Oral Lichen Planus: Relation with Transaminase Levels and Diabetes

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Abstract

Increase of transaminase levels was reported earlier in patients with oral lichen planus. A study was conducted in the department to assess the liver function status (transaminase levels) in oral lichen planus patients and any influence of diabetes mellitus on such cases.

Study was performed on 20 patients with different types of oral lichen planus as a study group and 20 control healthy group. Age and sex was randomly selected. All the patients were subjected to routine blood tests and urine analysis and the estimation of serum glutamic oxaloacetic transaminase (SGOT) and serum glutamic pyruvic transaminase (SGPT) levels. The values of SGOT and SGPT levels \leq 40 iu/L were considered within normal limits.

Seven patients (35%) with oral lichen planus had diabetes mellitus while three (15%) cases of the control group had diabetes mellitus (p = 0.04). Regarding SGOT and SGPT levels, it was elevated in 11(55%) cases and in 2 cases (10%) of the study group and control group respectively (p < 0.001). In relation to the type of oral lichen planus out of 8 erosive cases, 87.5%(7 cases) showed elevated SGOT/SGPT levels out of 12 nonerosive cases, 33.33% (4 cases) showed elevated SGOT/SGPT levels (p < 0.01).

We hence conclude that diabetes mellitus and elevated transaminase levels might be related to the development of oral lichen planus lesions. There is a strong association between elevated SGOT/SGPT levels and detection of erosive type of oral lichen planus.

Keywords: SGOT, SGPT levels, OLP, diabetes mellitus, oral lichen planus.

INTRODUCTION

Erasmus Wilson (1869) described lichen planus for the first time.¹ It is relatively common dermatological disorder occurring on skin and oral mucous membrane.² It refers to lace like pattern produced by symbolic algae and fungal colonies on the surface of rocks in nature (Lichens). Prevalence of lichen planus in general population is about 0.9 to 1.2% and prevalence of oral lichen planus is reported to between 0.1 to 2.2%. Lichen planus is a disease of adulthood but occasionally children are also affected.³⁻⁵ 70 to 77% cases present oral lesions who have dermatologic involvement.⁶

Lichen planus presents with characteristic violaceous, polygonal, pruritic papules on skin. The disease may affect mucosa, hair and nails as well. Lichen planus exhibits in various types like reticular, papular, plaque, atrophic, classical, erythematous, ulcerative, erosive, bullous, hypertrophied, annular, actinic, follicular and linear. Erosive lichen planus has been documented to be of premalignant nature but premalignant potential is thought to be controversial.^{7,8} Oral lichen planus can predispose to opportunistic infection by fungal microbes, Candida albicans have been thought to affect the patients with OLP. 9,10 Erosive lichen planus is stated to appear in association with chronic liver diseases. 11,12 In one study out of 187 patients, 40 showed increase of transaminase levels. 13 It is important to look for any impairment in liver function tests in case of erosive oral lichen planus as elevation of transaminase levels was reported in many studies conducted earlier. 14,15 The present study was taken up to look for any notable relation between transaminase levels and diabetes and oral lichen planus.

PATIENTS AND METHODS

Study was performed on 40 cases and subdivided into two groups:

a. Study group

b. Control group

Study Group

Study group consists of 20 patients with oral lichen planus selected from the outpatient department of Oral Medicine and Radiology. These patients were randomly selected from around 4680(0.43%) patients visiting in around two months. The mean age of the patients was 43 years and male female ratio was 3:1. All patients were subjected to histopathological exam for confirmation of the lesions.

Control Group

Control group consists of 20 patients (same age and sex distribution). A detailed history with importance to chief complaint and its duration, general health, previous drug therapy, unhealthy habits like pan chewing and cigarette smoking, dietary habits, oral hygiene status and mouth cleaning habits were recorded. A thorough clinical examination was carried out noting the type of the lesion, its extent and distribution, any associated skin lesions. Routine blood tests and urine examination were carried out in all the patients. Patients were subjected to the estimation of blood sugar (both fasting and random) and SGOT and SGPT levels. Subjects with fasting blood glucose > 120 mg/dl were classified having diabetes mellitus. The values of SGOT and SGPT levels > 40 iu/1 were considered having impaired liver function.

Statistical analysis using students 't' test in the case of quantitative data and Karl-Pearson's chi-square test in the case of qualitative data. P-value < 0.05 and CI (confidence interval) at 95% were considered statistically significant.

RESULTS

The study consists of 40 cases, 30 males and 10 females, mean age 43 years. Twenty patients with OLP were considered as study group and 20 volunteers as control group. Skin lesions were present in 2 cases of study group (10%) and all of them appeared after development of oral lesions.

