

Prevalence of Tongue Lesions in Patients Visiting Private Dental Practices of Pakistan: A Multicenter Study

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ABSTRACT

Objective: To determine the prevalence of lesions of tongue and their association with gender among dental patients.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Different private dental clinics of Sindh and Punjab province from November 2020 to October, 2021 for a period of one-year.

Materials and Methods: The current study comprised of 1500 subjects which were clinically examined in different dental clinics of Sindh and Punjab province (n=768 Male) and n=732 females) Diagnosed patients of tongue lesions, aged between 10 - 90 years of age were selected by using the convenience sampling technique. The existence of various types of lesions was determined by examination of the oral cavity.

Results: The frequency of tongue lesion was 14.4%. Coated tongue was found be the most common lesion diagnosed in the present study affecting 89 (41.2%) participants followed by traumatic ulcers 47(21.7%), geographic tongue 38(17.5%) and fissured tongue 17(7.87%). The prevalence was higher among females than males. Among the systemic conditions hypertension was found to be most common followed by diabetes mellitus.

Conclusion: Tongue lesions are the major health concern for any dental practitioner. Most of the lesions are easily diagnosed by an experienced clinician except for malignant pathology which requires microscopic examination.

Key Words: Prevalence, tongue, coated tongue, geographic tongue.

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INTRODUCTION

Tongue a strongest muscular organ¹ is covered by different types of mucosal layers. It plays an important role in taste, swallowing, speech, suckling, general sensation.² Lesions of tongue are an important health issue as it comprises substantial amount of oral lesions.³ During tongue examination the important clinical features that need to be given utmost importance are

size, shape, colour and texture, thickness surface epithelium texture as they help in ruling out if the condition or lesion of the tongue is related to a local factor or is a result of a manifestation of systemic diseases.⁴ Literatures have shown the association of tongue lesions as a manifestation in syndrome like Vanderwoude and Melkersson Rosenthal.⁵

Tongue lesions form an important part of oral mucosal lesions. Different epidemiological studies on oral mucosal lesions have been conducted around the world among different populations.^{6,7} Study conducted among Jordanian dental patients showed higher prevalence in females than males.⁸ Another study conducted by Sujata and colleagues showed fissured tongue to be the most prevalent condition observed in Libyan dental patients. A case control study on the occurrence of tongue lesions in psoriatic patients is still controversial but researches have shown the evidence that fissured tongue and benign migratory glossitis were the condition noticed in psoriasis patients.⁹ Studies on tongue lesions have found to be insufficient in Pakistan; hence our study setting will provide a base-line data for treatment planning and patient education to the oral health care professionals

The aim of this study is to investigate the frequency and risk factors associated with tongue lesions with respect to gender and age among dental patients of Sindh Province.

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MATERIALS AND METHODS

The current cross-sectional and multi-centered study was done on dental patients, who attended different private dental clinics of Sindh and Punjab province from November 2020 to October, 2021. The study design and approval was taken by the mutual consent from the owners of private dental practices and a written informed consent was obtained from the subjects. The current study comprised of 1500 subjects (n=768 Male) and n=732 females) among which the diagnosed patients of tongue lesions, aged between 10 - 90 years of age were selected by using the convenience sampling technique. The existence of various types of tongue lesions was determined by clinical examination for any surface changes, specific lesions, size and movement. The inclusion criteria for this study was tongue lesions present in both genders and exclusion criteria included patients under 10 years of age and those who did not give the consent for the study. Data analysis was done using Statistical Package for Social Sciences version 24. (SPSS Inc., Chicago, IL, USA). Chi-square test was applied to cross tabulate different variables such as gender & age with tongue lesions. p value < 0.05 was considered to be statistically significant.

RESULTS

The present study group comprised of 1500 diagnosed patients of tongue pathologies, out of which 767(51.1%) subjects were males and 733 (48.9%), females. Patient’s age ranged from 10 – 90 years. Mean age found was 35.07 years with SD of 15.49 years as shown in Table 1. Of the total patients examined, 216 patients were diagnosed with various tongue lesions. Distribution of various lesions is presented in Table 2.

Table No.1: Distribution of Gender.

Gender	n%	SD±	Mean age
Male	767 (51.1)	15.49	35.07
Female	733 (48.9)		
Total	1500 (100.0)		

The prevalence of tongue lesions in present study was 14.4%. The most common lesion diagnosed in present study sample was coated tongue affecting 89 (41.2%) of the subjects followed by traumatic ulcers 47(21.7%), geographic tongue 38(17.5%), fissured tongue 17(7.87%). The least cases 1(0.46%) observed were oral lichen planus, cleft tongue, ankyloglossia and hairy tongue category (See Table 2). The cross-tabulation of tongue lesion with gender showed insignificant findings p-value <.354. Various systemic conditions were also seen in patients with tongue lesions. The most common systemic condition observed in patients with tongue lesions was hypertension, followed by diabetes Mellitus, thyroid deficiency and stress/anxiety patients.

Table No.2: Frequency of tongue lesions with respect to gender.

