A clinical study of 341 patients with oral lichen planus in North Bengaluru population

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Abstract

Background: Lichen planus is a chronic autoimmune disorder affecting the oral mucosa, skin, genital mucosa, scalp, and nails; most often seen affecting peri-menopausal women. This study provides useful data regarding the prevalence of oral lichen planus (OLP) in the North Bengaluru population including its type and gender distribution.

Aims and Objective: To provide useful data regarding the prevalence of OLP in the North Bengaluru population including its type and gender distribution (March 2013 to April 2016).

Methods: This hospital-based study recorded the cases which reported to the Department of Oral Medicine and Radiology March 2013 to April 2016. 341 cases of histologically confirmed OLP were analyzed for their gender and clinical form distribution as well as certain other parameters such as intraoral site involvement and symptoms.

Results: This study showed females being more affected by OLP with buccal mucosa being the most commonly involved site intraorally. The reticular form was the most common which was detected incidentally and erosive and atrophic forms showed maximum associated symptoms.

Conclusion: This study has highlighted the distribution of OLP among the Bengaluru population. Lichen planus is a white lesion of oral mucosa which can pose a confusing array of forms thereby mimicking other diseases. A long time follow-up is of utmost importance to detect its malignant transformation.

Introduction

Derived from Greek words “Leichen” means tree moss and Latin word “planus” means flat; lichen planus is a chronic autoimmune disorder affecting the oral mucosa, skin, genital mucosa, scalp, and nails. It is most often seen affecting peri-menopausal women usually in the age group of 30 and 60 years.[1] Lichen planus is estimated to affect 0.5-2.0% of the general population with a high incidence of 2.6% observed in the Indian subcontinent.[2]

There are 6 clinical types of lichen planus which include reticular, papular, plaque-like, erosive, atrophic, and bullous. The lesions are described using the six P’s (planar flat-topped, purple, polygonal, pruritic, papules, and plaques).[1]

This study provides useful data regarding the prevalence of oral lichen planus (OLP) in the North Bengaluru population including its type and gender distribution.

Clinical Study

This hospital-based study recorded the cases which reported to Department of Oral Medicine and Radiology, Sri Rajiv Gandhi College of Dental Sciences and Hospital, Bengaluru, with OLP from March 2013 to April 2016. A total number of 341 patients were diagnosed as OLP.

The detailed information regarding the first onset of oral signs or symptoms, skin involvement, approximate duration of the disease, family history of lichen planus (first-degree relatives), general health condition, habit history was reviewed and analyzed. In patients with more than one clinical type of lesions, for example, reticular and erosive, the more severe type (i.e., erosive) was used to classify the lesions. Exacerbating factors of OLP identified by either patients or the examiner were also noted. The precipitating factors that resulted in an exacerbation of the disease including stress, foods, dental
Clinical study of oral lichen planus in North Bengaluru population

Veerabasvaiah, et al.


167

cusp, systemic illness, poor oral hygiene, common flu, and medication.

Patients with oral lichenoid lesions caused by an identifiable cause such as a hypersensitivity reaction to dental restorative materials or drugs and charts that did not include histological confirmation of OLP were excluded from this study.

After taking photographs of the suspected intraoral lesions, they were biopsied and a final diagnosis of OLP was given after histopathologic examination. Statistical analysis was performed with the Chi-squared test for significance. The results were considered statistically significant if the \( P \leq 0.05 \).

Results

We encountered a total number of 341 cases of OLP (proven histopathologically) over a period of 4-year. This study showed a higher incidence of OLP in females than males as shown in Figure 1 (female: male = 1.8:1).

It was observed that the new number of cases (incidence) annually remained somewhat consistent ranging from 72 to 94 cases (21.1-27.5%) [Table 1].

Different types of OLP were encountered, which were analyzed systematically, and it was observed that reticular form predominated in both males and females accounting to approximately 58% of the total cases. This was followed by erosive and then bullous forms accounting for approximately 22-33% and 3%, respectively. Other than these clinical forms of OLP; lichenoid reactions were also seen in few cases, i.e. about 3-7% [Table 2].

When the three groups of patients with reticular, atrophic and erosive lesions were compared with each other, we found that there were highly significant differences in terms of duration of disease \( (P < 0.01) \) and symptoms \( (P < 0.005) \). Erosive lesions showed a significantly longer duration of disease \( (P < 0.05) \) and the symptoms associated with it were burning sensation, dysgeusia, swelling, irritation and bleeding.

