of diabetic patients	Patients with Lichen planus
Male	170 (34%)	4 (22.22%)
Female	330 (66%)	14 (77.77%)
Total	500	18 (3.6%)

In the present study, out of 500 diabetic patients, 18 (3.6%) had oral lichen planus and all of these had non-insulin dependent diabetes. Out of these 18 (3.6%) patients, 4 (22.22%) were males while 14 (77.77%) were females showing more female predilection (Table 2). Among these 4(22.22%) diabetic males with lichen planus, 1 patient was in age range of 45-55yr, 2 were in age range of 55-60yr and 1 was >60yr.

Similarly, among females 2 were in age range of 45-55 yr, 4 were in 55-60yr and 8 were >60 year (Table 3).

Table No.3: No. of male and female oral lichen planus patients according to age

Age Range	Patients with Lichen planus	
	Male	Female
45-55 year	1	2
55-60 year	2	4
> 60year	1	8
Total	4	14

DISCUSSION

Various studies reported the prevalence of oral lichen planus in patients with diabetes mellitus with different percentages.

Bastos et al. study showed that many of the oral lichen planus patients had diabetes mellitus for more than five years¹⁴. Ara SA et al. and Bastos et al. also favored age as risk factor for oral lichen planus and in their studies they found this pathology as more prevalent in age of more than 50years¹⁵.

The disease has most often targeted middle and old aged group with more of female predilection.¹⁶ According to a study conducted by Maweri et al. the patient with healthy habits and positive for diabetes, the prevalence rate of oral lichen planus was found to be 0.5%.¹⁷ Similarly, Ahmed et al. showed that this prevalence rate in patients without smoking history was 9.3%.¹⁸

According to Bytzer P et al, this prevalence of oral lichen planus in diabetic patients was found to be more due to slow healing power of mucosa in metabolic conditions like diabetes as they found that a lesion normally takes a month to be get properly healed in control group takes two months to heal in patients with diabetes.¹⁹

With poor metabolic control the patient can have various diabetic complications that lead to tissue damage increasing the permeability of mucous membrane to various irritants leading to these pathological conditions.

A study was conducted by Grinspan in 1963, where he found 23 patients having oral lichen planus with diabetes and out of these seven patients were also having hypertension. He later on named the triad of diabetes, hypertension and oral lichen planus as Grinspan Syndrome.²⁰

Chalkoo et al. also conducted a study showing correlation of diabetes with oral lichen planus.²¹

Another study by Vivek Narayan et al. also showed prevalence of diabetes in patients with oral lichen planus. In this study, out of 2000 diabetic patients they found 15 patients having oral lichen planus.²²

In a meta-analysis study by Hamid Raz et al. they found the prevalence rate of oral lichen planus in diabetic patients was 0.5 to 9.3%.²³

CONCLUSION

This study showed the association between oral lichen planus with diabetes mellitus while there are studies where significant association may not be found probably due to varying age, gender, smoking or other systemic conditions. Moreover, not only the elevated blood glucose levels are associated with this oral condition but certain psychological factors like stress or anxiety should also be considered as these factors also increase blood glucose predisposing to oral lichen planus without diabetes. So emphasis should be made to inspect the oral cavity of diabetic patients to find these oral lesions.

Author's Contribution:

Concept & Design of Study: Muhammad Adeel
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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