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Prevalence Of Lichen Planus And Leukoplakia - A Hospital Based Study

Research Article

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Abstract

Lichen planus is a chronic immune mediated disorder affecting the oral and dermal parts of the body. Oral leukoplakia is a white plaque of questionable risk that carries risk for malignant transformation. The study was carried out in order to find correlation between the clinical variants with age and gender of patients with lichen planus and leukoplakia. The aim of this study is to evaluate the prevalence of lichen planus and leukoplakia among patients visiting the hospital.The study was conducted in a University set up in a Private dental College, Chennai. The study was a retrospective study with a sample size of 142. The data was collected from the hospital digital database by reviewing and analysing the case sheets of patients who visited the hospital between June 2019 to March 2020. The collected data was entered in an excel sheet and was tabulated using SPSS software version 19. Chi-square test was performed.It was observed that both the type, erosive type of lichen planus and the reticular type was prevalent in the female population (36.17% & 27.66% respectively). Erosive type of lichen planus was common at the age group 46-60years (36.17%) and the reticular type was common at the age group 20-45 years (21.28%). Homogeneous and non homogeneous type of leukoplakia both were more prevalent among the male population - 73.68% and 21.05% respectively (P value was found to be statistically significant- 0.004). The age group 41-60 years were the commonly affected group by both the variants of leukoplakia. Within the limits of the study, it was observed that both the variants of lichen planus, erosive type and reticular type were prevalent among the female population. Erosive type of lichen planus was common at the age group 46-60 years and reticular type of lichen planus at the age 20-45 years. Homogeneous and non-homogeneous types of leukoplakia, both were prevalent in male population with 40-60 years of age being the commonly affected group.

Keywords: Lichen Planus; Leukoplakia; Erosive; Reticular; Homogenous.

Introduction

Oral lichen planus is an immune mediated potentially malignant disorder. It is characterised by the presence of vesicles and bullae. It frequently affects the female gender more than the male gender. It is usually present in the fourth decade of life [1]. Clinically like in planus is represented by various types which are reticular, erosive, papular, atrophic, plaque-like and bullous type [2, 3].

Intraorally, buccal mucosa, tongue and gingiva are the commonly involved sites [4]. It can either present alone or with concomitant skin lesions [5]. The clinical features of lichen planus are bilateral or multilateral lesions with Wickham's striae with raised papules, erosions, atrophic lesions that manifest at intraoral sites [6, 7]. It has been reported that patients with oral and skin lesions are associated with diabetes mellitus. Grinspan syndrome is a triad which involves lichen planus, diabetes mellitus and hypertension [8, 9]. The malignant transformation rate of lichen planus has been found to be 0.5 to 2%.

Leukoplakia is a white patch or plaque of questionable risk having excluded other known diseases that carry no increased risk for cancer [10]. It is a common type of lesion that affects 0.2 to 4.9% of the world population [11]. Clinically leukoplakia is subdi-

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vided into homogeneous and non-homogeneous types. The homogeneous type, the lesion appears to have a white flat or slightly wrinkled surface. The non-homogeneous type is represented with speckled or nodular surfaces [12]. Histopathologically, leukoplakia represents hyperkeratosis with or without epithelial dysplasia [12].

The common aetiology for leukoplakia includes tobacco consumption in the form of chewing or smoking. Apart from that, sharp teeth Iron deficiency, dislodged dental restorations can also cause leukoplakia. The non-homogeneous type of leukoplakia has a greater risk of malignant transformation than the homogeneous leukoplakia. The malignant transformation rate of leukoplakia ranges from 0.13 to 17.5% [13, 14]. According to Arvind M et al, smokeless tobacco predisposes to an increased risk of PMD and oral cancer development [15].

Recent studies have focussed on Tobacco consumption and its effect on oral tissues. It is available in two forms: smoked and smokeless. The smoked form of tobacco contains carbon monoxide, thiocyanate, hydrogen, cyanide, nicotine and the metabolites of these constituents, on the other hand smokeless tobacco contains nitrosamine, polycyclic aromatic hydrocarbons and nitrosoproline. The smoked form of tobacco is available in various forms such as bidi, chilum and cigarette whereas the smokeless tobacco is available in the forms of dry snuff, moist snuff, khaini quid (tobacco + slaked lime). The chemical constituents of tobacco and its combustion end products as tars and resins are irritating substances capable of causing leukoplakia. Over 300 carcinogens have been identified in tobacco smoke [16].

