



## Prevalence of common nonmalignant tongue lesions

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### ABSTRACT

Superficial tongue lesions create a significant ratio of the oral lesions, which afford approximation to oral health and general condition of the patient and may reflect the presence of many systemic diseases of an individual. Oral lesions have long been view as the first signs of many systemic diseases and numerous of oral illness. The aim of this study was to determine the prevalence of various superficial tongue lesions in Iraqi population. 2500 patients attending the Department of Oral Medicine, College of Dentistry, Al-Mustansiriyah University in Baghdad, Iraq were examined for the presence of various tongue lesions during the period from October 2013 to September 2016. The age of the patients ranged from 9-75years with a mean age of 36.51 years. The number of occurrences of tongue lesions was 14.64% and the most common superficial tongue lesion diagnosed was fissured tongue affecting 43.7% of the subjects (160 cases). The geographic tongue was seen in 65 patients (17.7%). The coated tongue was diagnosed in 55 patients (17 %) hairy tongue was seen in 21patients (5.7 %) and ulcerations was seen in 1 patient (0.27%). Ankyloglossia was seen in 46 patients (12.5%) and scalloped tongue was seen in 10 patients (2.7 %). Vari-cosities were seen in 1 of the patients (0.27 %) and thrush in one patient (0.27 %). The number of occurrences of tongue lesions in the present study was not higher of than previous studies, but the high prevalence of tongue lesions in this study (14.64%) specially fissured tongue (43.7%), geographic tongue (17.7%) and coated tongue (15.02%) indicate further investigations are demanded to indicate if genetic and congenital or environmental factors play a critical role.

**Keywords:** Fissured tongue; Coated tongue; Ankyloglossia; Scalloped tongue.

### INTRODUCTION

Superficial tongue lesions create a significant ratio of the oral lesions, which afford approximation to oral health and general condition of the patient and may reflect the presence of many systemic diseases of an individual (Avcu and Kanli, 2003) and a strong relation was found between tongue lesions and age, sex, oral hygiene, and habits. Although the tongue is primarily composed of muscle tissue, most pathologic damages arise from the cells of the surface epithelium, which covers the tongue, and blood vessels (Avcu and Kanli, 2003). Distinct epidemiological researches have been performed in different nations describing the prevalence of superficial tongue lesions in various communities (Cebeci et al., 2009; du Toit, 2003; Greenberg, M. e Glick, 2003). Differences have been mentioned because of divergences in the race, topographical alterations, a project of the study, the diagnostic pattern used for the study, and sex variations in the study cases (Darwazeh

and Pillai, 1993; Mathew et al., 2008). Prevalent part of the oral lesions are assumed to be developmental disorders and are occasionally identified by the patient (Motalebnejab et al., 2008). The percent study summaries a few of the most common nonmalignant conditions that affect the tongue in the Iraqi people.

To date, there has been no study on the type and prevalence of superficial tongue lesions and developmental anomalies in dental patients in Iraq.

This study was aimed to assess the type and distribution of super facial tongue lesions and developmental anomalies in Iraqi population.

### PATIENTS AND METHODS

2500 patients have been examined in the dental clinic in the Department of Oral Medicine College of Dentistry, Al-Mustansiriyah University in Baghdad, Iraq for the presence of mouth lesions during the period from October 2013 to September 2016. The age of the patients ranged from 9-75 years with a mean age of 36.5 years. Following the WHO guidelines, the clinical examination of the oral cavity and tongue was done; the examination comprises inspection of the head and neck and an intraoral evaluation of the hard and soft tissues in conjunction with a thorough medical and dental history. The entire mouth was inspected regardless of the pa-

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tient's chief complaint and reasons for the visit (Finkelstein, 2017) under artificial illumination on a dental chair, using a mouth mirror and gauze. The tongue was examined for any epithelial changes, disorders, size, and movements; examination of the oral cavity was performed by two oral medicine specialists. Most of the superficial tongue lesions have been discovered during examination and very few of the patients know about of the lesions present. Some of them complained of burning sensation of the tongue. Case sheet has been filled for the patients and a detailed family, medical and dental history was reported also the history of any habits such as tobacco smoking and alcohol was recorded. The patients haven't received medication for any of the lesions examined.

### Data Analysis

The results were expressed as number, percent and whenever possible as mean  $\pm$  SD using Excel 2010.

