
Prevalence of recurrent oral lichen planus among patients - a retrospective study

SIVESH SANGAR¹, JAYANTH KUMAR VADIVEL^{2*}, VISALAKSHI RAMANATHAN³

¹Saveetha Dental College & Hospital, Saveetha Institute of Medical and Technical science, Saveetha University.Chennai-600077

²Reader, Department of Oral Medicine & Hospital, Saveetha Dental College, Saveetha Institute of Medical and Technical science, Saveetha University.Chennai-600077

³Senior Lecturer, Department of Prosthodontics, Saveetha Dental College & Hospital, Saveetha Institute of Medical and Technical science, Saveetha University.Chennai-600077

*Corresponding Author

Email ID: 151401095.sdc@saveetha.com¹, jayanthkumar@saveetha.com, visalakshirm.sdc@saveetha.com

Abstract: To determine the prevalence of recurrent oral lichen planus among patients with oral lichen planus visiting the outpatient Department of Oral Medicine and Radiology, Saveetha Dental Hospital, Chennai. Objective: The purpose of the study was to determine the prevalence of recurrent oral lichen planus among patients with oral lichen planus visiting the outpatient Department of Oral Medicine and Radiology, Saveetha Dental Hospital, Chennai.

Materials and Methods: A hospital based cross-sectional study was conducted by collecting data by reviewing patients data and analysing the data of 86000 patients between June 2019 and March 2020. 59 patients with oral lichen planus attending Saveetha Dental Hospital, Chennai were included in the study. The data were gathered through semi- closed ended questionnaires and clinical examinations. Results showed that the recurrence of oral lichen planus in female patients to be 57% and the prevalence of recurrence in male patients to be 50%. Data analysis was done using a chi square analysis between gender with prevalence of recurrent oral lichen planus (chi-square-0.563;df-1;p-0.461) we found the results were statistically not significant ($P > 0.05$) which implies that there was no association between the gender and recurrence of Oral lichen planus. Conclusion: Within the limits of the study, patients who have a recurrence of oral lichen planus seem to be more of the reticular and erosive variants of OLP. It remains to be seen if the erosive OLP has a tendency to develop into oral malignancies.

Keywords: Oral Lichen Planus, Prevalence , Recurrence

INTRODUCTION

The mouth is a mirror of health or disease, a sentinel or early warning system. The oral cavity might well be thought of as a window to the body because oral manifestations accompany many systemic diseases. In many instances, oral involvement precedes the appearance of other symptoms or lesions at other locations. (Mehrotra *et al.*, 2010) A poor oral hygiene is associated with the presence of several mucosal disease and which in turn can lead to the occurrence of systemic diseases. (Venugopal and Uma Maheswari, 2016; Rohini and Kumar, 2017) Most of the oral mucosa is derived embryologically from an invagination of the ectoderm and perhaps not surprisingly, this, like other similar orifices, may become involved in disorders that are primarily associated with the skin. (do Canto *et al.*, 2010; Dharman and Muthukrishnan, 2016)

The designation and description of the pathology were first presented by the English physician Erasmus Wilson in 1866. (Lavanya *et al.*, 2011) He considered this to be the same disease as “lichen ruber,” previously described by Hebra and characterized the disease as “an eruption of pimples remarkable for their color, their figure, their structure, their habits of isolated and aggregated development. (Gupta *et al.*, 2013) In 1892, Kaposi reported the first clinical variant of the disease, lichen ruber pemphigoides. (WILSON and E, 1869) In 1895, Wickham noted the characteristic reticulate white lines on the surface of Lichen planus papules, today recognized as Wickham striae. Darier is credited with the first formal description of the histopathological changes associated with Lichen planus. (Rhodus *et al.*, 2005)

The exact incidence and prevalence of lichen planus is unknown. In 1895, Kaposi noted the disease as “rather frequent” with 25 to 30 cases presenting annually. (Sharma *et al.*, 2012) In the United States, the incidence of lichen planus is reported to be approximately 1% of all new patients seen at healthcare clinics. The Indian Subcontinent has a particularly high incidence of the disease. LP is estimated to affect 0.5% to 2.0% of the general population, the prevalence being ranging from 0.5% selectively in Japanese population, 1.9% in Swedish

populations, 2.6% in Indian population and 0.38% in Malaysia (relatively uncommon). (Rosa and de Sousa, 2008; Patil *et al.*, 2018) The relative risk is 3.7% in people with mixed oral habits, lowest (0.3) in non- tobacco users of tobacco and highest (13.7%). (Muthukrishnan and Warnakulasuriya, 2018) OLP is considered to be an oral potentially malignant disorder. (Muthukrishnan and Bijai Kumar, 2017)

