J. Oral Diag. 2019; 04:e20190018

ORIGINAL ARTICLE

Prevalence of lingua plicata: A cross sectional study

Lisa Elizabeth Jacob [1]*
Stephy Varghese [2]
Jerin Thomas [3]
Anju Mathew [1]
Omal PM [4]
Saumya John [5]

Abstract:

Introduction: Fissured tongue is a common malformation characterized by deep grooves or fissures in the dorsum of the tongue. Fissured tongue is considered to be a variant of normal tongue architecture and is a totally benign condition. **Objective:** The aim of this present study is to examine the prevalence of fissured tongue, the most commonly occurring type of fissure and the association between the occurrence of fissured tongue with age, gender and, systemic conditions among the Kerala population who visited the dental OP in Pushpagiri College of Dental Sciences, Thiruvalla. **Material and methods:** A total of 500 patients consisting of 250 males and 250 females between the ages of 0-80 years were included in the study. The patients were divided into 4 age groups as 0-20 years, 20-40 years, 41-60 years and 61-80 years. The tongue was examined for the presence or absence of fissures, type of fissures and associated symptoms. The obtained data was subjected to statistical analysis using T test and ANOVA test with p value < 0.05 as statistically significant. **Results:** From a sample of 500, a total of 143 patients (prevalence rate of 28.6%) were found to have fissured tongue. The prevalence of fissured tongue was found to be significantly higher among males and was found to be more prevalent in the age group ranging from 41-60 years. A total of 103 patients had median fissures, 25 had lateral fissures and 30 had a combination of median and lateral fissures. Diabetes and hypertension were the most commonly observed systemic illness. **Conclusion:** Dentists and other oral health care workers need to be aware of the prevalence and management of patients with fissured tongue. As it's a benign condition, fissured tongue requires no specific treatment.

Keywords: Tongue; Fissured; Prevalence; Diagnosis

[1] Pushpagiri College of Dental Sciences, Senior Lecturer, Oral Medicine and Radiology - Thiruvalla - Kerala - Índia.
[2] Pushpagiri College of Dental Sciences, Former Lecturer, Department of Oral and Maxillofacial Surgery - Thiruvalla - Kerala - Índia.
[3] St. Gregorios Dental College, PG Student, Department of Prosthodontics - Thiruvalla - Kerala - Índia.
[4] Pushpagiri College of Dental Sciences, Professor and HOD, Oral Medicine and Radiology - Thiruvalla - Kerala - Índia.
[5] Pushpagiri College of Dental Sciences, Senior Lecturer, Periodontics - Thiruvalla - Kerala - Índia.

Correspondence to:
Lisa Elizabeth Jacob.
E-mail: lisaejacob@gmail.com

Article received on September 23, 2019.
Article accepted on December 9, 2019.

DOI: 10.5935/2525-5711.20190018

INTRODUCTION

The tongue has been believed to be a marker of health for several decades and also known to be a mirror of the oral and general health[1]. Fissured tongue, also known as scrotal tongue, lingua plicata, plicated tongue or furrowed tongue is a benign inherited malformation characterized by deep grooves or fissures in the dorsum of the tongue[2]. Fissured tongue is considered to be a variant of normal tongue architecture and is a totally benign condition. The prevalence of fissured tongue worldwide has been reported to be as high as 30.5%[3]. In general, fissured tongue occurs more common in males when compared to females and its prevalence increases with age in both genders[4]. There is no specific etiology identified for fissured tongue, but a polygenic or autosomal dominant inheritance with incomplete penetrance is assumed, because this condition is seen with increased incidence in families of the affected[5].

Fissuring of the tongue is seen in patients with pernicious anaemia, Sjogren's syndrome, Down syndrome, Melkersson-Rosenthal syndrome and sometimes in Cowden's syndrome[6]. Kullaa-Mikkonen had categorized fissured tongue into two types (i) Fissure tongue with normal filiform papillae. (ii) Fissure tongue syndrome; where fissures are associated with geographical tongue[5]. Fissured tongue is an incidental finding diagnosed during the routine intraoral examination. Usually this condition is asymptomatic unless there is entrapment of food debris within the fissure causing discomfort[1].

