

Evaluation of frequency of fissured tongue: A cross sectional study at Kanpur

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Abstract

Introduction: Fissured tongue may be apparent at birth or become apparent during later stages of life. The study is conducted to determine the prevalence of fissured tongue among Kanpur population visiting a dental OPD.

Materials & Methods: This study was conducted among 1000 patients divided into 4 age groups ranging from 20-60 years. Tongue was diagnosed clinically for the presence of grooves on the dorsal and lateral aspects of the tongue and also the pattern of fissure. The patients were interviewed for their symptoms related to tongue lesions and medical history. Statistical analysis: ANOVA test and T test was done to assess the relation between fissured tongues.

Results: Fissured tongue was present in 290 cases with prevalence rate of 29%. The fissures were found to be most prevalent in the 51-60 age group, 47.58%. A total of 176 patients had median fissures. In our study there was significant association seen between fissured tongue and systemic conditions with 22.9% patients were associated with diabetes mellitus and 32.65% was found in patients with hypertension.

Conclusion: Fissured tongue may present as asymptomatic or symptomatic tongue lesions in patients visiting dental specialist. The dentist may be the first one to observe and diagnose the condition. Thus, dentist plays a key role in diagnosis and management of fissured tongue and also finding out any underlying systemic disease underneath the condition.

Keywords: Fissures, systemic disease, tongue.

Introduction

The tongue has an autocrine mechanism of action to synthesize different substances to interact with the entire body. [1] Different authors gave various terms to the fissures tongue such as grooved tongue, scrotal tongue, and furrowed, wrinkled, fluted, plicated or ribbed tongue. [2] Fissured tongue is a benign inherited condition characterized by the presence of multiple deep grooves or fissures on the dorsal as well as lateral surface of the tongue. Worldwide prevalence has been reported to be as high as 30.5%. [3] The occurrence of fissured tongue is more commonly reported in males as compared to females with increasing age and rarely present among children. [4] Fissured tongue is seen to be associated with various conditions such as pernicious anemia, geographic tongue, Sjogren's syndrome, Down syndrome, Melkersson-Rosenthal syndrome and Cowden's syndrome. The classification of fissured tongue given by Kullaa- Mikkonen, where he classified fissured tongue into two types- Fissure

tongue with normal filiform papillae, and fissures associated with geographic tongue. [5] Fissured tongue could even be a subsidiary finding that is diagnosed during the routine intraoral examination. The condition remains asymptomatic but in case of accumulation of food debris within the deep fissures can lead to glossarist and halitosis. [6] The aim of the present study was to evaluate the frequency of fissured tongue among Kanpur population visiting a dental OPD.

Materials & Methods

The present study is carried out in the Department of Oral Medicine and Radiology, Rama Dental College Hospital and Research Centre, Kanpur from July to December 2020. A total of 1000 patients was selected, 500 males and 500 females between the age group of 20-60 years were included in the study. The patients were divided into 4 age groups as 20-30 years, 31-40 years, 41-50 years and 51-60 years.

Informed consent was taken from the patients or relatives, and ethical clearance was obtained from the institutional ethical committee. Patients who were willing to participate in the study and with medical history of any systemic illness were included in the study. Patients with restricted mouth opening, severe form of ankyloglossia, history of any tongue surgery and patients with traumatic injuries to the tongue or any other pathology preventing the protrusion of the tongue were excluded from the study.

A detailed medical record of the patient was taken. The patient’s examination was done on a dental chair with the help of mouth mirror and probe after wearing sterile gloves and under adequate illumination from the dental chair light. Patients who are participating in the study were asked to gargle their mouth with sterile water before performing the intraoral examination of the tongue. With the help of gauze piece, the tongue was holed from tip and examined for the presence or absence of fissures and the types of fissures. When fissures were present, they are classified into the following types as: median fissures, lateral types and combination of median and lateral fissures and mild, moderate and severe. [7] Presence of associated symptoms like burning sensation, xerostomia, alongside the presence of coexisting lesions on the tongue like geographic tongue, depapillation of the tongue, candidiasis and oral lichen planus was noted.

Statistical analysis

The obtained data was tabulated and presented as frequency and percentage. Statistical analysis using T test and ANOVA test was applied with *p* value of < 0.05 as statistically significant.

