

PREVALENCE OF EROSIIVE LICHEN PLANUS : A RETROSPECTIVE STUDY

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ABSTRACT:

Oral Lichen Planus(OLP) is a chronic inflammatory disease which has potential to transform into a malignancy mainly into squamous cell carcinoma. This study was done to evaluate the prevalence of erosive OLP among all OLP cases in a particular ethnic group of people. Materials and method :Data retrieved was from 86000 case sheets from saveetha dental college. The case sheets showed 94 patients with OLP. Most of the patients were in the age group of 50-60 years with a female predominance. 48 patients were erosive OLP variant. A chi square analysis showed erosive OLP had a tendency to occur more in the buccal mucosa($p<0.05$). A chi square analysis to compare gender was not significant($p>0.05$) This study shows that there is more prevalence of erosive OLP with a female predominance and affecting the buccal mucoa.

KEYWORDS:

Erosive oral lichen planus, epidemiology, oral lichen planus, reticular oral lichen planus,

INTRODUCTION:

Oral Lichen Planus(OLP) is a chronic inflammatory disease(Torrente-Castells *et al.*, 2010). It is an immune mediated oral disorder(Shirasuna, 2014). OLP is also considered as a potentially malignant disorder which shows 0.5% to 2% of malignant transformation(Mattsson, 2004). Etiology of OLP still remains unclear(Payeras *et al.*, 2013). OLP is considered to have a role of genetic and psychological factors. The infectious agents like Hepatitis C has also been associated with OLP in the Mediterranean region.It can affect all the racial groups(McCartan and Healy, 2008; Di Stasio *et al.*, 2014) The buccal mucosa, tongue and gingiva are the most commonly affected sites. OLP is more commonly seen in women in the ratio of 2:3. Clinical presentation can range from asymptomatic white keratotic lesions to painful erosions and ulcerations(Chaitanya *et al.*, 2017). It can present in a number of forms: reticular, papular, plaque-like, erosive, atrophic and bullous. The question of malignant transformation of OLP remains controversial and various studies have been done. The management can be non-surgical or surgical and the choice of treatment may vary from patient to patient and depends on the choice of the clinician(Chaitanya *et al.*, 2017). In several studies it has also been associated with oral malignancies.

Studies also suggest that there have been associations between OLP and a variety of systemic diseases such as alopecia areata, vitiligo, myasthenia gravis, chronic active hepatitis, primary biliary cirrhosis, multiple sclerosis and primitive pulmonary fibrosis OLP also has been particularly linked to

diabetes mellitus (DM) and hypertension. However, linkage between hypertension and OLP is still a debate and it has been suggested that the prevalence of OLP in hypertensive patients may be due to the anti hypertensive drugs they may be referred to as lichenoid reactions. And it has been suggested that the relationship between OLP and systemic diseases remains as a controversy as the evidence is so less and isolated.(Gonzalez-Moles, Scully and Gil-Montoya, 2008)

There are both antigen specific and non-antigen specific mechanisms in the formation of OLP. The antigens are captured by basal keratinocytes and presented to CD8⁺ cytotoxic T-cells. Apart from this the non-specific mechanisms are T cell accumulation in the superficial lamina propria, basement membrane disruption, intraepithelial T-cell migration, and keratinocyte apoptosis in OLP. These mechanisms may join together to cause T-cell accumulation in the lamina propria. The normal oral mucosa may be an immune protected side which when it breaks down causes OLP.(Al-Hashimi *et al.*, 2007)

The aim of this study is to evaluate the prevalence of erosive OLP among all other OLP in patients visiting a dental hospital.

MATERIALS AND METHODS:

The case records of 8600 patients visiting Saveetha Dental College were analysed and a total of 94 patients with OLP were analysed. Ethical clearance was obtained from the Institutional Ethical Committee of Saveetha Dental College prior to the study. The case sheets were analysed for the following variables of age, gender, type of OLP. In case of doubts or discordance of Data, the patients were contacted over the phone or asked to report back to the College to confirm the findings. All the statistics and analysis were done using SPSS software (version 20). All the descriptive analysis such as mean standard deviation and percentages were used to present the number of male and female subjects and demographic variables. Chi-square test was used to establish association between categorical variables of site, gender and clinical variant. The level of significance was fixed at 0.05 level.

