Prevalence of Oral Mucosal Changes in Areas of Northern Haryana-An Institutional Study

Preeti Sethi Bakshi[1], Vikas Singla[2], Swati Roy[1], Kaveri Surya Khanna[1]

[1]Department of Oral and Maxillofacial Pathology, Yamuna Institute of Dental Sciences and Research, Gadholi Yamuna Nagar, Haryana, India. [2]Department of Oral Radiology and Medicine, Yamuna Institute of Dental Sciences and Research, Gadholi Yamuna Nagar, Haryana, India

Abstract

Objective: The objective of the study was to evaluate the prevalence of oral mucosal changes (OML) in Yamuna nagar (Haryana) and to determine the association of these lesions in relation to age, gender and habits.

Methodology: The study sample consisted of 3960 patients collected from outpatients seeking dental treatment in Department of Oral Medicine and Radiology at Yamuna Institute of Dental Sciences and Research, Yamuna nagar. The subjects were interviewed and a clinical examination of the oral mucosa was performed according to WHO guidelines. A specially prepared color atlas of OML was used for lesion recognition and confirmation.

Statistical Analysis: The data obtained was tabulated and subjected to statistical analysis utilizing the SPSS (Statistical Package for the Social Sciences) software version 10.0. Pearson chi-square test was applied to test the significance between mucosal changes with respect to age and habits.

Results: The overall classification among 3960 samples showed 1449 cases presented with one or more mucosal changes/lesions/conditions. Among 1449 lesions, 990 mucosal changes were either normal variants or developmental anomalies, 206 were traumatic lesions, 224 were tobacco induced and 238 were miscellaneous conditions.

Conclusion: The overall mucosal changes noted in the study were 36.59% and the most prevalent changes were linea Alba, and Fordyce's granules. Mucosal changes were predominantly noted in males, in buccal mucosa and in the age group of 16-30 yrs.

Key Words: Oral mucosal changes, Prevalence, Developmental, Tobacco

Introduction

As age advances oral cavity is prone for myriad of changes. They can be developmental, physiological or pathological. In a developing country like India, prevalence and distribution of periodontal diseases, dental caries, oral cancers, malocclusions and crippling nature of fluorosis have all lead to a significant burden, economic loss and huge sufferings [1]. These conditions affect sexes, all races, all socioeconomic status and all age groups. Due to such an impact, oral health is now being recognized among important aspects of general health. Thus, the importance of a dental OPD cannot be ignored [2].

The diagnosis of oral mucosal alterations depends on the ability of dentists to distinguish between pathological changes and normal variation within the oral structures [1]. The knowledge of normal alterations and lesions and their association with systemic changes, deleterious habits and medication use is therefore essential for the diagnosis, treatment and establishment of prevention policies [3].

An important element in establishing a diagnosis is knowledge of the lesions relative frequency, or prevalence at one point in time ("point prevalence"). Prevalence data of oral mucosal lesions (OML) is available from many countries, however the information they provide is not always extrapolable to our population since cultural, ethnic and demographic differences exist. Despite the efforts made by different groups, establishment of prevalence data related to oral mucosa is meager in the Indian literature. Considering this, the present study was done to evaluate the prevalence of OML in Yamuna nagar (Haryana), India.

The knowledge of normal alterations and lesions and their association with systemic changes, deleterious habits and medication use in order to diagnosis, treat and establish prevention policies can prove to be beneficial to the global population. Thus any data that provides the dentist forecasts elements, resulting undoubtedly benefit from treatment and a better quality of life for the patient is useful.