The aim of this present study is to examine the prevalence of fissured tongue, the most commonly occurring type of fissure and the association between the occurrence of fissured tongue with age, gender, systemic conditions among the Kerala population who visited the dental OP in Pushpagiri College of Dental Sciences, Thiruvalla.

MATERIALS AND METHODS

The study was carried out in the Department of Oral Medicine and Radiology, Pushpagiri College of Dental Sciences, Thiruvalla. A total of 500 patients consisting of 250 males and 250 females between the ages of 0-80 years were included in the study. The patients were divided into 4 age groups as 0-20 years, 21-40 years, 41-60 years and 61-80 years.

Informed consent was obtained prior to the study and all the procedures followed were in accordance with the Helsinki Declaration. Patients who were unwilling to participate in the study, who had restricted mouth opening, severe form of ankyloglossia, history of tongue surgery, traumatic injuries to the tongue or any other pathology preventing the protrusion of the tongue were excluded.

A detailed medical history was taken. The patients were examined on a dental chair using mouth mirror, probe, sterile gloves, gauze with adequate illumination from the dental chair light. The tongue was examined for the presence or absence of fissures and the type of fissures was classified as median, lateral types and as mild, moderate and severe as follows[7].

Mild - Presence of 1 to 3 fissures;

Moderate - Presence of 4 to 10 fissures;

Severe - Presence of more than 10 fissures[1].

Presence of associated symptoms such as burning sensation, xerostomia, along with the presence of coexisting lesions on the tongue such as geographic tongue, depapillation of the tongue, candidiasis and oral lichen planus was noted.

The obtained data was subjected to statistical analysis using T test and ANOVA test with p value of < 0.05 as statistically significant.

RESULTS

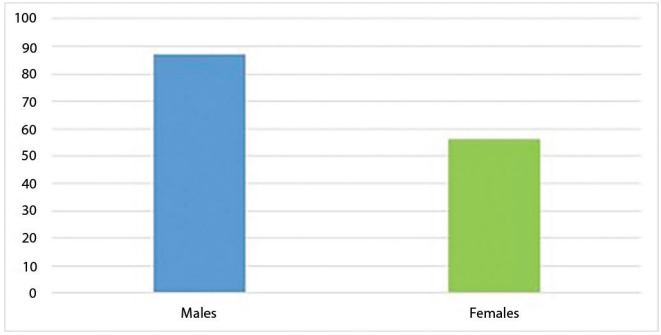
From a sample of 500, a total of 143 patients (prevalence rate of 28.6%) were found to have fissured tongue.

With respect to gender, fissured tongue was found to be more prevalent in males at 34.8% (n=87) compared to females at 22.4% (n=56) and this was found to be statistically significant at p value: < 0.01 (Graph 1).

With respect to age, 4% (n=6) of the patients with fissured tongue were between the ages of 0-20 years, 19.6% (n=28) of patients between 21-40 years, 47.6% (n=68) of patients between 41-60 years and 28.8% (n=41) of patients between 61-80 years.

With respect to the position of fissure, 103 patients had median fissures (Fig. 1), 25 had lateral fissures (Fig. 2) and 30 had a combination of median and lateral fissures. This was found to be statically significant at p value <.00001 (ANOVA test).

With respect to the severity of the fissures, 74.1% and mild fissures on the dorsal surface of the tongue (n=106), 20.3% had moderate fissures (n=29), and 5.6% had severe fissuring of the tongue (n=8) and this was found to be statistically significant at p value <.00001 (ANOVA test).



Graph 1. Distribution of fissured tongue with respect to gender.

Figure 1. Central Median Fissure.

