

# Prevalence of Oral Lichen Planus: A Hospital based Study

Owais Gowhar<sup>1</sup>, Tasneem S. Ain<sup>2</sup>, Saima Sultan<sup>3</sup>

## ABSTRACT

**Introduction:** The purpose of this study was to find out the prevalence of oral lichen planus in those diabetic patients who visited dental department of community health centre (Gousia hospital, khanyar) Srinagar, Kashmir, India from January 2016 to Sept 2017. Diabetic patients with a homogenous range of age, gender and race were examined for presence of clinical oral lichen planus. Patient medication histories were additionally obtained.

**Material and methods:** 1000 diabetes patients were enrolled for the study. The subjects were examined for the presence/absence of oral lichen planus and the data was recorded and analysed.

**Results:** Out of 1000 diabetic patients 12 (1.2%) were having oral lichen planus and 11 patients belonged to type II diabetes mellitus. Among the subjects suffering from Type I Diabetes, only one patient was diagnosed of having oral lichen planus. Out of 12 (1.2%) patients having oral lichen planus four patients were having high blood pressure suggesting Grinspan's syndrome (33.3%).

**Conclusion:** The prevalence of oral lichen planus among diabetic patients was found to be 1.2%; additionally some patients had high blood pressure, that suggests the existence of Grinspan's syndrome. Many studies conducted previously, suggest that psychosomatic factors such as stress and anxiety are attributed to lichen planus and therefore the diabetic patients may get exposed to such factors thereby developing oral lichen planus.

**Keywords:** Stress, Oral Lichen Planus, Diabetes, Hypertension.

(Type I) and noninsulin dependent diabetes mellitus (Type II). It has been found that diabetic patients are associated with dermal and oral lesions of lichen planus. Hence, a triad of diseases can be seen in such patients like diabetes, hypertension and oral lichen planus, known as Grinspan's syndrome.<sup>9,10</sup>

In 1869, Erasmus Wilson described Lichen planus<sup>11</sup> as a chronic inflammatory dermatologic lesion with characteristic oral mucosal findings.<sup>12</sup> The dermal lesions appear as violaceous polygonal pruritic papules on the skin which rupture and form whitish lesion.<sup>13</sup> On healing, it produces violaceous scar. In skin, the lesion exhibits Koebner's phenomena.<sup>14</sup> Clinically six types of oral lichen planus are described till date namely reticular, papular, plaque type, atrophic/erosive, ulcerative and bullous type. OLP more commonly affects buccal mucosa, gingival and tongue and always has a bilateral and symmetrical distribution in the oral lesions.<sup>15,16,17</sup>

## MATERIAL AND METHODS

1000 diabetic patients, in age group of 35 to 60 years, visiting dental department of Govt Gousia hospital, from January 2016 till September 2017, for dental check up and various dental treatments were included in the study, after taking consent from the patients. The subjects were thoroughly examined for oral lesions using mouth mirror, electric lamp for illumination, probe, tweezers, cotton, gauze. Both males and females were included in this cross sectional study. Inclusion criteria comprised all those patients who were suffering from diabetes mellitus and were willing to participate in the study. Diabetic status of the subjects was confirmed by analyzing the sugar content in their blood and urine samples. All the diabetic patients suffering from other systemic diseases (other than hypertension) were excluded from the study.

Clinical features of oral lichen planus which were kept into consideration were such as bilateral lesion, white, reticulated, mucosal patch in the oral mucosa with

## INTRODUCTION

The precise etiology of oral lichen planus is unsure, however the immunological system is believed to play a major role in it with a prolonged clinical course despite varied treatment modalities.<sup>1,2</sup> The age of onset is sometimes between third and sixth decade of life and is remarkably seen in Asian population.<sup>3,4</sup> The prevalence of OLP is 1-2% within the general population whereas its prevalence in Indian population is 2.6%.<sup>5</sup> and is preponderantly seen in females.<sup>6,7,8</sup>

Diabetes mellitus is a metabolic and hormonal disease which is due to impaired carbohydrate metabolism with defective endocrine secretion of insulin from pancreas and is characterized by glycosuria, hyperglycemia, polydipsia, polyuria, and polyphagia due to the failure in utilization of sugar in the cellular metabolism. The sugar conversion to energy and water in the cell is done by insulin. Insulin has not much relevance in the failure of utilization of sugar though, the metabolism of sugar is affected by insulin, therefore diabetes is broadly divided as insulin dependent

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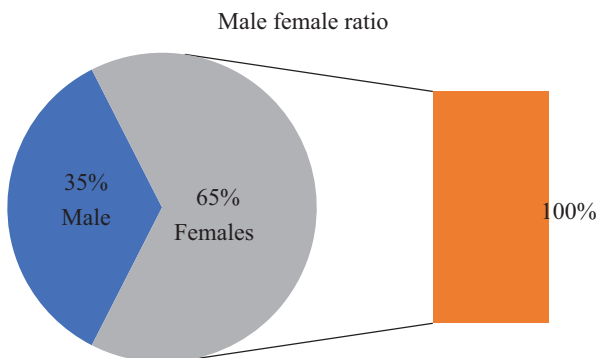
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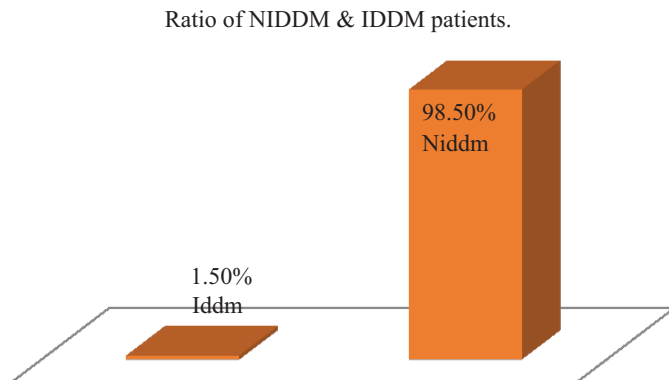
characteristic Wickham's striae for reticulated lichen planus; Localized violaceous white patches in groups were for annular lichen planus. White irregular outline associated with mild ulceration with continuous burning sensation for erosive lichen planus. Patients with clinically confirmed oral lichen planus were subjected to incisional biopsy. The biopsy specimen was subjected to histopathological analysis to confirm oral lichen planus.