Usually, erosive and bullous forms of OLP are symptomatic; wherein the patients present with complaints such as burning sensation, dysgeusia and loss of appetite. Similarly, in this study too, it was observed that most of the patients were asymptomatic and OLP was an incidental clinical finding (71%). Few cases (29%) were reported with the above-mentioned symptoms [Table 3].

The OLP lesions were frequently seen involving the buccal mucosa in a majority of the patients accounting for about 62% of the cases, followed by lesions on tongue accounting for around 30%. Other intraoral sites involved were lower labial mucosa, gingiva, and palate [Table 4]. Statistical analysis was performed for each of the three most prevalent sites (buccal, tongue and lip) showed no significant association between the site and the clinical form of the disease \( (P > 0.05) \).

Discussion

OLP is a chronic autoimmune disorder whose course, etiopathogenesis, and diagnostic criteria are not fully understood due to very few studies conducted regarding this entity.

Table 1: Prevalence from the year 2013-2016

<table>
<thead>
<tr>
<th>Year</th>
<th>Females</th>
<th>Males</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>55</td>
<td>39</td>
<td>94 (27.5)</td>
</tr>
<tr>
<td>2014</td>
<td>61</td>
<td>23</td>
<td>84 (24.6)</td>
</tr>
<tr>
<td>2015</td>
<td>59</td>
<td>32</td>
<td>91 (26.6)</td>
</tr>
<tr>
<td>2016</td>
<td>48</td>
<td>24</td>
<td>72 (21.1)</td>
</tr>
<tr>
<td>Grand total</td>
<td>223</td>
<td>118</td>
<td>341 (100)</td>
</tr>
</tbody>
</table>

Table 2: Prevalence of patterns from the year 2013-2016

<table>
<thead>
<tr>
<th>Patterns</th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reticular</td>
<td>128</td>
<td>72</td>
</tr>
<tr>
<td>Erosive</td>
<td>72</td>
<td>26</td>
</tr>
<tr>
<td>Bullous</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Lichenoid reaction</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Grand total</td>
<td>223</td>
<td>118</td>
</tr>
</tbody>
</table>

Table 3: Number of patients with and without symptoms

<table>
<thead>
<tr>
<th>Total patient (341)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptomatic</td>
</tr>
<tr>
<td>Asymptomatic</td>
</tr>
</tbody>
</table>

Table 4: Prevalence of predominant site involvement in patients of lichen planus

<table>
<thead>
<tr>
<th>Predominant site</th>
<th>Number of patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buccal mucosa</td>
<td>212 (62)</td>
</tr>
<tr>
<td>Tongue</td>
<td>102 (30)</td>
</tr>
<tr>
<td>Lower labial mucosa</td>
<td>20 (5)</td>
</tr>
<tr>
<td>Gingiva</td>
<td>4 (1.17)</td>
</tr>
<tr>
<td>Palate</td>
<td>3 (0.8)</td>
</tr>
</tbody>
</table>

Figure 1: The sample size of the patients
Furthermore, histopathological assessment of OLP is a rather subjective, which was demonstrated in a study.\(^3\)

The classic skin lesions of the cutaneous form of lichen planus can be described as purplish, polygonal, planar, pruritic papules, and plaques. These skin lesions commonly involve the flexor surfaces of the legs and arms, especially the wrists. The nail beds may also be affected, with resultant ridging, thinning and subungual hyperkeratosis. Scalp involvement, if untreated, can lead to scarring and permanent hair loss.\(^4\)

The oral manifestations of lichen planus have been described in the literature and can be classified into 3 types: Reticular lesions, including white lines, papules and plaques; atrophic or erythematous lesions; and erosive lesions, including ulcers and bullous lesions. Whereas reticular forms are usually asymptomatic and sometimes discovered during a routine oral clinical examination, the erythematous forms are painful, causing discomfort to the patient.\(^5\) Lichen planus is a T-cell-mediated autoimmune disease in which autoreactive CD8+ T cells trigger the apoptosis of oral epithelial cells. The CD8+ cytotoxic T cells may trigger keratinocyte apoptosis through activation of the cells by an antigen associated with major histocompatibility class I on basal keratinocytes.\(^2\) Sugerman et al. believe that specific and non-specific mechanisms may be involved in the etiopathogenesis. The specific mechanism involves the presentation of antigen by keratinocytes and death caused by cytotoxic T lymphocytes, and the non-specific mechanism includes degranulation of mast cells and activation of matrix metalloproteinases.\(^6\) OLP has been found to be associated with diseases and agents, such as viral (especially hepatitis C virus infection) and bacterial infections, autoimmune diseases, medications, vaccinations and dental restorative materials.\(^2\)