Results

From a sample of 1000, a total of 290 patients (prevalence rate of 29%) were found to have fissured tongue. With respect to gender, fissured tongue was found to be more prevalent in females at 61.37% (n=178) compared to males at 37.24% (n=108) and this was found to be statistically significant at *p* value: < 0.01. [Graph-1]

With respect to age, 4.82% (n=14) of the patients with fissured tongue were between the ages of 20-30 years, 19.65% (n=57) of patients between 31-40 years, 27.93% (n=81) of patients between 41-50 years and 47.58% (n=138) of patients between 51-60 years. [Graph-2] The demographic distribution of gender in accordance with age shows female predominance in the age range of 51-60 years 32.75% (n=95). [Graph 3]

With respect to positions of fissure, 176 patients had median fissures, 50 had lateral fissures

and 64 had a combination of median and lateral fissures. [Figure-1], [Graph 4]

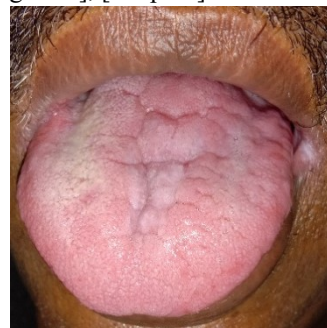


Figure 1: combination of median and lateral fissures

74.1% of mild fissures on the dorsal surface of the tongue (n=215), 20.3% had moderate fissures (n=59), and 5.6% had severe fissuring of the tongue (n=16). From a total of 290 patients with fissured tongue 12.5% of patients are seen with associated xerostomia and 8.3%, of patient has burning sensation complaint. From total 290 patients with fissured tongue 196 patients reported with systemic illness There was significant association of fissured tongue with systemic conditions like diabetes and hypertension, thyroid disease, cardiac disease, and asthma summarized in Table 1.

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

| Systemic disease | Percentage (%) | No. of patients (n-196) |
|----------------------------|----------------|-------------------------|
| Hypertension | 32.65 | 64 |
| Diabetes mellitus (Type 2) | 22.9 | 45 |
| Thyroid disease | 18.36 | 36 |
| Cardiac disease | 16.32 | 32 |
| Asthma | 9.69 | 19 |

From 290 patients, 22 had fissured tongue in association with candidacies of the tongue [Figure-2] and 9 patients with fissured tongue had lichen planus. [Figure-3] One patient exhibited geographic tongue along with fissured tongue in 7 patients. [Figure-4]

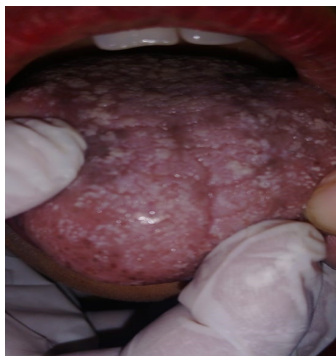


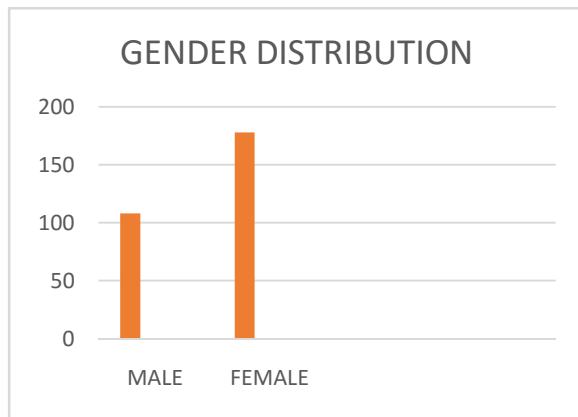
Figure 2: Fissured tongue in association with candidacies of the tongue



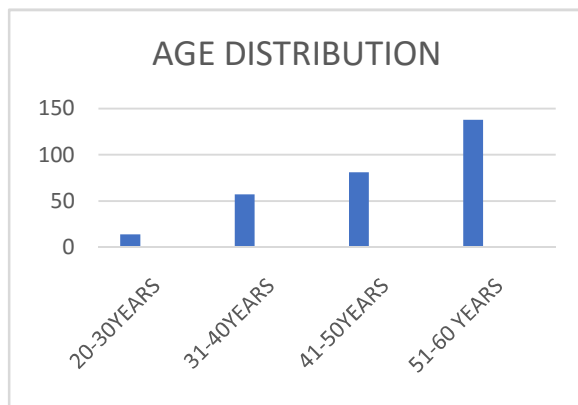
Figure 3: Fissured tongue had lichen plan us