Tongue Lesions	Gender		Total
	Male	Female	
Geographic tongue	23(10.6%)	15(6.9%)	38 (17.5%)
Median rhomboid glossitis	2(0.92%)	2(0.92%)	4(1.85%)
Fissured tongue	8(3.7%)	09(4.16%)	17(7.87%)
Coated tongue	36 (16.6%)	53(24.5%)	89(41.2%)
Cleft tongue	1(0.46%)	-	1(0.46%)
Ankyloglossia	1(0.46%)	-	1(0.46%)
Leukoplakia	-	1(0.46%)	1(0.46%)
Traumatic ulcer	20(9.25%)	27(12.5%)	47(21.7%)
Oral Lichen Planus	1(0.46%)	-	1(0.46%)
Hairy tongue	-	1(0.46%)	1(0.46%)
Depapillated tongue	3(1.38%)	5(2.31%)	8(3.70%)
Candidiasis	5(2.31%)	3(1.38%)	8(3.70%)
Total	100 (46.29%)	116 (53.7%)	216 (100%)

* in 1284 patients tongue lesions not detected

* p-value <.354 (insignificant)

DISCUSSION

The present study based on various types of tongue lesions was assessed in both males and females among dental patients of Sindh & Punjab Province. There is scarcity of studies regarding tongue lesions prevalence in Pakistan. Therefore, this will provide the base line data for the researchers. Tongue pathologies sometimes are the oral manifestations of some systemic diseases which need to be diagnosed in time for therapeutic purpose. This is very important for dental clinician to know the diagnosis otherwise it will become a challenge for a dental practitioner.⁵

The prevalence of tongue in present study was 14.4%, study conducted in our neighboring country India showed prevalence of 13.75%, while similar studies on oral lesions done in King Saud University, Saudi Arabia revealed low prevalence 3.96%.¹⁰ Darwazeh and colleagues reported higher prevalence of tongue lesion 23.7% which is in accordance with Voros study conducted in Hungarian children 35.11% .¹¹ Variation in tongue lesion’s distribution between both the genders was also seen. The tongue lesions were more common among males (51.13%) than females (48.86%). This was in accordance with a retrospective study conducted in Ajman which showed that the tongue lesions were more common among males (77%) versus females (23%).⁴ Similar type of retrospective study was

conducted in Nigerian subjects showed male preponderance.¹² However, it disagreed with Sura Ali Fouad study that demonstrated that tongue lesions were more frequently seen females.¹³ This study was also supported by Kittipong research which showed tongue lesions to be 1,285 (59.68%) in females subjects than males 865(40.18%).¹⁴

As far as the type of lesions of tongue is concerned, coated tongue was the commonest lesion reported in dental patients. This finding was in accordance with Patil S and Colleagues³ study. Another study conducted by Avcu, Kanli¹ found coated tongue to be the most prevalent tongue lesion followed by fissured tongue.¹⁵ Study conducted in Jodhpur Dental College General Hospital in India showed high prevalence of coated tongue 28%. This finding also supported our present study.³ Research conducted in Chulalongkorn University on tongue lesions constituted 4.87 % of all biopsy cases from Thailand¹⁴ which is comparable to 3.51% by Shamloo and colleagues¹⁶ 4.00% by Lasisi et al,¹² 6.30% by Alaeddini et al.¹⁷

In the study of Maher AL Shayeb⁴ fissured tongue (40%) was the commonest lesion found followed by geographic tongue (14.3%), strawberry tongue (8.6%) and Hairy tongue (7.1%). However, in majority of the clinical studies fissured tongue was seen to be the most common tongue lesion. However, the prevalence of geographic tongue in a study conducted by Picciani et al¹⁸ was 2.1%, which was within the global normal range of 0.6 - 4.8%.¹⁸ Another study conducted among United States population reported 2% prevalence of geographic tongue.¹⁹

In the present study, the lesions were found to be most common among middle aged 31-60 years (47.33%) groups, followed by 0-30 years (46.4%) and 61-90 years (6.26%). This was in accordance with the Bajaranga study where most of the tongue lesions occurred in the age range of 21-40 years (39.1%) followed by 41-60 years (29.7%) and 61-80 years (19.6%).²⁰ A study conducted by Fuaod and Associates on Iraqi subjects, showed that in a total of 130 patients, 75 patients were in the age group of 20-39 years followed by 40-59 years and 60-79 years with 34 and 10 patients respectively.¹³ In the current study the correlation of systemic disease with tongue lesions was also investigated. The most common systemic disease observed in our study was hypertension followed by diabetes mellitus, thyroid deficiency, stress, gastrointestinal diseases (GIT) and Liver Diseases. Study on Libyan patient also reported diabetes and hypertension in their patients which also supported our findings.

CONCLUSION

The presence of different types of tongue lesions in the current study demonstrates the importance of the timely assessment and diagnosis of the tongue lesions. As

there has been a lack of research done on tongue lesions in Pakistan, further studies and surveys on large samples are recommended to evaluate the correlation of tongue lesions with systemic diseases.

Author's Contribution:

Concept & Design of Study: Daud Mirza
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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