Many studies showed that some oral lesions diagnosed clinically or histologically as lichen planus in previous reports might actually have been lichenoid dysplasias, i.e., premalignant dysplasias with lichenoid appearances.\(^5\) In our study, we utilized the latest criteria proposed by Van der Meij et al. in 2003 based on the 1978 clinical and histopathological definition of OLP by the World Health Organization.\(^6\) The criteria include both histopathological and clinical features [Figure 2].

This study provides useful data regarding the prevalence of OLP in the North Bengaluru population including its type and gender distribution. We encountered a total number of 341 cases of OLP (proven histopathologically) over a period of 4-year.

On comparing our study groups, statistically significant differences were observed in some instances which proved to be very important. Greater differences were found on comparing sex distribution, i.e., reticular forms being more common in the female counterpart. An association of atrophic clinical presentations with age older than 60 years has been suggested.\(^9\) In this study, patients with erosive lesions showed a higher mean age than those with reticular or atrophic lesions and the mean duration of the former was found to be longer than latter. These results were very much in accordance with the study conducted by reported by Seoane et al.\(^10\)

Many reports have suggested that patients with lichen planus have associated diabetes more often than the general population. Grinspan et al. suggested that there was a link between OLP and diabetes too.\(^11\) However, our study and few others were in not agreement with their observation; though some of our patients had diabetes (within limits) when compared with the general population.\(^12\)

Although most patients with the reticular form were asymptomatic, 71% of our study groups were given the diagnosis of this form of the disease purely because of incidental clinical finding. This implies the high awareness of the issue of OLP among Indian oral physicians. Moreover, reticular lesions were histologically diagnosed as OLP more commonly than atrophic or erosive lesions when patients underwent several biopsies of different forms of OLP lesions. In 1981, Zegarelli proposed choosing a reticular lesion for biopsy when confirming the diagnosis.\(^13\) In OLP, atrophic and reticular lesions always surround or developed within all erosive lesions which is an important feature in clinically distinguishing OLP from other vesiculoerosive diseases such as pemphigoid and pemphigus. Similarly, only in OLP and oral discoid lupus erythematosus, reticular lesions and atrophic lesions coexist. We had not observed isolated atrophic lesions as Eisen did while Holmstrup et al. had reported some and suggested these lesions should be regarded as pre-cancerous.\(^14,15\)

The majority of the females affected were observed to be in the age group of 40-59 years. The low prevalence of OLP in younger age groups may be attributed to lower stress level, lack of much permanent dental restorations, simplicity in food habits and overall well-being of general health.

Buccal mucosa showed the site most commonly affected intraorally. This was followed tongue, the lower lip, gingiva and palate in the descending order of occurrence. Eisen had reported the most common site was the buccal mucosa, followed by the tongue, the gingiva and the lower lip. The discrepancy may be attributed to races and geography of the patients and the limitation of the samples.\(^14\) In our study, lichen planus confined to a single oral site was infrequent. In 1996, Allan and Buxton reported isolated lip lesions first, and we found 60 cases of isolated lip lesions, among which 37 cases were clinically
diagnosed as oral discoid lupus erythematosus and 30 cases with erosive lesion. The clinical features of isolated lip lesions of OLP are similar to those of oral discoid.\(^{(16)}\)

**Conclusion**

This study has highlighted the distribution of OLP among the Bengaluru population; along with certain other vital findings such as the gender distribution, symptomology and commonly affected oral site in lichen planus. Lichen planus is a white lesion of oral mucosa which can pose a confusing array of forms thereby mimicking other diseases. A long time follow-up is of utmost importance to detect its malignant transformation.

**Clinical significance**

Patients with OLP should be counseled about the causes, nature and course of the condition and response to different treatment modalities. Causative agents like dental restorations or drugs must be identified and proper corrective approaches should be followed. Patients experience high rates of recurrences after the cessations of the treatment and this should not discourage them for getting further treatment. Regular follow-ups allow the clinicians to examine and evaluate the patients thoroughly. Any suspicious lesions must be sent for biopsy for histopathological examination as there are high chances of transformation, in few forms of lichen planus, into squamous cell carcinoma.

**References**
