

# FREQUENCY AND DISTRIBUTION OF ORAL MUCOSAL LESIONS: A CROSS-SECTIONAL STUDY

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## ABSTRACT

*In last few decades the people and dental health care professionals have become more aware about the significance of oral mucosal lesions (OML). Therefore, the diagnosis of OML among patients is important to understand the etiology and its effects on oral health of an individual. The purpose of this study was to find out the frequency of oral mucosal lesions among patients seen at a tertiary care hospital with respect to gender, age and type of lesions. This cross-sectional study was conducted at Bahria University Dental Hospital (BUDH) Karachi, Pakistan. The present study comprised of 1999 subjects out of which 411 (20.5%) patients were found to have oral mucosal lesions. Females constituted 36.7% (n=734) and males 63.3% (n=1265). The age ranged 10 to 80 years. Informed consent was taken prior to oral examination. Data were transformed into SPSS version 23. The most frequent finding in present study was Fordyce Granule 84(4.2%) in males and 54(2.7%) in females followed by Linea Alba which was 49(2.4%) in males and 27(1.3%) in females. Racial pigmentation was 37(1.8%) in males and 34(1.7%) in females with higher predilection in males. The maximum number of OML was found in 31 to 40 years of age group. The current study findings showed statistically significant  $p > .006$ . The present study attempts to provide the data about types, frequency of OML in dental patients of a teaching hospital.*

**Key Words:** *Epidemiology, Oral mucosal lesions, Frequency.*

## INTRODUCTION

Oral mucosa serves various functions like protective, sensory, absorption and thermal regulation. Any assault on oral mucous membrane may result in the form of infections or oral mucosal lesions, some of which are asymptomatic and others if not treated in time may cause complications.<sup>1,2</sup> Variety of OML are seen in daily practice which are of great concern for the patient and the clinician. Epidemiological studies provide important information for the understanding of the frequency, incidence and severity of oral disease. It is important to understand the distribution, etiology,

risk factors and pathogenesis of OML. Study conducted in Brazil among diabetes mellitus type 1 and 2 patients showed the overall prevalence of OML was 78.4% and the most common lesions were traumatic ulcer, actinic cheilitis.<sup>3</sup> Santosh conducted study among geriatric patients which revealed that the most common alterations observed were smoker's palate (43%), denture stomatitis (34%), oral submucous fibrosis (30%), frictional keratosis (23%), leukoplakia (22%), and pyogenic granuloma (22%). Hard palate was the most commonly affected site (23.1%).<sup>4</sup>

The timings of diagnosis of OML are quite important. Early diagnosis provides an opportunity for a timely primary prevention and immediate treatment.<sup>3</sup> The prevalence of OML vary from country to country. The purpose of this study was to determine the frequency and types of oral mucosal lesion with respect to gender and age groups among patients examined at Bahria University Dental Hospital, Karachi.

## METHODOLOGY

The present cross-sectional study was carried out in those patients who visited out patients clinics of Bahria

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**Received for Publication:** November 22, 2016

**Revised:** March 17, 2017

**Approved:** March 17, 2017

University Dental Hospital from January 2015 to January 2016. This study was approved by Ethics Committee of the University and informed consent was obtained from patients prior to oral examination. Demographic data regarding age, sex, occupation and chewing habits of the patients was collected on a previously designed proforma which was used in previous studies. The inclusion criteria of the study groups were composed of both males and females of 10 to 80 years old who came to Dental OPD for consultation and treatment. The exclusion criteria were those patients who refused to give consent for this study and mentally retarded patients. A total of 1999 patients were examined. The existence of oral findings was systematically ruled out by screening examination including intraoral clinical examination which was performed by Oral Pathologist (Principal investigators) from department of Oral Pathology by using dental unit light, dental mirror, gauze and latex disposable gloves. The patient's data including age, gender, chief complaint, social habits and type of oral mucosal lesion were recorded. The data were statistically analyzed by SPSS version 23 software. The mean age and standard deviation, cross tabulation were calculated as appropriate to find out the significance of variables.