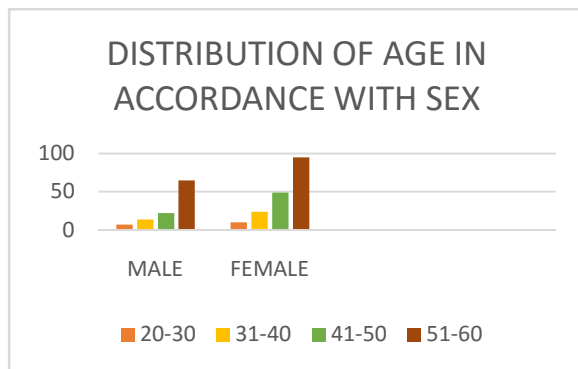
Figure 4: Fissured tongue with geographic tongue



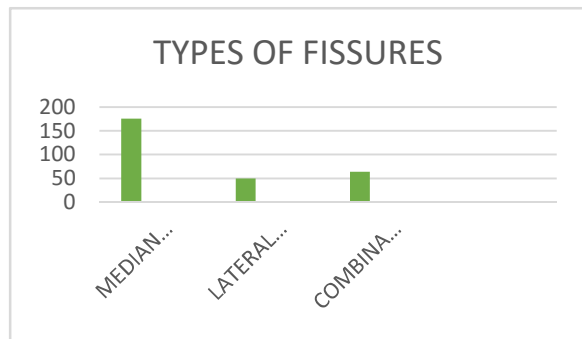
Graph 1: Distribution of fissured tongue among gender.



Graph 2: Distribution of fissured tongue with respect to age.



Graph 3: Distribution in respect to age and sex



Graph 4: Types of fissured tongue among study population

Discussion

Fissured tongue which is also known as cerebri form tongue or scrotal tongue and is characterized by the development of fissures or grooves on the dorsal or lateral surface of the tongue.[1,2,7] The exact cause of the condition is unknown but it may be due to either an autosomal dominant pattern or a polygenic trait. Other factors that contribute in the cause of disease are age and environmental factors. [8, 9] A study conducted by Jacob L.E ET. Al, among 500 patients in Kerala and Musaad et. al, among 400 patients in Sudan, noted fissured tongue with the prevalence rate of 28.6% and 24% respectively which was found similar to our study.[1,9] However, a study conducted by Patil et al. in a North Indian population in 4926 patients showed the prevalence of fissured tongue to be 14.9% and Saritha et al. in 2050 patients revealed the prevalence rate to be as high as 80.6%.[10,11] These differences in result could also be due to different population groups used for study, difference in sample sizes, variations within the criteria used to identify and classify fissured tongue and also due to the subjective errors among different observers. In our study, prevalence of fissured tongue was found to be more in females 61.37% as compared to males and this difference was found to be statistically significant at p value < 0.01. The result of our study is conflicting with results obtained in study conducted by Bhat et.al, Saritha ET. al, Feil & Filippi, Abed et. al, and Sudarshan et. Al where the prevalence was significantly higher in males.4, [11-14] The frequency of fissured tongue in our study is highest in the age group between 51-60 years at 47.58%. This was followed by the age group 41-50 years (27.93%), 31-40 years (19.65%) and 20-30 years (4.82%) in decreasing order. This finding is similar to the result obtained by Feil & Filippi conducted in 1000 patients where the frequency of fissured tongue was higher among the older age groups.[12] However, a study by Bhat et al. in 100 patients revealed that fissured tongue had the highest

prevalence in the age group between 0-20 years.[4] The difference in results may be due to the difference in sample sizes.

With respect to the position of fissure, our study shows that 176 patients (24.8 %) had only median fissures, 50 patients had lateral fissures (17.24%) while 64 patients (22%) had a combination of median and lateral fissures which was found to be statically significant at p value < .00001. This is in accordance to the study conducted by Feil & Filippi where majority of the patients (64.6%) presented with a median fissure on the dorsum of the tongue.[12] When condition do not cause any discomfort to patient no treatment is required. Maintenance of oral hygiene and cleaning of tongue twice daily with use of special tongue scraper should be advised to the patients with fissured tongue this may help preventing the further complications.

Conclusion

Fissured tongue may present as asymptomatic or symptomatic tongue lesions in patients visiting dental specialist. The dentist may be the first one to observe and diagnose the condition. Thus, dentist plays a key role in diagnosis and management of fissured tongue and also finding out any underlying systemic disease underneath the condition.

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