From 143 subjects, associated complaints of xerostomia and burning sensation were observed in 12.5% and 8.3%, respectively.

The prevalence of medical illness such as diabetes, hypertension among patients with fissured tongue has been summarized in Table 1.

From 143 patients, 9% had fissured tongue along with candidiasis of the tongue. One patient exhibited depapillation of the tongue. Lichen planus was observed on the tongue in 3 patients with fissured tongue, and geographic tongue (Fig. 3) was present in 10 patients.

DISCUSSION

Fissured tongue or scrotal tongue is a commonly occurring condition and is characterized by fissures or grooves present on the dorsal surface of the tongue. The exact cause is unknown but fissured tongue may be inherited. This may either be in an autosomal dominant pattern or a polygenic trait. Other factors such as age and environmental factors may play a role in the development of fissured tongue[8].

The prevalence of fissured tongue has been found to vary among different population groups. In our present study, the prevalence of fissured tongue was found to be 28.6%. This finding is in agreement to the study conducted by Musaad et al.[9] in 400 patients in Sudan

Figure 2. Lateral Fissures.

Table 1. Prevalence of Systemic Diseases among the patients with fissured tongue.

SYSTEMIC DISEASE	PERCENTAGE	NO. OF PATIENTS
Diabetes mellitus (Type 2)	21.7%	31
Hypertension	25.2%	36
Dyslipidemia	12.6%	18
Cardiac Disease	4.0%	2
Asthma	3.0%	2
Gastro Intestinal Disturbances	2.1%	3
Thyroid Disease	2%	3
Psychiatric Diseases	0.7%	1

Figure 3. Fissured tongue with geographic tongue.

where the prevalence of fissured tongue was found to be 24%. A study conducted by Patil et al.[10] in 4926 patients in a North Indian population revealed the prevalence of fissured tongue to be 14.9%. However a study by Saritha et al.[11] with 2050 patients revealed the prevalence rate to be as high as 80.6%. These differences may be a result of different population groups used for study, difference in sample sizes, variation in the criteria used to identify and classify fissures of the tongue and due to the subjective errors among different observers.

In our study, fissured tongue was found to be more prevalent in males than females. From 250 males, 34.8% had fissured tongue. Among 250 female patients, only 22.4% had fissured tongue. This difference was found to be statistically significant at p value:<0.01. Similar results were obtained by Bhat et al.[4], Feil & Filippi[12], Abed et al.[13], Saritha et al.[11] and Sudarshan et al.[1] where the prevalence was significantly higher in males.

The frequency of fissured tongue was highest in the age group between 41-60 years at 47.6%. This was followed by the age group 61-80 years (28.8%), 21-40 years (19.6%) and 0-20 years (4%) in decreasing order. This finding is similar to the result obtained by Feil & Filippi[12] in 1000 patients where the frequency of fissured tongue was higher among the older age groups. However a study by Bhat et al.[4] in 100 patients revealed that fissured tongue had the highest prevalence in the age group between 0-20 years. This may be due to the difference in sample sizes.

With respect to the position of fissure, 103 patients (72% from 143 patients with fissured tongue) had only median fissures, 25 had only lateral fissures (17.5 % from 143 patients with fissured tongue) and 30 (21% from 143 patients with fissured tongue) had a combination of median and lateral fissures. This was found to be statically significant at p value <.00001 (ANOVA test). This in accordance to the study conducted by Feil & Filippi[12] where majority of the patients presented with a median fissure on the dorsum of the tongue.

In the current study, 74.1% had mild fissures on the dorsal surface of the tongue (n=106), 20.3% had moderate fissures (n=29), and 5.6% had severe fissuring of the tongue (n=8) and this was found to be statistically significant at p value <.00001 (ANOVA test). This correlates well with the study by Feil & Filippi[12] where the most prevalent grade of fissuring based on severity was grade 1 which was the mildest form detected.