Few studies suggest that levels of MMP-9 in potentially malignant disorders such as OSMF, leukoplakia, lichen planus, has shown an elevation [17]. T N Uma et al, in their study has discussed the non invasive salivary markers like Micro RNA in detection of oral potentially malignant disorder [18].

Previously our team had conducted numerous clinical trials 19, [20-27], few questionnaire study and review papers [28-30] over the past 5 years. Now we are focussing on retrospective studies. The idea for the present study was obtained from the current interest in our community.

The purpose of the present study is to evaluate the type of variants in lichen planus and leukoplakia and their prevalence in the general population to help in clinical diagnosis and in dental practice.

Materials and Methods

The study was conducted in a Private dental College Chennai which is a University set up. The population chosen for the study included patients with leukoplakia and lichen planus. The data was collected from the hospital digital database by reviewing and analysing over 86000 case sheets between June 2019 to March 2020. Two examiners were included in the study.

The study was conducted retrospectively. Cross verification of data for error was done by presence of additional reviewers and by photographic evaluation. Simple random sampling was done to minimize sampling bias. After reviewing, the case sheets were filtered based on data required. The final sample size was 142, among which 95 patients had leukoplakia and 47 patients had lichen planus. The inclusion criteria was all patients with leukoplakia and lichen planus. The exclusion criteria was insufficient or unavailable data on lichen planus and leukoplakia, incomplete case sheets, patients without any premalignant disorders.

Data collection

The collected data was based on patients having leukoplakia and lichen planus. The individual clinical variants of each patient were also collected.

Statistical analysis

The collected data was entered in an excel sheet and tabulated. It was then imported to SPSS software version 19. Descriptive statistics was used to correlate between the type of lesion and its clinical variants with age and gender. The dependent variable was patients with lichen planus and leukoplakia and the independent variable was age, gender and clinical variants. Chi square test was performed and the level of significance was set at 0.05.

Ethical approval

The ethical approval for the retrospective study was obtained from the Institutional scientific review board.

Results and Discussion

The collected data was imported in SPSS software version 19 and the results were obtained using chi-square test. It was observed that the erosive type of lichen planus was more prevalent in females (36.17%) and in males it was 23.40%. The reticular type of lichen planus was more prevalent in females which had an incidence of 27.66% and in males 12.77%. (Figure 1). The P value was not found to be statistically significant (>0.05). Age and clinical variants of lichen planus were assessed. It was found that patients of the age group 46-60years had more prevalence of erosive type of lichen planus and patients of the age group 20-45 years had prevalence for reticular type of lichen planus (Figure 2) for which the P value was not found to be statistically significant (>0.05). Comparing the gender with clinical variants of leukoplakia, it was observed that, both the types, homogeneous and nonhomogeneous were prevalent in male population (73.68% and 21.05% respectively) (Figure 3). The P value was found to be statistically significant 0.004. Age and clinical variants of leukoplakia was assessed; it was observed that the homogeneous type of leukoplakia was more prevalent at the age group 41-60 years (36.84%) and the non-homogeneous type was more prevalent at age group 41-60 years (18.95%) for which the P value was not found to be statistically significant (>0.05) (Figure 4).

From the study it was observed that both the type, erosive type of lichen planus and the reticular type was prevalent in the female population (36.17% & 27.66% respectively). Erosive type of lichen planus was common at the age group 46-60years (36.17%) and the reticular type was common at the age group 20-45 years (21.28%). Homogeneous and non homogeneous type of leukoplakia both were more prevalent among the male population - 73.68% and 21.05% respectively. The age group 41-60 years were the commonly affected group by both the variants of leukoplakia.

Figure 1. Bar graph showing association between gender and clinical variants of lichen planus The X axis denotes the gender of the patients and Y axis denotes number of patients with lichen planus. It is observed that females have more prevalence for both, erosive and reticular variants (blue and green respectively). The P value was 0.589 which is >0.05 thus, showing there is no significant association between gender and clinical variants of lichen planus.

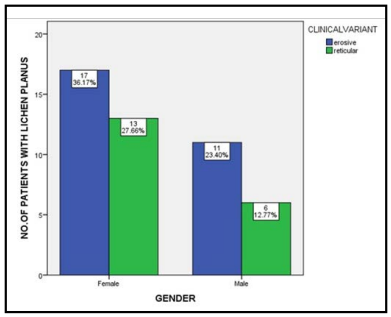


Figure 2. Bar graph showing association between age and clinical variants of lichen planus. The X axis denotes the age of the patients and Y axis denotes the number of patients with lichen planus. The age group of 46-60years had more prevalence of erosive type (blue) whereas reticular type (green) was more prevalent in the age group 20-45years. The P value was 0.136 which is >0.05, thus showing there is no significant association between age and clinical variants of lichen planus.