The internal validity of the study was established as the data was collected from a verifiable and standardised database. The external validity is established as the data is from a clinical setup which is duplicatable.

RESULTS AND DISCUSSION:

Final study contained 94 patients from chennai. The age range between 20 - 80 years of age. Gender distribution was found to be female (n=53) and male (n=41) which clearly shows that OLP is more prevalent in females (Fig 1). Among the various types of OLP erosive (n=48) was found to be the most prevalent form of OLP. Prevalence of other type of OLP was found to be lichenoid (n=9), reticular (n=29) papular (n=1), ulcerative (n=2), pigmented (n=3), annular (n=1) and bullous (n=3). C

Prevalence of erosive lichen planus in females (31.91%) were found to be high when compared to males with (24.47%) Chi square test was performed to evaluate association between gender vs type of OLP correlation between gender and OLP shows there is a high prevalence of OLP in females, however no gender was at risk of developing a particular variant. ($p>0.05$). (Fig 2) A site based analysis of OLP shows that 65(69.15%) of cases occur in the buccal mucosa. A chi square association between the site and occurrence of OLP is statistically significant($p<0.05$) Fig 3

In a study conducted at Ljubljana A total 1609 subjects represented the study population in the survey about the periodontal treatment needs in a population in Ljubljana, conducted from 1983 to 1987. 555 (34.5%) of the subjects in the age range 25–75 years came for the clinical examination at the Department of Oral Medicine and Periodontology of the Dental Clinic in Ljubljana. They evaluated Oral

mucosal lesions and conditions according to the WHO Guide to Epidemiology and Diagnosis of Oral Mucosal Diseases and Conditions. They found by the results of that study that two or more oral mucosal lesions found to coexist in the same oral cavity in 61.6% of the population. Fordyce's condition was observed the most frequently (49.7%) and OLP with (2.3%) was found to be in least numbers when compared to other oral mucosal lesions (Muthukrishnan and Kumar, 2017). The most important complication of OLP is the capacity to manipulate into oral squamous cell carcinoma (OSCC) but this still remains a controversial matter. Out of the Four hundred and two patients with histologically confirmed OLP diagnosed from January 1988 to July 1999, were followed-up to the end of February 2001. The standardized incidence ratio (SIR) of OSCC was calculated for the entire cohort and specific for gender, type of OLP, therapy for OLP and hepatitis C virus (HCV) infection(Muthukrishnan and Kumar, 2017). The relative risk (RR) of OSCC according to HCV infection was also estimated in the cohort. During the follow-up period, two men (1.3%) and seven women (2.9%) developed an OSCC. This shows the transformation rate of oral OLP into oral squamous cell carcinoma is less but still it is one of the high risk complications(Choudhury, 2015).

OLP follows a chronic course, with periods of remissions and flare ups. The disease typically follows a waxing and waning phenomenon. The spontaneous remission is rarely ever seen(Misra *et al.*, 2015). Clinically, OLP has six different presentations, but the most common, in order of occurrence, are the erosive, reticular and atrophic types. Patients may present with involvement in other sites, such as the genitalia, the skin, and the nails. (Andreasen, 1968) The estimated prevalence of all OLP is about 1-1.5% which allows a female predominance and mostly occurs in the 6th decade of life(Zakrzewska, 2001). Usually shows up as bilateral/multilateral symmetrical lesions. OLP lesions can exist for years with periods of exacerbation(Sugerman and Savage, 2002). Various prevalence rates have been reported across the world. (Steele *et al.*, 2015) Incidentally there is no correlation between the usage of tobacco and the occurrence of the lesion.(Warnakulasuriya and Muthukrishnan, 2018)

OLP patients also exhibit poor oral hygiene, the reason for the same is not clearly understood if it is secondary to the lesion or the lesion occurs in response to poor oral hygiene.(Subashri and Maheshwari, 2016; Rohini and Kumar, 2017) There are also changes seen in the saliva in terms of microRNA content.(Maheswari *et al.*, 2018) The tissue also shows altered expression of matrix metalloproteinase levels which is associated with an increased ulceration of the tissue.(Venugopal and Maheswari, 2016)