## RESULTS

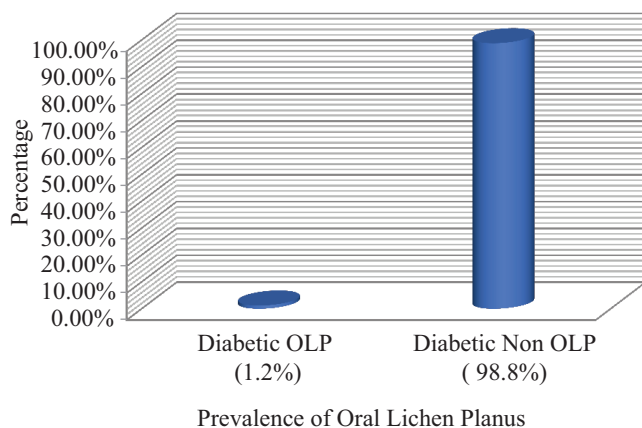
Among the 1000 diabetes mellitus patients 350 (35%) are males and 650 (65%) are females (Graph 1) and 15 (1.5%) patients suffering from insulin dependent diabetes mellitus of which 23% are males and 77% are females and 985 (98.5%) patients (Graph 2) are non insulin dependent



Graph-1: Frequency distribution of subjects based on gender



Graph-2: Frequency distribution of subjects based on type of Diabetes



Graph-3: Prevalence of oral lichen planus among study sample

diabetes mellitus patients of which 31% are males and 69% are females. In the present study, type II or noninsulin dependent diabetes mellitus patients were more in number. In our study, out of 1000 diabetic patients 12 (1.2%) patients were having oral lichen planus (Graph 3) and out of these 11 patients belonged to type II diabetes mellitus. Only one case of oral lichen planus was seen in type I diabetics. Out 12 (1.2%) patients having oral lichen planus four patients were having high blood pressure suggesting Grinspan's syndrome (33.3%).

Among 350 males, 2 (0.57%) diabetic patients were having oral lichen planus. Among 650 females, 10 diabetic patients (1.5%) were having oral lichen planus. Two male diabetes mellitus patients with oral lichen planus were in the age group of 45 to 55 years and 10 female diabetes mellitus patients with oral lichen planus were in age group of 30 to 45 years.

## DISCUSSION

Oral Lichen Planus (OLP) is a T-cell mediated autoimmune oral mucosal disease with high recurrence rate. The present study demonstrate the prevalence of OLP in a sample of kashmiri population. OLP may be present in multiple sites with bilateral buccal mucosa being the common site of involvement. We should be aware of the pathogenesis of lichen planus for proper diagnosis and treatment. In the present study, we could find the association of OLP with stress and illnesses like diabetes. Long term followup is necessary to monitor the recurrence, prognosis, and malignant transformation of OLP.<sup>18</sup>

OLP is potentially malignant disorder of the oral mucous membrane with chances of malignant transformation.<sup>19</sup> In a previous study, it was reported that 1.85% of 808 OLP patients in Italy developed oral carcinoma during the followup period.<sup>20</sup> 1.9% OLP patients in Britain developed oral squamous carcinoma<sup>21</sup> and 2.8% patients in Switzerland<sup>22</sup> showed oral carcinoma at a site with OLP lesions. A Saudi Arabian study showed malignant transformation in 5.41% of patients suffering from OLP.<sup>23</sup>

Ricardo F Bhorgelli et al<sup>24</sup> found the prevalence of lichen planus as 0.47% which is similar to the findings of present study. In the current study, Diabetes was recorded more in females than males which was in accordance to the results observed by Ricardo F Bhorgelli et al.<sup>24</sup>

A number of research studies showed OLP is more prevalent in DM patients although different prevalence percentages were observed in different studies 0.5 to 9.3% in DM patients and 0 to 1.8% in control subjects. Many studies done by researchers such as Potts et al.<sup>25</sup> and Robertson and Wray<sup>26</sup> observed OLP in diabetic patients is also associated with medications used among the patients. Majority of the OLP patients were seen to be in the age group of 4<sup>th</sup> and 5<sup>th</sup> decade of life which shows that age is also risk factor for OLP (Ara et al<sup>27</sup> and Bastos et al.<sup>28</sup> The difference in the frequency of OLP in various studies may be attributed to different study population, age group, study design and study settings.

## CONCLUSION

Lichen planus is an inflammatory skin disease with characteristic clinical and histopathological findings. In addition to classic LP, a myriad of LP variants exist, including oral, nail, linear, annular, atrophic, hypertrophic, inverse, eruptive, bullous, ulcerative, LP pigmentosus, lichen planopilaris, vulvovaginal, actinic, LP-lupus erythematosus overlap syndrome, and LP pemphigoides. The prevalence of oral lichen planus among diabetic patients was found to be 1.2%; additionally some patients had high blood pressure, that suggests the existence of Grinspan's syndrome. Many earlier studies suggest that psychosomatic factors like stress and anxiety are attributed to lichen and therefore the diabetic patients may get exposed to such factors thereby developing oral lichen planus.

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