Materials and Method

The study subjects included 3960 patients visiting as outpatients seeking dental treatment in Department of Oral Medicine and Radiology at Yamuna Institute of Dental Sciences and Research, Yamuna nagar for a period of 3 months. The survey protocol was reviewed and approved by the institutional ethical committee and informed consent was obtained from a parent or guardian of each participant. The study samples were divided into five age groups: 1-15 years (yrs); 16-30 yrs; 31-45 yrs; 46-60 yrs; 61 and above. Subjects with adequate mouth opening were included in the study. All the subjects were questioned for any deleterious habits such as smoking, tobacco chewing, alcohol intake, cheek chewing with their frequency and duration. The examination of the oral cavity was performed by two independent trained examiners and confirmed by a senior clinician, if disparity existed. A dental chair and standard light source were used during the assessment and examination was made with a mouth mirror, explorer and gauze piece. The diagnosis was made based on

Corresponding author: Preeti Sethi Bakshi, Department of Oral and Maxillofacial Pathology, Yamuna Institute of Dental Sciences and Research, Gadholi Yamuna Nagar, Haryana, India; e-mail: preetisethibakshi@gmail.com

the history, clinical features and chair side investigations applying WHO (World health organization) guidelines. A color atlas was utilized for clinical evaluation and in case of clinically suspicious lesion biopsies were made. The diagnosis with its anatomical location was recorded in the proforma designed for the study. The data obtained was tabulated and subjected to statistical analysis. The statistical analysis was done utilizing the SPSS (Statistical Package for the Social Sciences) software version 10.0. Pearson chi-square test was applied to test the significance between mucosal changes with respect to age, gender and habits.

Results

Among 3960 samples/cases included in the study 1449 (36.59%) subjects showed oral mucosal changes. The affected samples (1449) when classified based on the age showed 12 (1.2%) were in the age group of 1-15 yrs, 353 (33.9%) were between 16-30 yrs, 302 (29%) were among 31-45yrs and 279 (26.8%), 96 (9.3%), in the age group 46-60, 61 and above respectively *(Table 1)*.The overall gender classification among the affected samples indicated male predominance 649 (62.3%) while females represented 393 (37.7%). Smoking habit was found very common (280 cases), followed by smokeless (55 cases) and both (45 cases); however majority of the samples (662) claimed or denied any habits. *Figure 1*: Bar graph showing frequency of mucosal changes.

Discussion
Normal variants and developmental anomalies
Among all the mucosal changes recorded in the study, linea alba was the most prevalent condition (18.18%), which was comparatively higher than Martinez et al (10.7%). Linea alba was most commonly seen in the buccal mucosa (99%) and in the age group 16-30 yrs. Fordyce's granules was seen in 3.2% of the cases (127 cases) and in age group of 16 to 30

yrs. The prevalence of Lingual varices in the present study was 1.9%. This finding was higher than Mathew et al (1.17%) [4]. However, a typical finding noted in the study was that as the age advanced the occurrence also increased and the most prevalent age group was 61 and above age group with a total of 76 cases. Among all the normal variants found in the study, the following conditions showed consistent findings with other studies: Fissured tongue (0.7%) with Shulman et al (0.85%) [5].

The presence of Leukoedema was seen in 0.3% of the cases, which was less when compared with Mathew et al (3.7%) [4]. However, the lesion was seen predominately in the age group of 30-60 yrs. Another notable variant noted in our sample was physiological pigmentation, which constituted of about 0.5%, which was far below than Salonen et al (6.6%) [6] and Martinez et al (24.6%) [7].

The traumatic lesions in the present study were comparatively low constituted about only 38 cases (0.95%) presented as chemical burn. Most of the lesions were seen in the buccal mucosa and in the age group 46-60 years.

Tobacco induced lesion smoker's melanosis was common and it constituted about 2.7%. Most of them were seen on the buccal mucosa and they were in the form of ill-defined. The prevalence of leukoplakia *(Figure 2)* in our study was 1.6%, which was comparable with Mathew et al (1.59%) [4]. Reichert et al (1.1%) [8] and Banoczy et al (1.3%) [9]. The most common type was homogenous leukoplakia (52 cases). Smoker's palate was seen in 0.8% of the cases, which varied when compared with Shulman (0.50%) [5] and Mathew et al (2.77%) [4].

The presence of oral sub mucous fibrosis (OSMF) was noted in 0.25% of the population, which was far below than Mathew et al (2.01%) [4]. In the present study, stage IV OSMF (clinical evidence of fibrotic bands) was found to be very common.

Table 1. Demographical Data.

