

Prevalence of most common tongue lesions among a group of UAE population: retrospective study

Maher AL Shayeb¹, Ebtesam Fathy¹, Gulrez Nadeem¹, Nesrine Aly El-Sahn², Hassan Elsahn², Issamaeledin EL Khader¹, Abdel Wahab AL Habbal¹

¹ Department of Surgical Sciences, Ajman University, UAE
² College of Dentistry, Ajman University, UAE

SUMMARY

Objective: The goal of the current study is to identify the prevalence of most common tongue lesions that can be diagnosed during routine dental checkups among a group of UAE population and to assess the correlation with age, gender and habits.

Materials and Methods: The dental records of patients with tongue lesions visiting the college of dentistry Ajman University from 2016 till 2019 were retrospectively revised taking into consideration the age, gender, the anatomical site, the type and the histopathological nature of the lesion. Microsoft Excel and SPSS 22.0 were used to analyze the gathered data for subsequent interpretation.

Results: The study population consisted of 70 patients both males and females whose tongue lesions were examined and diagnosed clinically during their visit to the Dental clinic of Ajman University. Out of a total of 70 cases 54 males and 16 females with a ratio of about 3:1. The majority of patients are in the 21-40 years age range (71.4%). The fissured tongue was one of the most common abnormalities affecting 40% of the subjects followed by geographic tongue with a prevalence of 14%. Smoking melanosis and frictional keratosis were found in the least no of cases (1.4%). Smoking was significantly correlated to the oral lesion.

Conclusion: The tongue lesion was more prevalent among males than females with a significant correlation with smoking habit.

Key words: tongue, lesions, oral habits

Address for correspondence:

Maher Alshayeb, Department of Surgical Sciences, Ajman University, UAE, email: m.alshayeb@ajman.ac.ae

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INTRODUCTION

Tongue lesions represent the significant ratio of the oral lesions where the evaluation and early diagnosis of the tongue lesions is essential as the tongue is particularly affected by the various condition that can involve the different internal systems of the body [1]. As a muscular organ, tongue performs various functions like swallowing, speech, suckling, general sensations and primely involved in the or facial growth and development [2]. The tongue acts as a mirror that can reflect the different systemic diseases that involve the body and provides a diagnostic measure to the dental practitioner [3]. Variations in the incidence of the tongue lesions have been correlated to variations in the racial origin, diagnostic criteria applied for the various studies, age and gender factors. The appearance of the tongue and their corresponding meanings in the internal state of the body.

When you observe the tongue, there are certain things that you look for including the color, size, shape, and texture of the tongue body. You also examine the thickness and texture of the surface epithelium of the tongue, which particularly can guide you to the most likely condition or lesion of the tongues that can be related to a local factor or as a manifestation of systemic diseases [4]. The goal of the current study is to identify the prevalence of most common tongue lesions that can be diagnosed during routine dental examination among a group of UAE population and to assess the correlation with age, gender and habits.

MATERIALS AND METHODS

The dental records of all patients presented with various tongue lesions have been revised retrospectively at the College of Dentistry, Ajman University, from 2016 till 2019. Information was sourced from patients' case notes. Data collected included age, sex, site of the lesion, type of lesion as well as histopathological report. Microsoft Excel and SPSS 22.0 were used to analyze the gathered data for subsequent interpretation.

The study population consists of seventy patients whose tongue lesions were diagnosed clinically during their visit to the dental clinics of Ajman University. The patients were thoroughly examined during their dental checkups. Complete oral examination, medical history and whether the patients were on any habits were examined. Different oral conditions noticed

during the oral clinical examinations and were correlated with those patients' age, gender, and habits.

RESULTS

The tongue lesions were examined and diagnosed clinically during their visit to the Dental clinic of Ajman University.

- Gender distribution: Out of a total of 70 cases 54 were males and 16 females giving a ratio of about 3:1 Table 1 and Figure 1
- Age distribution: The majority of patients are in the 21-40 years age range (71.4%) followed by 0-20 years and 41-60 years (12.9%) Table1 and Figure 2
- Health condition: The majority of the patients were healthy with no major health issues (87%), followed by hypertension (5.7%), diabetes and calcium deficiency (1.4%) (Table 2)
- Tongue lesions: Fissured tongue was the most prevalent lesion identified with 28/70 patients around 40%. The next common condition was Geographic tongue with a prevalence of 14%

Macroglossia, smoking melanosis and frictional keratosis were found in the least no of cases (1.4%) Table 3 and Figure 3.