This disease has mostly been reported in middle- aged patients with 30- 60 years old age and is more common in females than in males. OLP is also seen in children, although it is rare. (Black, 1972) (Sr *et al.*, 2018) It affects all racial groups. However, according to some studies some, white individuals are five and a half times more likely to develop this disease compared to other races. OLP is also seen in children, although it is rare. It also affects all racial groups, with OLP occurring more frequently than the cutaneous form and tends to be more persistent and more resistant to treatment. Our team has rich experience in research and we have collaborated with numerous authors over various topics in the past decade (Deogade, Gupta and Ariga, 2018; Ezhilarasan, 2018; Ezhilarasan, Sokal and Najimi, 2018; Jeevanandan and Govindaraju, 2018; J *et al.*, 2018; Menon *et al.*, 2018; Prabakar *et al.*, 2018; Rajeshkumar *et al.*, 2018, 2019; Vishnu Prasad *et al.*, 2018; Wahab *et al.*, 2018; Dua *et al.*, 2019; Duraisamy *et al.*, 2019; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Gheena and Ezhilarasan, 2019; Malli Sureshbabu *et al.*, 2019; Mehta *et al.*, 2019; Panchal, Jeevanandan and Subramanian, 2019; Rajendran *et al.*, 2019; Ramakrishnan, Dhanalakshmi and Subramanian, 2019; Sharma *et al.*, 2019; Varghese, Ramesh and Veeraiyan, 2019; Gomathi *et al.*, 2020; Samuel, Acharya and Rao, 2020)

The purpose of the study was to evaluate the prevalence of recurrent oral lichen planus among patients with oral lichen planus visiting the outpatient Department of Oral Medicine and Radiology, Saveetha Dental Hospital, Chennai.

MATERIALS AND METHODS

In order to assess the prevalence of recurrent oral lichen planus among oral lichen planus patients visiting the dental OP of Saveetha Dental Hospital, Chennai. The 86000 case sheets were analysed and from the data set a total of 59 patients who have been diagnosed with oral lichen planus. Ethical approval for this study was obtained from the institutional ethical committee (ethical approval number: SDC/SIHEC/2020/DIASDATA/0619-0320).

The upside of this study is the presence of validated data as all the data were already recorded into the system. The downside of the study is the geographic restriction as the study was only conducted in one specific area/ region that is in and around Chennai, India. The data to be obtained is passed through the institutional ethics committee in Saveetha Dental Hospital, Chennai, India for ethical reviewing reasons.

They were 2 reviewers involved in the study with data taken from patients visiting Saveetha Dental Hospital from June 2019 to March 2020. Cross checking of data is done by random verification. Patients with incomplete follow ups are called on the telephone. Random verification is done for 10% of the patient samples.

The internal validity is done by creating a study design followed by complete data collection and validation of data. The external validity is done by creating a study design followed by setting up a clinical setup and creation of duplicatable data. Data collection was done by the SPSS software system with independent variables such as smoking and oral lichen planus. This is followed by SPSS software analysis to do Chi-square association analysis.

RESULTS AND DISCUSSIONS

A total of 59 patients belonging to the age group of 20 to 73 years of age reported to the Department of Oral Medicine and Radiology, Saveetha Dental Hospital, Chennai, India. The gender distribution when analysed shows 35 (59.32%) of the patients were females and 24 (40.67%) of the patients were males. (Fig 1).

There are various clinical variants present in oral lichen planus, they are; reticular, erosive, papular, bullous, ulcerative and pigmented. We made a correlation of the patients with oral lichen planus and found that 20 (33.8%) patients had reticular forms of OLP, 31 (53%) had erosive forms of oral lichen planus, the remaining 8 (14%) patients were divided into 3 (5%) pigmented and 3 (5%) papular clinical variants each. The remaining 2 (3%) patients are equally divided into 1 (1.5%) bullous and 1 (1.5%) ulcerative variants. A predominance of erosive form of oral lichen planus was seen. (Fig 2).