Lesions	Number	Percentage	Commonly Affected Age Group	Commonly Affected Gender
Normal variants and developmental anomalies				
Linea alba	720	18.18%	16-30 yrs	Male
Fordyce's granules	127	3.2%	16-30 yrs	Male
Lingual varices	76	1.9%	61 yrs and above	Male
Leukoedema	14	0.3%	41-60 yrs	Male
Fissured tongue	31	0.7%		Female
Physiological pigmentation	22	0.5%	16-30 yrs	Male
Tobacco induced lesion				
Leukoplakia a) Homogenous b) Speckled	52 12	1.3% 0.3%	46-60 yrs and 61yrs and above	Male Male
Smoker's melanosis	110	2.77%	31-45 yrs	Male
Smoker's palate	33	0.8%	31-45 yrs	male
OSMF	10	0.25%	16-30 yrs and 31-45 yrs	male
SCC	4	0.1%	46-60 yrs	male
Miscellaneous				
Candidiasis	43	1.08%	46-60 yrs and 61 yrs and above	Male
Herpes labialis	10	0.25%	16-30 yrs	females
Apthous ulcer	37	0.93%	16-30 yrs	male
Lichen planus	43	1.06%	46-60 yrs and - 31-45 yrs	females
Anemic stomatitis	67	1.69%	31-45 yrs	female
Chemical Burn	38	0.95%	46-60 yrs	male

In the present study, evidence of oral malignancy was seen in 0.1% of the cases *(Figure 3)* (*Figure 4*, similar to Ikeda et al (0.1%) [10] and Axel (<0.1%) [11]. All the lesions were confirmed by biopsy and all the reports were suggestive of squamous cell carcinoma. The other tobacco related lesions recorded in our study were smoker's melanosis 2.77%.

Miscellaneous conditions

The prevalence of Lichen planus in our study was 1.08%. The most prevalent age group was 31-45 and 46-60 years of age and all the lesions were found in the buccal mucosa. Herpes labialis- 10 (0.25%) usually in young individuals in age group *(Figure 4)* between 16 to 30 years. In our study group, Apthous ulcer was seen in 0.93% of the cases which was comparable with Shulman et al (0.89%) [5]. The most common site was buccal mucosa (70.5%) and most of them where young adults. Other conditions recorded in the study were: Anemic stomatitis 0.95% and oral candidiasis 1.08 %. Majority of individuals in older age groups.
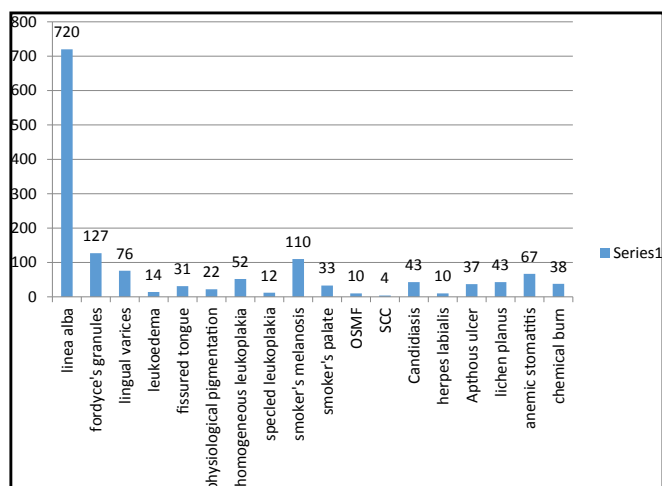

Figure 1. Bar graph showing frequency of mucosal changes.

Figure 2. Clinical presentation of Leukoplakia.

Figure 4. Clinical presentation of Aphthous ulcer.

Figure 3. Clinical presentation of Squamous cell Carcinoma.

Conclusion

From the present study, the following features were evident. The overall mucosal changes noted in the study were 36.59%, suggesting 1 in 2 patients visiting dentist can present with mucosal changes. The most prevalent conditions in the study were developmental lesions/ normal variants specially linea alba was the predominant condition commonly seen 16-30 years of age with male gender predilection. Inspite of limited availability of tobacco products disappointingly tobacco induced lesions are present in abundance of population necessitating more patient education

Mass health education programs have to be undertaken to educate the population regarding oral health and care so as to maximize the utilization of oral health care services. Thus it will help the population to maintain good oral health in the long run.

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