Relations between tongue lesion and gender: In relation to gender males had 21 cases (30%) while females had 7 cases (10%) of the fissured tongue, whereas for geographic tongue it was 7

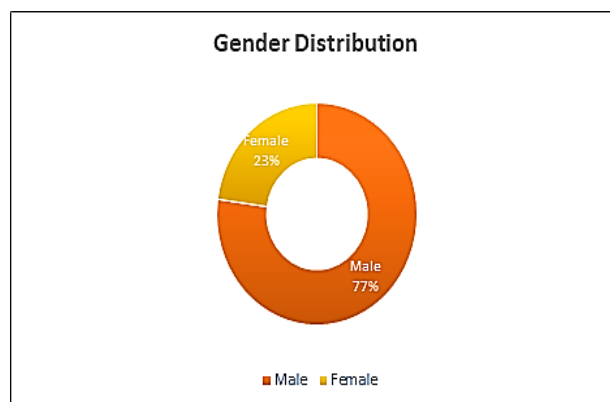


Fig. 1. Gender distribution

		Frequency	Percentage	Total
Gender	Male	54	77.1	70 (100%)
	Female	16	22.9	
Age distribution	0-20 years	9	12.9	
	21-40 years	50	71.4	
	41-60 years	9	12.9	
	61-80 years	2	2.9	

		Frequency	Percent
Medical condition of the patient	Healthy patient	61	87.1
	Hypertension	4	5.7
	Diabetes	1	1.4
	Thalassemia	1	1.4
	Ca deficiency	1	1.4
	Multiple myeloma	1	1.4
	Hypothyroidism	1	1.4
	Total	70	100.0

		Frequency	Percent
Tongue Lesions	Fissured tongue	28	40.0
	Geographic tongue	10	14.3
	Serrated tongue	1	1.4
	Strawberry tongue	6	8.6
	Aphthous ulcer	2	2.9
	Traumatic ulcer	2	2.9
	Hairy tongue	5	7.1
	Desquamation of tongue	1	1.4
	Coated tongue	2	2.9
	Papilloma	1	1.4
	Lichen planus	2	2.9
	Lingual varicosities	2	2.9
	Haemangioma	1	1.4
	Chemical burn	1	1.4
	Tongue Tie	2	2.9
	Median rhomboid glossitis	1	1.4
	Smoking melanosis	1	1.4
	Frictional Keratosis	1	1.4
	Macroglossia	1	1.4
	Total	70	100.0

cases (10%) for males 4 cases (4.3%) for females (Table 4).

In relation to habits, smoking was the most common in males (24.3%) versus females (2.9%) and it was significantly correlated to the tongue lesions (Table 5).

There is no significant difference between males and females according to the medical condition, tongue lesions and habits using Mann-Whitney U Test (Table 6).

There is a significant difference in which smoking only was highly associated with tongue lesions regardless of age or gender difference (Table 7).

Tongue lesions		Gender		Total
		Male	Female	
Fissured tongue	Count	21	7	28
	% of Total	30.00%	10.00%	40.00%
Geographic tongue	Count	7	3	10
	% of Total	10.00%	4.30%	14.30%
Serrated tongue	Count	1	0	1
	% of Total	1.40%	0.00%	1.40%
Strawberry tongue	Count	6	0	6
	% of Total	8.60%	0.00%	8.60%
Apthous ulcer	Count	1	1	2
	% of Total	1.40%	1.40%	2.90%
Traumatic ulcer	Count	1	1	2
	% of Total	1.40%	1.40%	2.90%
Hairy tongue	Count	2	3	5
	% of Total	2.90%	4.30%	7.10%
Desquamation of tongue	Count	1	0	1
	% of Total	1.40%	0.00%	1.40%
Coated tongue	Count	2	0	2
	% of Total	2.90%	0.00%	2.90%
Papilloma	Count	1	0	1
	% of Total	1.40%	0.00%	1.40%
Lichen planus	Count	2	0	2
	% of Total	2.90%	0.00%	2.90%
Lingual varicosities	Count	2	0	2
	% of Total	2.90%	0.00%	2.90%
Haemangioma	Count	1	0	1
	% of Total	1.40%	0.00%	1.40%
Chemical burn	Count	1	0	1
	% of Total	1.40%	0.00%	1.40%
Tongue Tie	Count	2	0	2
	% of Total	2.90%	0.00%	2.90%
Median rhomboid glossitis	Count	1	0	1
	% of Total	1.40%	0.00%	1.40%
Smoking melanosis	Count	0	1	1
	% of Total	0.00%	1.40%	1.40%
Frictional Keratosis	Count	1	0	1
	% of Total	1.40%	0.00%	1.40%
Macroglossia	Count	1	0	1
	% of Total	1.40%	0.00%	1.40%