### RESULTS

This study was achieved on 2500 subjects, from the entire number of them 1373 were males and 1127 were females. 366 subjects of the entire number examined were distinguished with many superficial tongue lesions. The patient's age ranged between 9 years and 75 years and the average age of 31.5 years with standard deviation (SD) of 14.6 years (Table no.1). The statistical analysis of different superficial tongue lesions demonstrates that the prevalence of apparent tongue lesions in this study is 14.64% (table no.2) and the most frequent lesion diagnosed in the study samples was fissure tongue (*Lingua plicata*) affecting 43.7% of the subjects (160 cases), Geographic tongue (benign migratory glossitis) detected in 65 cases (17.7%). demonstrated in the table (no.2). The Coated tongue (white tongue) was detected in 55 patients (17%) hairy tongue (furry or black tongue) was found in 21 patients (5.7 %) and ulcerations were observed in 1 patient (0.27%). Ankyloglossia was noticed in 46 patients (12.5%) and scalloped tongue was seen in 10 patients (2.7 %), burning was seen in one patient 0.27%. Varicosities were seen in one of the patients (0.27 %) and thrush in one patient (0.27 %). Most of the patients weren't aware of the lesions and most of the cases were asymptomatic. The superficial tongue lesion effects the female slightly more than the male (Table no. 3).

### DISCUSSION

Although easily examined, most of the oral lesions difficult to dental practitioners to reach exact diagnosis clinically, but an accurate or differential diagnosis can be obtained by a detailed medical and dental history of the patient and careful history of the lesion (including site, size, shape, etc.) predating symptoms, and habits that may be the direct cause of the apparent lesion such as tobacco smoking and excessive intake of alcoholic drinks. In this study, the prevalence of superficial tongue lesions was 14.64%. This is in accordance with Darwazeh

and Rioboo-Crespo et.al to be close to 18.5% (Darwazeh and Pillai, 1993; Rioboo-Crespo et al., 2005). The most prevalent superficial tongue lesion in this study was fissured tongue (*Lingua plicata*) (43.7%) this is in conformity with the many previous studies, which showed that fissured tongue is the most prevalent tongue lesion in several populations (Avcu and Kanli, 2003; Cebeci et al., 2009; Motalebnejab et al., 2008; Rioboo-Crespo et al., 2005) the lesion effect the female slightly more than the male (table 2) this is disagree with Vörös-Balog et al. (2003) who found that Fissured tongue is a painless condition usually there are no associated symptoms and no treatment is required only to restore good oral hygiene.

Geographic tongue was accounted in 65 patients with a prevalence of 17.7 %, the geographic tongue is more expected in adolescence, although it has been accounted in many previous studies in cases greater than 40 years and is believed to have gender relationship and it more usual in females (Darwazeh and Pillai, 1993; Sunil et al., 2013). In this study geographic tongue was more common in females than male however male predominance has been described by many studies (Vörös-Balog et al., 2003) so that the relationship of sex with the geographic tongue is not dependable. But the relationship of the fissured tongue with geographic tongue has been described in Vörös-Balog et.al. study (Vörös-Balog et al., 2003). The geographic tongue is a transient condition so we have a wide discrepancy in the results of the studies also the wide discrepancy may be due to the differences in the race and the differences in criteria used for diagnosis in each study.

The coated tongue prevalence was accounted to be 15.02% in this study this was in agreement with Santosh et al. study in which they described the prevalence of coated tongue to be 16.4% (NEVILLE, 2002; Patil et al., 2013; Rioboo-Crespo et al., 2005). The prevalence of coated tongue was much lower in similar studies in the Turkish population to be 2.1% (NEVILLE, 2002). In this study coated tongue was to a greater extent common in males to be 70.9 % than in females 29.09 % (table 2). Ankyloglossia is abnormally shortened frenulum which limits the normal movement of the tongue also it is called as tongue-tie, it is an unusual minor congenital developmental anomaly. The prevalence of this lesion in this study was 12.56 % which is in disagreement with Salem G. et.al study in which they described the prevalence of Ankyloglossia to be 3.7% (Salem et al., 1987). Hairy tongue: results from excessive production of keratin on the filiform papillae of the dorsal surface of the tongue leads to the formation of lengthened filaments that resemble hair. Discoloration of the tongue results from the accumulation of food debris and bacteria in the lengthened filaments giving the dorsal surface of tongue dark appearance. It is common in heavy smokers and inpatient with poor oral hygiene (Joseph and Savage, 2000; McGrath et al., 2008; Sarti et al., 1990). Also, the hairy tongue has been identifying the use of many types of antibiotic (McGrath et al., 2008; Refaat et al., 2008).