Seven patients (35%) with OLP had diabetes mellitus while three (15%) cases of control group had diabetes mellitus. These differences were statistically significant (p=0.04). While considering the unhealthy habits like pan chewing, and cigarette smoking 7(35%) out of 20 patients reported with one habit at least in the study group. There were four patients (20%) with such history in control group (Table 1).

Of all patients with OLP 13 patients had chief complaint of burning sensation, 5 patients complained of discoloration of oral mucosa while in 2 patients lesions were noted incidentally. Lesions were present on buccal mucosa, tongue, palate and gingiva.





Figs 1A and B: Erosive lichen planus

Table 1: Relation between oral lichen planus and unhealthy habits

Unhealthy Habits	Study Group		Contr	ol Group	P-Value	
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Pan chewing	4	20	2	10	P > 0.05	
Smoking	7	35	4	20	P < 0.05	

Clinically 9 cases of OLP were reticular type, 8 cases were erosive type (Figs 1A and B) 2 cases were atrophic and one case of bullous type.

Regarding SGOT and SGPT levels, elevated levels were seen in 11(55%) cases of study group and 2(10%) cases in control group (Table 2). These differences were significant (p < 0.001).

From Table 2, it is seen that 7(70%) out of 10 patients in the study group with unhealthy habits had elevated SGOT/SGPT levels, while 4(40%) out of 10 with no habits had elevated SGOT/SGPT levels. In relation to the type of OLP, out of 8 erosive cases 87.5% (7 cases) showed elevated SGOT/SGPT levels. Out of 12 nonerosive cases, 33.33% (4 cases) patients showed elevated SGOT/SGPT levels (Table 3). These differences were statistically significant (p < 0.01).

DISCUSSION

OLP is a relatively common chronic mucocutaneous disorder and can affect any part of the oral mucosa. In this study also oral lesions preceded the appearance of skin lesions. The exact etiology of OLP is still unknown. The probable factors associated are anxiety, trauma, malnutrition, infection and autoimmunity. ^{16,17}

Oral lichen planus have shown association with tobacco habit. Chewers of tobacco and betel have increased prevalence of OLP. Smoking has been thought to have important role in initiating OLP. Diabetes mellitus have been speculated to be associated with oral lichen planus. In the present study also diabetes mellitus was seen in 35% of patients in study group compared with 15% cases of control group. The correlation between OLP and diabetes mellitus and higher prevalence in study group could be due to higher percentage of prevalence of diabetes in the general population of this area of the country, i.e. Kashmir province of J and K. this is further augmented by seeing notable percentage of diabetes mellitus in the control group of this study. Regarding habits like pan chewing and smoking, it was observed that those with the habit of smoking had an increased chance of getting OLP (Table 1).

The prevalence of liver disease in lichen planus varies widely in the literature with respect to transaminase activity. ^{18,19} In the present study 11 patients (55%) with OLP showed elevated SGOT/SGPT levels. Only two patients (10%) showed elevated SGOT/SGPT levels in the control group. Therefore an association can be expected between SGOT/SGPT levels and detection of oral lichen planus as per study.

To assess association between unhealthy habits and SGOT/SGPT levels in this study it was seen out of 10 patients with unhealthy habits 7 (70%) had elevated SGOT/SGPT levels. The corresponding percentage in control group was 50%. No



Table 2: Unhealthy habits

Group	Present					Absent							
	SGOT/SGPT Level											Total	
	n		Normal		Elevation		n		Normal		Elevation		
Study	10	50	3	30	7	70	10	50	6	60	4	40	20
Control	2	10	1	50	1	50	18	90	17	94.44	1	5.55	20

statistical significance in this case was noted in the present study.

Regarding relationship between transaminase levels and type of OLP about 87.5% patients with erosive forms showed elevated SGOT/SGPT levels and 33.33% patients showed nonerosive forms of OLP. These findings are suggestive enough to indicate that in presence of severe liver pathologies leading to change in SGOT/SGPT levels (increase) there is greater tendency to development of aggressive OLP lesions. From this, it can be inferred that the association of oral lichen planus with liver disorders is not a mere coincidence. Similar observations have been reported earlier also.²⁰

To summarise, the etiology of OLP might be related to elevated transaminase levels diabetes mellitus and probably to smoking and pan chewing. There is a clear and strong association between increased levels of SGOT/SGPT and formation of erosive forms of oral lichen planus.

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Table 3: SGOT/SGPT level

Type of	Ele	vated	No	rmal	Total	
lesion	n	%	n	%		
Erosive	7	87.5	1	12.5	8	
Nonerosive	4	33.33	8	66.67	12	

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