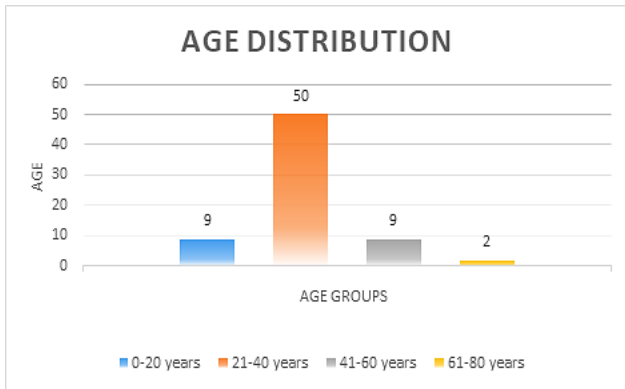


Fig. 2. Age distribution

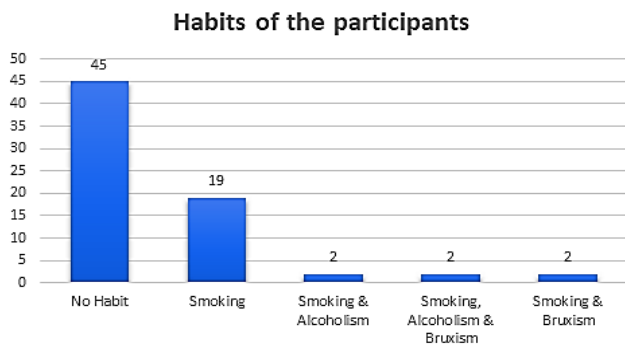


Fig. 3. Habits of the participants

Tab. 5. Correlation between habits and gender			Gender		Total
			Male	Female	
Habits	Smoking	Count	17	2	19
		% within habits	89.5%	10.5%	100.0%
	% of total	24.3%	2.9%	27.1%	
	Smoking and alcoholism	Count	1	1	2
		% within habits	50.0%	50.0%	100.0%
	% of total	1.4%	1.4%	2.9%	
	Smoking, alcoholism and bruxism	Count	2	0	2
		% within habits	100.0%	0.0%	100.0%
	% of total	2.9%	0.0%	2.9%	
	Smoking and bruxism	Count	1	1	2
		% within habits	50.0%	50.0%	100.0%
	% of total	1.4%	1.4%	2.9%	
	No Habit	Count	33	12	45
		% within habits	73.3%	26.7%	100.0%
	% of total	47.1%	17.1%	64.3%	
Total	Count	54	16	70	
	% within habits	77.1%	22.9%	100.0%	
	% of total	77.1%	22.9%	100.0%	

Tab. 6. Testing the significant difference between males and females according to the medical condition, tongue lesions and habits using Mann-Whitney U Test	Null hypothesis	Test	Significance	Decision
	The distribution of the medical condition of the patients is the same across categories of gender	Independent samples Mann-Whitney U Test	0.427	Retain the null hypothesis
	The distribution of tongue lesions of the same across categories of gender	Independent samples Mann-Whitney U Test	0.496	Retain the null hypothesis
	The distribution of habits is the same across categories of gender	Independent samples Mann-Whitney U Test	0.227	Retain the null hypothesis
Asymptotic significances are displayed. The significance level is .05				

Tab. 7. Testing the significant difference between the presence of tongue lesion and habits using Kruskal Wallis Test	Null hypothesis	Test	Significance	Decision
	The distribution of habits is the same across categories of tongue lesions	Independent- Samples Kruskal-Wallis Test	0	Reject the null hypothesis
Asymptotic significances are displayed. The significance level is .05				

DISCUSSION

The current study was done based on various types of tongue lesions assessed in both males and females of different age groups. The intraoral examination was done along with the recording of medical history and oral habits. The data were collected and statistical analysis was done for the data obtained. Based on the results obtained from the statistical data, it revealed that the tongue lesions were found to be present in all age groups in both males and females. The lesions were found to be very common in middle age (20-40 years) groups, next common is 0-20 years (12.9%) and 21-40 years (12.9%), 61-80 years age group is only 2.9%. This agrees with the Bajaranga study where the maximum of tongue lesions occurred in the age group of 21-40 years (39.1%) followed by 41-60 years (29.7%) and 61-80 years (19.6%) [5]. In a study conducted by Fuaod SA [6] in the Iraqi population, out of 130 patients, 75 patients were in the age group of 20-39 years of age followed 40-59 years and 60-79 years with 34 and 10 patients respectively.

The gender distribution of this study showed that the tongue lesions were more prevalent among males (77%) versus females (23%). It agrees with those of Patil et al. [7] study who showed that males presented with a greater ratio of tongue lesions when compared with male patients. while it disagrees with Sura Ali Fouad [6] study who showed that more females presented with tongue lesion when compared with males. Similarly, Byahatti et al. reported female predominance with 173 females and 147 males which contradicts with the present study [8].