**RESULTS**

Distribution of oral mucosal lesions is seen in Table 1 and cross tabulation between types and age groups are seen in Table 2.

**DISCUSSION**

The frequency of oral mucosal lesion vary across the world showing 9.7% in Malaysia and 11.8% in German population.<sup>5,6</sup> Mohandad conducted study in Basrah University which showed 8.8% oral lesions which were more prevalent in males.<sup>7</sup> Similar cross-sectional study showed increased prevalence of OML in Iranian subjects with male preponderance.<sup>8</sup> Present study findings are in accordance with previous studies.

The prevalence and type of oral mucosal lesions vary from region to region. The most prevailing lesions encountered in present study were fordyce granules and were more frequently seen on the buccal mucosa and vermilion border of lip with higher male predilection and this finding is consistent with several other studies.<sup>9,10,11,12</sup> Linea alba was the 2nd most common oral soft tissue lesion in present study which collaborates with the research of Mohammad Ali conducted in Kuwait. Linea Alba is a white line on the buccal mucosa frequently associated with pressure, friction or sucking trauma.<sup>13</sup> It was also a common finding in previous studies.<sup>14,15</sup> Patricia Ramos study among Northeast Brazilian population showed variation in normality of oral soft tissues was 1.3% particularly on linea alba.<sup>16</sup>

The third clinically prevailing lesion in present study was racial pigmentations with male dominance. Janna Ghapanchi and colleagues demonstrated in their study that racial pigmentation was more commonly found in gingiva and buccal mucosa. They didn't find any correlation with gender among Iranian population.<sup>17</sup>

Tongue lesions are major health concerns both for dentist and patients which can affect the quality of life of the affected individuals. There is considerable variation seen in tongue lesions in many parts of the world. In present study, large number of cases have been observed of geographic tongue followed by fissured tongue. On the other hand Kiriri population demonstrated second most prevalence of fissured tongue and increased prevalence in Central Amazonian Indian community in Brazil.<sup>18</sup> This may be the fact due to differences in race, gender and age groups. Another study conducted on Southern Chinese Guangdong province reported increased association of tongue with white lesions showing male dominance.<sup>19</sup> Aree Jainkitteeyong showed high prevalence of tongue lesions in Thai population.<sup>20</sup>

Present study findings showed increased percentage of fordyce granules in 30-40 years-and least number

TABLE 1: DISTRIBUTION OF OML ACCORDING TO GENDER

Types of OML	Male (n)	Female (n)
Linea alba	49 (2.4%)	27(1.3%)
Frictional keratosis	6(0.3%)	6(.3%)
Leukoplakia	3(0.15%)	0(0%)
Median rhomboid glossitis	2(0.1%)	0(0%)
Geographic tongue	18(0.9%)	4(0.2%)
Fissured tongue	14(0.7%)	13(0.6%)
Hairy tongue	1(0.05%)	0(0%)
Torus palatines	5(0.2%)	0(0%)
Angular cheilitis	16(0.8%)	9(0.4%)
Aphthous ulcer	2(0.1%)	1(0.05%)
Fordyce's granules	84(4.2%)	54(2.7%)
Traumatic ulcer	5(.2%)	0(0%)
Denture Stomatitis	0(0%)	4(0.2%)
Candidiosis	7(0.3%)	0(0%)
Amalgam tattoo	5(0.2%)	1(0.05%)
Racial pigmentation	37(1.8%)	34(1.7%)
Nicotinic Stomatitis	4(.2%)	0(0%)
Total: 411	258	153