The clinical presentations we studied in this study were in agreement with previous literature. Female predominance is seen which is also in agreement with other studies done before(Xue *et al.*, 2005; Ingafou *et al.*, 2006; Torrente-Castells *et al.*, 2010; Tovar *et al.*, 2013). The peak age was found to be between (40-60) years in both male and females. In this study we found higher incidence of red type OLP (reticular, erosive) which is also in agreement with previous studies(Ingafou *et al.*, 2006; Varghese *et al.*, 2016). But in contrast we found erosive OLP in higher numbers than reticular form which was found to be not similar to the studies done prior. This may suggest the involvement of vascular factors of OLP pathogenesis.

Diagnosis is usually based on the clinical history and presentation of a white, reticular, lace-like component, usually bilateral, and a biopsy for hematoxylin and eosin stain.(Andreasen, 1968) The salivary diagnostic tools also have been used for the diagnosis of the condition.(Maheswari *et al.*, 2018)

The treatment of OLP is for symptomatic patients; drugs, dosage and duration depend on the disease severity and the patient's medical history. The treatment of OLP is only for symptomatic while asymptomatic forms are mostly not treated. Corticosteroids are the most commonly used drugs. Other drugs, like calcineurin inhibitors, azathioprine, mycophenolate mofetil, retinoids, dapsone and hydroxychloroquine can be used in recalcitrant cases.(Mollaoglu, 2000) However corticosteroids are not

exclusively used for the management of OLP but also in cases of several immune mediated diseases like pemphigus, pemphigoid, erythema multiforme.(Dharman and Muthukrishnan, 2016; Muthukrishnan, Kumar and Ramalingam, 2016) Apart from this there are several other nutritional supplements like vitamin B complex and vitamin C are being used in the management of OLP.(Chaitanya *et al.*, 2017) Infact Vitamin C has excellent analgesic properties.(Chaitanya *et al.*, 2018)

OLP is considered to be a potentially malignant disorder(Warnakulasuriya, Johnson and van der Waal, 2007). The important complication of OLP is its development into oral squamous cell carcinoma(Fang *et al.*, 2009). In this present study we did not probe into dysplastic features of the lesion but given that chronic inflammation is associated with many types of cancer(Steele *et al.*, 2015). Malignant transformation of OLP may be dependent on the molecular stimuli from inflammatory infiltrate. These may induce basic changes in protein of oral epithelium and lead to the transformation of OLP into squamous cell carcinoma(Gonzalez-Moles, Scully and Gil-Montoya, 2008).

Limitations to this study included limitation to one geographic area and the limited amount of data acquired.However, there have been several studies done in the past from the existing data which had matched with the already well established literature data. (Patil *et al.*, 2018; Subha and Arvind, 2019).Further studies would be required to understand the type of therapies used in the different treatments of OLP and the efficacy of the same has to be studied.

CONCLUSION

In conclusion though we know that the observational studies have limitations. This study helps us to gain knowledge about the prevalence of OLP in middle aged women and erosive OLP was more common than other types.Erosive OLP was most commonly seen in the buccal mucosa. It is so necessary to understand the pathogenesis of OLP for treatment. Long term followup is needed to evaluate the recurrence, prognosis and the malignant transformation of OLP.

AUTHOR CONTRIBUTIONS

Santosh had contributed to the design of the study, data collection, analysis of data, results tabulation, manuscript preparation.

Jayanth Kumar had contributed to the design of the study, analysis of data, results, manuscript preparation.

Sankari had contributed to the design of the study, manuscript preparation, proofreading of the manuscript.

CONFLICT OF INTEREST

This research project is self funded and is not sponsored or aided by any third party.There is no conflict of interest.