In the present study, fissured tongue (40%) was the commonest lesion encountered followed by the geographic tongue (14.3%), strawberry tongue (8.6%) and Hairy tongue (7.1%). In a study conducted in India by S. Bajarang et al. [5], the fissured tongue was the most prevalent lesions (51.7%) when compared with the other tongue conditions. In the Libyan population [8] the fissured tongue lesions were found as one of the most common oral lesions reported by 48.4% of the population. The incidence of the fissured tongue was insignificant among the Saudi population (1.4%) [9] and the Turkish population [10].

In another study on the Indian population by Patil S et al. [7] out of 595 patients, 89 patients diagnosed with fissured tongue with a prevalence of 14.9% which was a second most common lesion in their study which disagree with the present study. The genetic predisposition plays an important factor in

the pathogenesis of this lesion [8, 11]. The main factors that can contribute to the development of fissured tongue include diabetes mellitus, fungal infections like candidiasis, vitamin B deficiency and lichenoid reactions [5].

The prevalence of fissured tongue increases with the aging process and this particularly due hyposalivation, which is one of the prime contributing factors [11].

Fissured tongue and geographic tongue are commonly seen in Melkersson-Rosenthal syndrome and Downs's syndrome. Maximum patients present with no symptoms, however, if the fissures are deep, symptoms such as soreness with acidic food and beverages may be present. The deep fissures favor the accumulation of food particles increasing the risk of the invasions of bacterial and candidal organisms predisposing to inflammation of the tongue. No particular therapy is required except to encourage the patients to maintain adequate oral hygiene including cleaning and brushing the dorsal surface of the tongue to eliminate any food debris from the fissures [11].

In Patil S et al. study, coated tongue (28.0%) was the most common tongue lesions followed by migratory glossitis (16.4%) [7]. Among Iraqi dental outpatients, ulcers (24.6%) were the prevalent oral lesions followed by loss of papilla (14.6%) [6], while in the study among United States school children, vascular lesions were the most predominant oral lesion (26.6%) [12]. Fomete B et al. in their study among a group of Nigerian population [13] found that coated tongue (19.35%) was the most prevalent lesion followed by tongue-tie. Bajarang et al. reported geographic tongue as one of the common tongue lesion rates. The incidence of geographic tongue among a group of the Brazilian population was 21% which was higher than the current study [5]. Among a group of Jordanian populations complaining of oral lesions, 23.7% of the patients had one or more tongue lesions. Geographic tongue and fissured tongue were found in 6.8% and 11.4% of the population respectively. The hairy tongue was reported by 3.4% of the patients with a higher incidence among males. The hairy tongue was significantly linked to smoking [15]. A study conducted among the South African population showed an incidence of 0.6% of tongue lesions which was lesser than the current study [16]. Although the etiology of geographic tongue is not well known, it can be correlated to environmental allergies.

Smoking is considered one of the main risk factors for the development of the coated tongue [17, 18] In the Turkish

population prevalence of coated tongue was 2.1% which was very low compared to the present study [17]. The tongue was involved by lichenoid lesions in 2 patients, where erosive or atrophic types were observed mostly on the lateral aspect of the dorsum of the tongue. Lichen can affect other sites within the patient's mouth such as the buccal mucosa and the gingiva [19, 20].

Byahatti et al. they found 7 cases of lichen planus, which again was not the most prevalent oral lesion in his study [8]. Ankyloglossia is a congenital oral abnormality that limits the ability of the patients to protrude their tongue due to short thick band of the lingual frenulum and can affect eating, speech and oral hygiene [21]. The incidence of ankyloglossia range between 0.1% to 3.7% [7, 22].

In a study by Fomete B et al. the prevalence of tongue-tie was 12.9% which was very high when compared with the current study [13].

The different habits were recorded and it was found that smoking was more prevalent among males and was linked with

many types of tongue lesions. The most important fact to be known from this study is that few elderly patients specifically males showed the presence of premalignant conditions (*Lichen planus*) who were having a history of both smoking and non-smoking (an autoimmune disorder). Therefore, various types of tongue lesions were common in middle-aged groups (25-50 yrs) and also the study shows that almost all the patients were lacking both motivation and education about their oral hygiene and harmful effects of their habits like smoking and alcoholism.

CONCLUSION

The presence of a variety of tongue lesions in the current study indicates the importance of the early assessment and diagnosis of the oral mucosal lesion. Further studies are required among the UAE population to compensate for the shortage of epidemiological surveys and to become a basis for future studies in this context.

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