**Table 1: Distribution of patients according to gender**

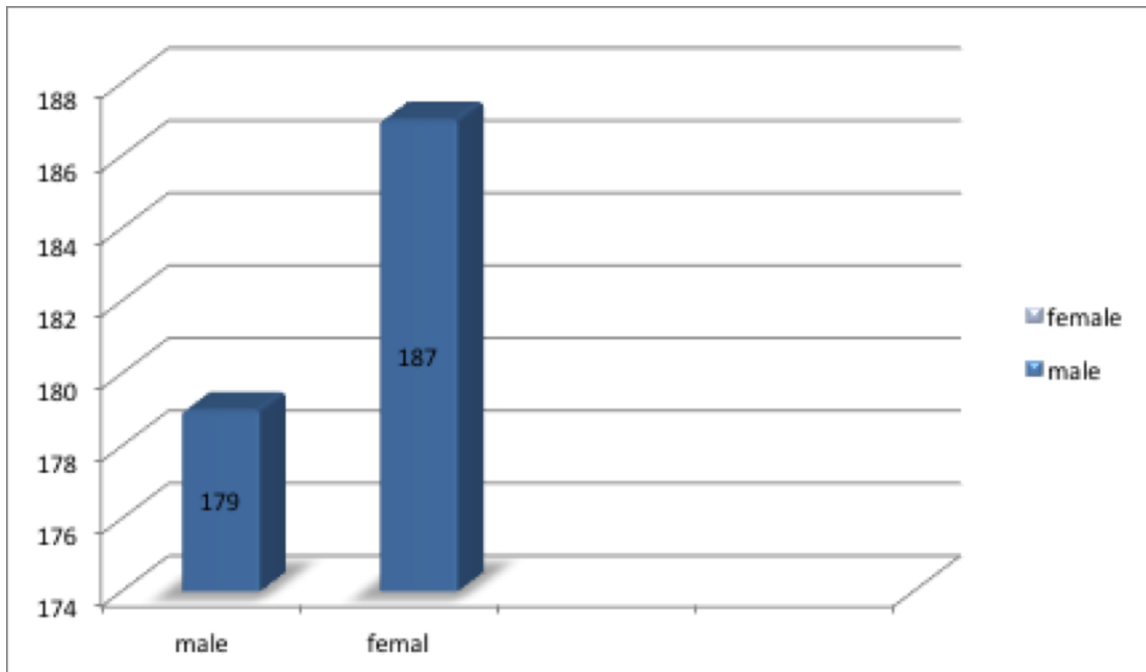
Gender	No. of patients	Mean age ± std. deviation
Male	179	32.8±13.44
Female	187	31.58 ± 14.63
Total	366	31.49±14.65

**Table 2: Distribution and prevalence of various tongue lesions**

Lesions	No. of patients	%	Male no.	%	Female no.	%
Fissured tongue	160	43.7%	71	44.3%	89	55.6%
Geographic tongue	65	17.7%	27	41.5 %	38	58.46 %
Coated tongue	55	15.02%	39	70.9 %	16	29.09 %
Ankyloglossia	46	12.56%	23	50 %	23	50 %
Hairy tongue	21	5.7%	14	66.66 %	7	33.33 %
scalloped	10	2.7%	1	10 %	9	90%
pigmentation	1	0.27%	0	0%	1	100%
traumatic ulcer	1	0.27%	1	100 %	0	0 %
burning	1	0.27%	0	0%	1	100%
thrush	1	0.27%	1	100%	0	0%
Varicose	1	0.27%	1	100%	0	0%