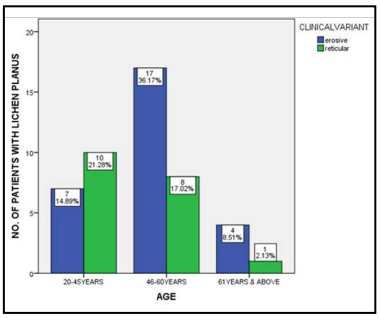


Figure 3. Bar graph showing association between gender and clinical variants of leukoplakia. The X axis denotes the gender of the patients and Y axis denotes number of patients with leukoplakia. It is evident that both homogeneous and non-homogenous types of leukoplakia are prevalent in male population (blue and green respectively). The P value was 0.004 which is <0.05 thus showing there is significant association between gender and clinical variants of leukoplakia.

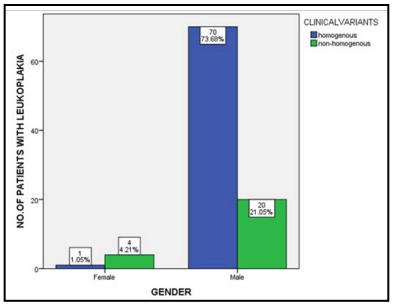
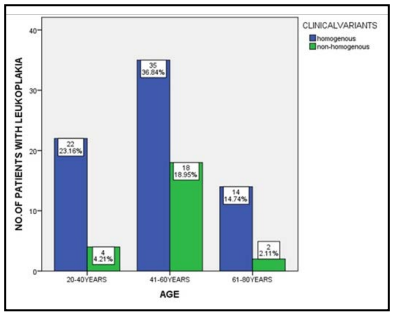


Figure 4. Bar graph showing association between age and clinical variants of leukoplakia. The X axis denotes age of the patients and Y axis denotes number of patients with leukoplakia. The non-homogeneous (green) type and homogenous type (blue), both the variants, were prevalent in the age group 41-60 years. The P value was 0.089 which is >0.05 thus showing there is no significant association between the age and clinical variants of leukoplakia.



Mostafa et al, in their study has observed that, the female patients had more prevalence for lichen planus (68.7%) and commonly occured at the fourth and sixth decade of life with a erosive type being the common finding [31], this study is in accordance with the current study.

Sachdev R et al, In the study has stated that, the lichen planus was prevalent in male population (75.4%) and occurred in the 4th to 6 decade of life (62.2%) and found the reticular type of lichen planus was more prevalent (67.6%) which is followed by the erosive type- 26.4% [32], this study is in contrast to our study which shows a female predominance for lichen planus.

From Jasmine et al study, it is observed that the male had more prevalence for lichen planus and the mean age group was 38.5 years [1]. This study shows a contrast to the current study as the current study represents a prevalence for the female population in lichen planus.

Brouns et al, has found that the homogeneous type and of leukoplakia was more prevalent in the male population [33]. This study is in accordance with the current study. Boker et al, has observed that 2.2% prevalence of leukoplakia in a smaller population and the age group in which leukoplakia occurred was 40 to 50 years with a male predilection [34]. This study is in accordance with the present study, as our study also shows a male predilection for leukoplakia. Liu et al, in their study, has discussed that the peak incidence of the disease was the fifth decade of life- 33% [35]. This is in par with our study.

Jaya Gopal R et al has found that leukoplakia was more prevalent at age group 70 to 99 years (13.04%) followed by 50 to 69 years (10.2%) and also found male predominance for leukoplakia [36]. This study is in accordance with our study which also shows a male predominance with the commonly affected age group being 41-60 years.

The present study is in accordance with the previous literature and can be used as a guide in clinical practice and diagnosis. Though the study shows statistical significance, the limitations in the study include smaller sample size and geographical variations. Thus, future studies should be done with a larger sample size and equal distribution of study parameters for a better view on the point of study.

Conclusion

Within the limits of the study, it was observed that both the variants of lichen planus, erosive type and reticular type were prevalent among the female population. Erosive type of lichen planus was common at the age group 46-60 years and reticular type of lichen planus at the age 20-45 years. Homogeneous and non-homogeneous types of leukoplakia, both were prevalent in male population with 40-60 years of age being the commonly affected group. Thus, the study can be used as a reference in clinical practice and diagnosis.

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