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Graphs & Tables:

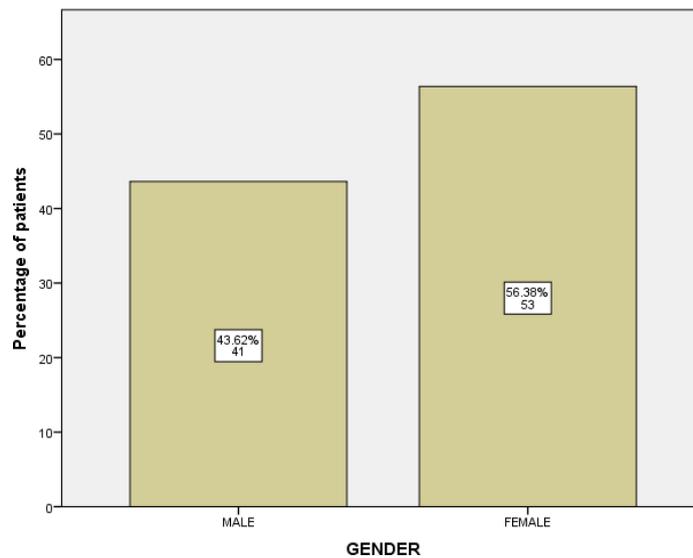


Fig 1: This graph represents gender distribution of the study subjects. This study had 41 males and 53 females. X axis represents the gender, Y axis gives the percentage of cases. Among the total cases 53 were females and 41 were males implying a female predominance

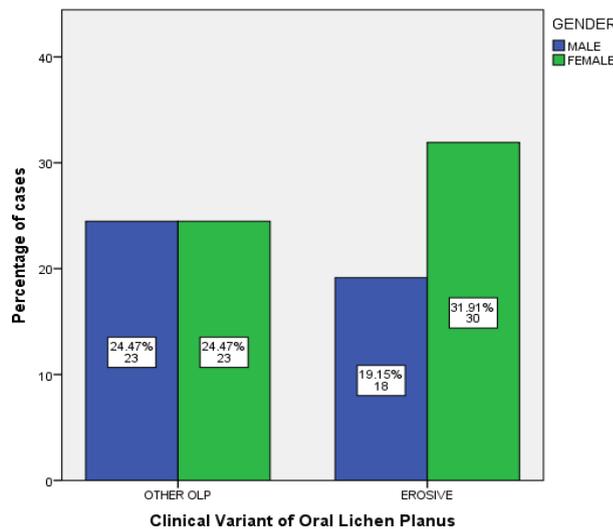


Fig 2: Bar graph shows the association between gender and type of OLP. X axis gives the variant of OLP, Y axis gives the percentage of cases. The erosive type accounted for 48(52.06%) of patients. The non-erosive OLP accounted for 46(48.94%). A chi square analysis shows (chi-square-1.496;df-1;p-0.22(p>0.05)) statistically not significant implying there is no specific gender at a higher risk of developing a particular variant of OLP.

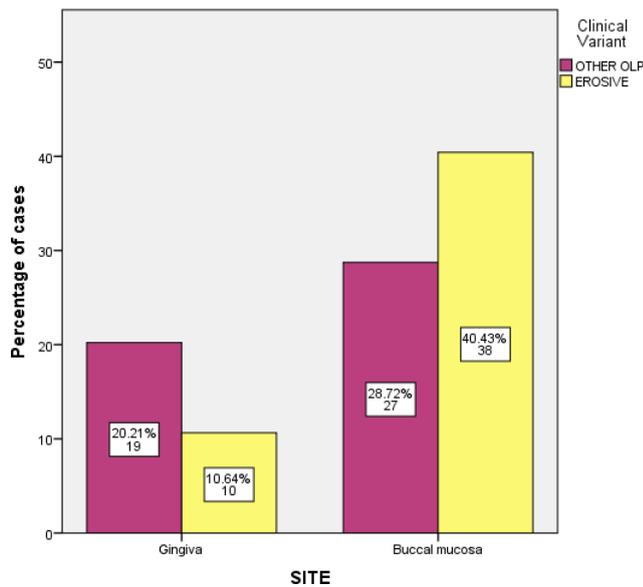


Fig 3: Bar graph showing the association between the site and clinical variant of OLP. X axis gives the site of occurrence and Y axis gives the percentage of cases. Blue colour represents all other variants of OLP and green colour represents the erosive OLP. It is seen in the buccal mucosa 27 cases are non erosive and 38 cases are erosive types of OLP. In the gingiva 19 cases are non erosive and 10 cases of erosive OLP. A chi square analysis shows (chi-square-3.704;df-1;p-0.04(p<0.05)) statistically significant implying that buccal mucosa has a higher number of erosive OLP.