Out of the 59 patients, 35 (59%) were females and 24 (40%) males. We could observe that there were no significance differences between the gender population which shows that oral lichen planus does not have a predilection of gender. Out of the 35 females, 20 (57%) had a recurrence of oral lichen planus. For the males, out of the 24 patients with oral lichen planus, 12 (50%) of them had a recurrence, this shows that more than half of the patients had a recurrence of oral lichen planus. On a chi square analysis between gender with prevalence of recurrent oral lichen planus (chi-square-0.563;df-1;p-0.461) we found the results were statistically not significant ($P > .05$) which implies that there was no association between the gender and oral lichen planus. (Fig 3) In this study, we have found no significant difference regarding age and gender with oral lichen planus as the percentage of recurrences were closely matched, it differs however for clinical variants. We observed that patients who do not consume tobacco have a higher rate of erosive and reticular oral lichen planus clinical

variants forms compared to patients who consume tobacco. The recurrence rate of patients who have a history of smoking is lower than non- tobacco users. Based on a study by Kaomongkolit et al, out of the 75 women and 27 men, the age of OLP patients ranged from 20 to 81 years old with the mean age of 56.4+/- 13.2 years old. Most patients were non- smokers (98%), non- betel nut chewers were also 98%. The atrophic form (93.1) was the most common form of oral lichen planus. The lesions were mainly symptomatic (92.2%) and involved multiple locations (67.6%) where the buccal mucosa (79.4%) were primarily affected. (Kaomongkolgit et al., 2019)(Muthukrishnan, Kumar and Ramalingam, 2016)

Based on our study, the prevalence of recurrence of oral lichen planus was 54.2% in total of males and females with the prevalence of OLP among males being 50% and among females being 62.5% respectively. In both aspects, females have a higher prevalence of cases than males in both primary and recurrent oral lichen planus as seen in the study conducted by Kaomongkolit et al.(Subashri and Uma Maheshwari, 2016; Kaomongkolgit et al., 2019)

In the case of clinical variants of oral lichen planus, primary oral lichen planus have variants that can be divided into erosive, reticular and bullous while in recurrent oral lichen planus, the clinical variants are divided into erosive, reticular, papular, pigmented and ulcerative forms of oral lichen planus, this can be supported by the study Jo Andressan, which elaborated about a clinical examination of 115 cases of oral lichen planus has been presented. The observation period varied from 1 month to 10 years with an average of 2.5 years. Six clinical types of lesions in oral lichen planus were recognised: reticular, papular, plaque, ulcerative, erosive and bullous lesions. (Andreasen, 1968) Incidentally recurrent OLP cases are associated with genetic changes and salivary compositional changes. (Steele et al., 2015; Venugopal and Uma Maheswari, 2016; Maheswari et al., 2018)

The management of OLP consists of the administration of corticosteroid. In the initial stages corticosteroids are used in a topical fashion and if non responsive they are given in a systemic form. Apart from corticosteroids, steroid sparing immunomodulators also may be prescribed to the patients.(Andreasen, 1968) Apart from this supportive medication with vitamin C and other nutritional supplements have also found to be effective. VitaminC has been found to have an analgesic effect and also improve overall health of the mucosa.(Chaitanya et al., 2017, 2018)

The limitations found in the study are geographic restrictions as the patients are from around the same region. Besides, there was only a single ethnicity as the group of people are from the same ethnicity group.However there have been several studies from this database which have been used for several previous retrospective studies.(Choudhury et al., 2015; Misra et al., 2015; Subha and Arvind, 2019)

The future scope of research in OLP can be to study which variant of OLP has a higher recurrence potential and also if any mode of therapy can be considered to have a lesser recurrence potentialThe study can also be done over a longer period of time to see the difference in clinical variants present in patients with recurrent oral lichen planus.