Total: 1999= Patients with no OML 1007(50.3%) 581(29%) Total=1999

TABLE 2: CROSS TABULATION BETWEEN TYPES OF OML AND AGE GROUP

	10-20	21-30	31-40	41-50	51-60	61-70	71-80	Total
Linea alba	3(0.72%)	22(5.3%)	27(6.5%)	7(1.7%)	7(1.7%)	8(1.9%)	2(0.4%)	76
Frictional keratosis	—	2(0.4%)	8(1.9%)	1(0.2%)	—	1(0.2%)	—	12
Leukoplakia	—	—	1(0.2%)	1(0.2%)	1(0.2%)	—	—	3
Median rhomboid glossitis	—	—	1(0.2%)	—	—	1(0.2%)	—	2
Geographic tongue	—	6(1.4%)	9(2.1%)	2(0.4%)	2(0.4%)	3(0.7%)	—	22
Fissured tongue	3(0.7%)	6(1.4%)	12(2.9%)	5(1.2%)	—	1(0.2%)	—	27
Hairy tongue	—	—	—	1(0.2%)	—	—	—	1
Torus palatines	—	3(0.7%)	—	1(0.2%)	1(0.2%)	—	—	5
Angular cheilitis	1(0.2%)	3(0.7%)	6(1.4%)	5(1.2%)	2(0.4%)	3(0.7%)	5(1.2%)	25
Aphthous ulcer	—	1(0.2%)	—	1(0.2%)	—	—	1(0.2%)	3
Fordyce's granules	2(0.4%)	41(9.97%)	48(11.67%)	20(4.8%)	15(3.6%)	10(2.4%)	2(0.4%)	138
Traumatic ulcer	—	—	4(0.97%)	—	1(0.2%)	—	—	5
Denture Stomatitis	—	1(0.2%)	—	—	—	—	3(0.7%)	—
Candidiosis	—	—	7(1.7%)	—	—	—	—	7
Amalgam tattoo	—	3(0.7%)	2(0.4%)	—	1(0.2%)	—	—	6
Racial pigmentation	3(0.7%)	10(2.4%)	36(8.7%)	8(8.7%)	7(1.7%)	5(1.2%)	2(0.4%)	71
Nicotinic Stomatitis	—	—	3(0.7%)	1(0.2%)	—	—	—	4

of cases were found in 10-20 years of age group. Study conducted in Kuwait showed fordyce granules were significantly more ( $p < 0.001$ ) frequent in older (21-40 years and >41 years) patients than in patients <20 years. This finding is consonance with the present study results.<sup>2</sup> Presence of fordyce is might be due to the high number of androgen receptors in the oral sebaceous glands.<sup>21</sup> Androgens bind with these receptors resulting in increase in the size and metabolic rate of the sebaceous glands. Therefore, the activity and size of the gland vary in coordination with age and circulating androgen level. Fordyce granules were found to have a high prevalence among patients of this study.

Bokor-Bratić study revealed that onset of leukoplakia usually takes place after the age of 30 years and oral leukoplakia was seen in men over 40 years of age.

This result supports current study findings.<sup>22</sup> Tortorici conducted a study in western Sicilian population which showed the overall prevalence of leukoplakia was 3.2%.<sup>23</sup>

The limitations of this study was that it was conducted in Bahria University Medical and Dental College patients only. Hence furthermore study should be conducted on larger population groups to obtain more detailed data and can serve as baseline data for future studies on the prevalence of different oral lesions in the general population.

## CONCLUSION

The diagnosis of the wide variety of lesions that occur in the oral cavity is an essential part of dental practice. The prevalence of oral mucous lesions is an important parameter for the evaluation of the oral

health of any population, and the prevalence data of these lesions is vital for planning oral health care services. The OML are the major health concerns, both for the dentists and the patients. If such pathologies are not treated in time it can affect the quality of life of the individual.

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## CONTRIBUTIONS BY AUTHORS

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|-------------------------------|---|
| <b>1 Daud Mirza:</b>          | Study design, data collection, statistical analysis and manuscript editing. |
| <b>2 Zahra Karim:</b>         | Data collection, Manuscript preparation                                     |
| <b>3 Momin Marath:</b>        | Literature Search   |
| <b>4 Mushtaq Ahmed Memon:</b> | Manuscript review   |
| <b>5 Natasha Zaidi:</b>       | Data Collection, Literature search  |