**Table 3: Distribution of tongue lesions according to gender**

Gender	No. of patients	%
Male	179	48.9%
Female	187	51.09%
Total	366	100%

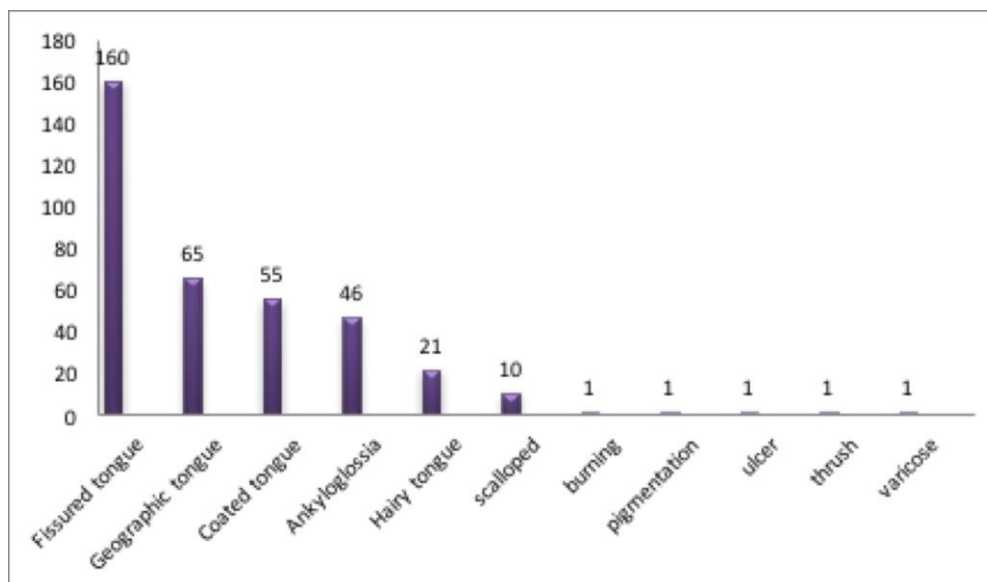


**Figure 1: Distribution of patients according to gender**

There are no symptoms related to the hairy tongue but some patients have malodor or abnormal taste (Byrd et al., 2003; McGrath et al., 2008). No treatment is needed, only maintaining good oral hygiene and gentle daily brushing of the dorsal surface of the tongue with a soft toothbrush can remove the keratinized tissue. In this study the prevalence of hairy tongue was 5.7% (21 patient) and it was more common in male than in female (table2) this finding was in agreement with other similar studies which reported that the prevalence of hairy tongue was 0%-11.3% (Joseph and Savage, 2000;

MARKS and SIMONS, 1979). Scalloped tongue or wavy tongue in this lesion there is wavy wrinkled are present along the lateral borders of the tongue it is not harmful but it considered as a possible clinical oral manifestation of many underlying systemic diseases such as in cases of thyroid problems, hypothyroidism, dehydration and specific types of airway problems (Byrd et al., 2003; Tomooka et al., 2017).

In this study, the prevalence of scalloped tongue was 2.7 % (10 cases) and it was very common in female more



**Figure 2: Distribution of tongue lesions**

than in male (table 2) this finding was in agreement with Gonsalves et al. (2007). Oral mucous membrane pigmentation of is a prevalent lesion in the oral cavity and it has several factors or causes. The majority of the oral pigmentations are physiologic but in certain cases, it can be a predecessor of serious diseases. Gums and buccal mucosae are the most common area for oral pigmentations and it is uncommon found on the tongue consequently the prevalence of tongue pigmentation in this study was 0.27% (one case) (Hassona et al., 2016). The prevalence of traumatic ulcerations in this study was 0.27% (one case), tongue ulcer is caused mostly by unusual traumatic biting on the tongue during food chewing. this finding was in disagreement with Shanaz and Mustafa study in which they report that the prevalence of traumatic ulcerations 2.43% (Gonsalves et al., 2007). Burning sensation is the relentless burning sensation of the mouth without the presence of objective signs also the patient may complain of oral mucosal pain, altered taste sensation and dryness. This condition affects mainly the middle-aged and elderly woman with hormonal changes or psychological disorders. This condition is depending on several factors or causes and often it is idiopathic and the accurate etiology remains ill-defined. The prevalence of burning sensation in this study was 0.27 this finding was in agreement with John et.al study in which they described the prevalence of burning sensation to be 0.11% (Aravindhan et al., 2014; Kohorst et al., 2015). Oral thrush is an opportunistic infection that may be difficult to diagnose in the early stages. It may be asymptomatic but can give the undesirable sensation that may affect the quality of life. Oral thrush is caused by *Candida albicans* is a fungus that lives in the mucous membranes lining of the mouth (Aravindhan et al., 2014). In this study, the prevalence of thrush was 0.27% (1patient). Sublingual varicose was found in one patient with age of 75years in this study varicose is one of many aging-related changes but it can result from smoking and cardiovascular disease (Hedström et al., 2015).

## CONCLUSION

The number of occurrences of tongue lesions in the present study was not higher of than previous studies, however the high prevalence of tongue lesions in this study specially fissured tongue, geographic tongue and coated tongue indicate further investigations are demanded to demonstrate if genetic, congenital, environmental, and oral hygiene factors play a critical role. Relationship of tongue lesions with gender may be established with more research. This study will give an idea about the tongue lesions and may give the dental clinician an idea about what is benign lesions however any doubtful lesion should be consulting to a specialist.

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