Our institution is passionate about high quality evidence based research and has excelled in various fields ((Pc, Marimuthu and Devadoss, 2018; Ramesh et al., 2018; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Ramadurai et al., 2019; Sridharan et al., 2019; Vijayashree Priyadharsini, 2019; Mathew et al., 2020)

TABLES AND GRAPHS

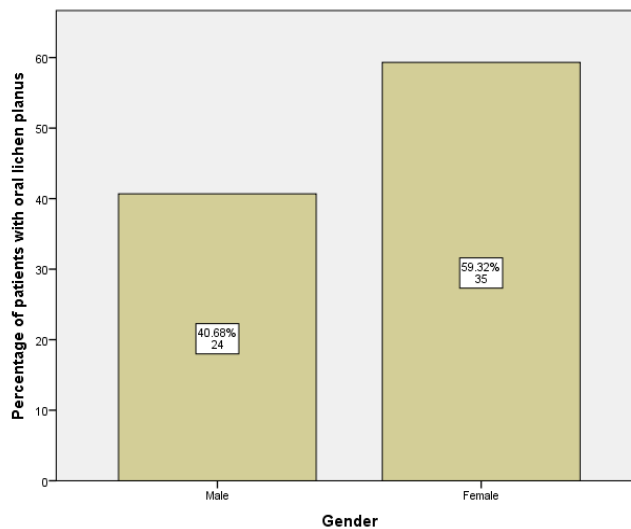


Fig.1: The graph bar shows the gender distribution of patients. X axis gives the gender and Y axis gives the count .The graph shows a predominance of female predilection (59.32%) of oral lichen planus.

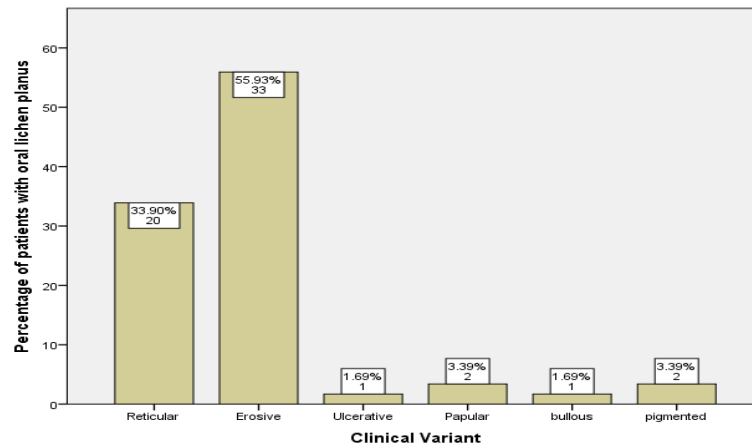


Fig.2: The graph bar shows the clinical variants distribution of patients. X axis gives the clinical variant and Y axis gives the percentage of patients with oral lichen planus. This graph shows the majority of patients (55.93%) with erosive oral lichen planus.

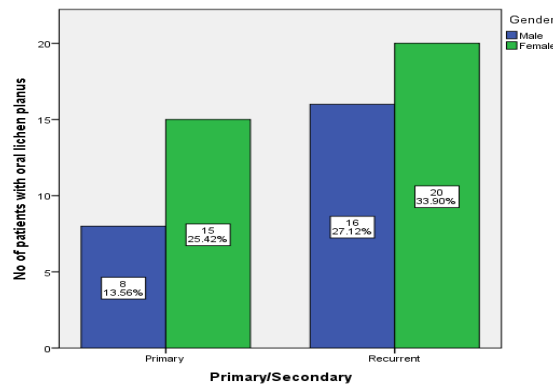


Fig.3: This is a bar graph showing the association between gender with prevalence of primary & recurrent oral lichen planus. X axis gives the primary and secondary oral lichen planus and Y axis gives the number of patients. The recurrence rate of oral lichen planus is higher in females. On a chi square analysis between gender with prevalence of recurrent oral lichen planus Chi-square-0.563;df-1;p-0.461,(P>0.05) we found the results were statistically not significant which implies that there was no association between the gender and recurrence of oral lichen planus.

CONCLUSION

OLP is a Mucocutaneous disorder which is associated with oral and skin lesions. Unlike the skin lesions the oral lesions are persistent and it has a tendency to recur and relapse over a period of time. Within the limits of the study, patients who have a recurrence of oral lichen planus seem to be more of the reticular and erosive variants of OLP. It remains to be seen if the erosive OLP has a tendency to develop into oral malignancies.

AUTHORS CONTRIBUTION

Sivesh Sangar contributed to the study design, data collection, data analysis, preparation of the manuscript. Jayanth Kumar Vadivel contributed to the study design, data collection, preparation of the manuscript. Visalakshmi Ramanathan contributed to the study design, preparation of the manuscript and proof reading.

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Conflict of interest

This research project is self funded. There is no conflict of interest.

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