From 143 subjects, associated complaints of xerostomia and burning sensation were observed in 12.5% and 8.3% respectively. In the study conducted by Feil & Filippi[12], 1.7% of patients had burning sensation.

The most commonly observed systemic diseases in our study included Hypertension and Diabetes mellitus. This is in agreement to a study conducted by Patil et al.[10] where Hypertension and Diabetes mellitus were among the commonly observed systemic conditions among patients with lesions of the tongue.

With respect to other lesions occurring on the tongue co-existing with fissured tongue, 9% of patients with fissured tongue had candidiasis, 7% had geographic tongue, 2% had oral lichen planus. It has been documented in the literature that geographic tongue and fissured tongue may occur simultaneously and that fissured tongue should be considered as the end stage of geographic tongue[14].

CONCLUSION

Dentists and other oral health care workers need to be aware of the prevalence and management of patients with fissured tongue. As it's a benign condition, fissured tongue requires no specific treatment. The numerous grooves on the tongue may act as a nidus where debris, food and bacteria may get entrapped leading to

irritation and possibly infection. Patients should be advised to brush the tongue to remove any accumulated debris. Very few studies have been conducted in India regarding the prevalence of fissured tongue and hence further studies with larger sample size are required in order to understand the prevalence and factors associated with the development of fissured tongue.

REFERENCES

1. Sudarshan R, Sree Vijayabala G, Samata Y, Ravikiran A. Newer Classification System for Fissured Tongue: An Epidemiological Approach. J Trop Med. 2015;2015:262079.
2. Alioğlu Z, Caylan R, Adanir M, Ozmenoğlu M. Melkersson--Rosenthal syndrome: report of three cases. Neurol Sci. 2000;21:57-60.
3. Kamakshi J, Sahana K, Raghavendra K, Prasanna Kumar R. Fissured Tongue: A case report. J Dental Sci. 2018;3:000189.
4. Bhat Z, Hamid R, Wani B, Chalkoo A. Fissured tongue: A cross-sectional study. Int J Appl Dent Sci. 2018;4:133-5.
5. Bhat VS. Fissured tongue to worry or not to worry? Otolaryngol Online J. 2016;6:136.
6. Kaminagakura E, Jorge J Jr. Melkersson Rosenthal syndrome: a histopathologic mystery and dermatologic challenge. J Cutan Pathol. 2011;38:241-5.
7. Rathee M, Hooda A, Kumar A. Fissured Tongue: A Case Report and Review of Literature. Internet J Nutr Wellness. 2009;10:1-4.
8. Neville BW, Damm DD, Allen CM, Bouquot JE. Oral and Maxillofacial Pathology. 3rd ed. Saint Louis: Saunders Elsevier; 2009. 984 p.
9. Musaad AH, Abuaffan AH, Khier E. Prevalence of Fissured and Geographic Tongue Abnormalities among University Students in Khartoum State, Sudan. Enz Eng. 2015;5:1000137. DOI: 10.4172/2329-6674.1000137
10. Patil S, Kaswan S, Rahman F, Doni B. Prevalence of tongue lesions in the Indian population. J Clin Exp Dent. 2013;5:e128-32.
11. Saritha M, Padmashree S, Shilpa PS, Sultana N. The Prevalence of Fissured Tongue in 2050 Indian patients: a cross sectional study. Int J Dent Res Dev. 2015:5:5-14.
12. Feil ND, Filippi A. Frequency of fissured tongue (lingua plicata) as a function of age. Swiss Dent J. 2016;126:886-97.
13. Abed AH, Abdullah MI, Warwar ANH. The Prevalence of Tongue Anomalies among Medium School Pupils at Aged 13-15 Years Old in Fallujah City, Iraq. J Res Med Dent Sci. 2018;6:249-55.
14. Greenberg M, Glick M, Ship AJ. Burket's Oral Medicine. 11th ed. Ontario: BC Decker INC; 2008. 600 p.