

## Frequency Of Oral Findings With Reference To Diabetes Mellitus Patients: A Multi-center Cross-sectional Study

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### ABSTRACT:

#### Objective:

Oral pathological findings are often associated with diabetes mellitus. The aim of the study was to assess the frequency of oral findings among diabetic patients of both genders.

#### Materials and Methods:

A cross-sectional observational study was conducted from February 2017 to November 2017 at Bahria University Dental Hospital & Mamji Hospital, Karachi. A total of 363 diagnosed patients of diabetes mellitus were selected for the study. A questionnaire was designed and oral clinical examination was performed. The collected data was analyzed by using SPSS version 23.

#### Results:

A total number of 363 diagnosed patients of diabetes mellitus were included in the study. Among these 187 (51.52%) were male and 176 (48.48%) were female. The overall oral mucosal findings were predominantly present in male diabetic patients as compared to females.

#### Conclusion:

The result of this study showed a high prevalence of oral pathological findings in diabetic patients.

**Keywords:** Dentistry, Diabetes mellitus, Oral mucosa, Lesions

### INTRODUCTION:

Diabetes Mellitus (DM) is an endocrine disorder which is highly prevalent around the globe<sup>1</sup>. First reported case of DM was found in an Egyptian manuscript dated around three millenniums ago<sup>2</sup>. In the contemporary times, it has become a major public health concern and a leading cause of morbidity and mortality<sup>3</sup>. This metabolic syndrome is mediated by numerous factors resulting from deficiency of

insulin, which may be absolute due to pancreatic beta-cell destruction (Type 1) or relative due to an increased resistance of the tissues to insulin (Type 2)<sup>4,5</sup>.

The etiology of DM is multifactorial in origin. Environmental factors like obesity, sedentary lifestyle and diet are the main causes. Other socioeconomic factors such as rising living standards, steady urban migration, and lifestyle changes are possible factors for development of DM<sup>6,7,8</sup>.

The prevalence of DM varies from country to country. The demographical studies have shown that the prevalence of DM in Pakistan is high, ranging from 7.6% to 11%<sup>1</sup>.

In patients of DM various alterations had been observed in the oral cavity, including inflammatory conditions such as gingivitis and periodontitis. Salivary dysfunction, altered taste and burning mouth are also seen. Oral mucosal lesions were also reported in DM patients in the form of stomatitis, geographic tongue (GT), benign migratory glossitis (BMG), fissured tongue (FT), traumatic ulcers, lichen planus, lichenoid reaction and angular cheilitis<sup>7,8</sup>. Furthermore, dental caries, tooth loss and delayed mucosal healing have been also found in patients<sup>8,9,10</sup>.

The aim of this study was to determine the frequency and types of oral mucosal findings and investigating the possible association with DM.

### MATERIALS AND METHODS:

The present cross-sectional study was carried in patients, who visited Dental OPD at Bahria University Dental Hospital (BUDH) and Mamji Hospital, Karachi. The study lasted for

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the period of 10 months from February 2017 and November 2017. A total of 363 diagnosed patients of diabetes mellitus of both genders were examined. The patients, who were non-diabetic, medically handicapped and those unwilling to give consent, were excluded from the study.

The patient's data including gender, chief complaint, social habits and type of oral finding were recorded on proforma. The data was statistically analyzed by Statistical Package for the Social Sciences (SPSS) version 23 to find out the significance of variables.

**RESULTS:**

A total number of 363 diagnosed patients of DM were included in the study. Among these 187 (51.52%) were male and 176 (48.48%) were females.

In present study, with respect to gender, higher frequency of linea alba, that is 34.76%(65), was also seen in males. It

was followed by fissured tongue and racial pigmentation of gums with 31 (16.58%) and 17(9.09%) cases respectively. Similarly, in females the linea alba 24.43% was dominant while fordyce granules 14.77% and fissured tongue 14.20% came after in descending order. (Table: 1)

**DISCUSSION:**

DM is a disease spreading rapidly across the globe<sup>11,12</sup>. The middle and low-income countries show increased incidence of the disease above 60 years of age group<sup>13,14</sup>. According to the statistics of the International Diabetes Federation (IDF), Pakistan stands on number seventh position in global standings<sup>15,16</sup>. This concerning situation poses a grave challenge for health care professionals in the country<sup>17,18</sup>.

The present data findings has identified a high prevalence of oral mucosal findings among DM patients. Earlier study documented the prevalence of oral mucosal lesions among

Oral Findings	Male	Female	Total
Racial pigmentation	17 (9.09%)	5 (2.84%)	12 (3.30%)
Frictional Keratosis	4 (2.14%)	2 (1.12%)	6 (1.65%)
Angular cheilitis	13 (6.95%)	22 (12.5%)	35 (9.64%)
Denture stomatitis	3 (1.60%)	6 (3.41%)	9 (2.48%)
Apthous ulcer	7 (3.74%)	7 (3.98%)	24 (6.61%)
Leukoplakia	3 (1.60%)	0 (0%)	3 (0.83%)
Traumatic Ulcer	12 (6.42%)	19 (10.79%)	31 (8.54%)
Candidiasis	2 (1.46%)	0 (0%)	2 (0.55%)
Linea Alba	65 (34.76%)	43 (24.43%)	108 (29.75%)
Oral Lichen planus	4 (2.14%)	4 (2.27%)	8 (2.20%)
Tongue tie	1 (0.53%)	4 (2.27%)	5 (1.38%)
Median Rhomboid Glossitis	3 (1.60%)	5 (2.84%)	8 (2.20%)
Fissured tongue	31 (16.58%)	25 (14.20%)	56(15.43%)
Hairy Tongue	2 (1.46%)	5 (2.84%)	7 (1.93%)
Geographic tongue	4 (2.14%)	3 (1.70%)	7 (1.93%)
Fordyce granule	16 (8.56%)	26 (14.77%)	42 (11.57%)
<b>Total</b>	<b>187 (51.52%)</b>	<b>176 (48.48%)</b>	<b>363</b>

Table 1: Table showing oral lesion findings with respect to gender and frequency

diabetes patients that was about 80%<sup>19</sup>. Similar studies conducted in Brazil and Malaysia showed high prevalence of oral lesions in diabetics than controls<sup>20</sup>.

Linea alba are white lines that occur most commonly on the buccal mucosa either due to pressure, friction, sucking or trauma. It had the highest number of cases in our subjects<sup>21</sup>. Mirza et al recorded 76 cases of linea alba among non-diabetic patients in the same setting<sup>22</sup>.

The second most common category of oral findings was fissured tongue (FT) in both genders but, with male predominance. However, Jahanbani et al. conducted a study in Tehran which showed higher frequency of FT in females than males<sup>23</sup>. In 2016, a domestic study conducted by Mohsin and colleagues documented a total of 15.9% of FT in total of 225 cases in Karachi. The frequency coincides with our study which shows 15.43% of FT in 363 subjects<sup>24</sup>.

Fordyce granules was the third most common finding in present study. However, study conducted by Mirza in 2017 showed the highest prevalence of fordyce granules among the DM patients<sup>25</sup>.

#### CONCLUSION:

DM is a chronic insidious disease that may later result in neuropathy, nephropathy and retinopathy etc. Furthermore, oral mucosa is adversely affected. It can be deduced that in addition to the systemic complications, the dentists should monitor the oral health of DM patients, since a high incidence of oral mucosal alterations indicates a need for urgent treatment. The study also emphasizes on regular clinical examinations to ensure early diagnosis and prompt tackling of adverse oral findings in DM patients.

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