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Fissured tongue: A cross-sectional study

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Abstract
Background: Fissured tongue (lingua plicata) is a mostly asymptomatic condition characterized by grooves and fissures of varying depth on the dorsal surface of the tongue. Most reports in the literature indicate a prevalence of 10–20%, although there is marked variation
Objectives: The objectives of the study are: 1. To assess the most prevalent pattern of fissured tongue in patients 2. To assess the possible association between the occurrence of fissured tongue with age, gender, symptoms and medical illness.
Methods: A cross sectional study was conducted in our department of oral medicine and radiology. Fissured tongue was diagnosed clinically based on the presence of grooves on the dorsal and lateral aspects of the tongue and also the pattern of fissure. The subjects were asked about their habit history, symptoms related to tongue lesions and medical history.
Statistical analysis: Chi square test was done to assess the relation between fissured tongue with age, sex, habits, symptoms and medical illness.
Results: Out of 100 subjects screened, 68 were males and 32 were females. The fissures were found to be least in the 0-20 year age group, 4 (4 %) and it was most prevalent in the 21-40 age group, 38 (38 %), followed by 41- 60, 33 (33 %) and 61-80, 25 (25 %) years of age. The most prevalent pattern of fissure was found to be central longitudinal fissuring, 50 (50 %), followed by transverse fissures arising from a central fissure 16 (16 %), then type I, 13 (13 %) type V, 13 (13 %), type VI, 6 (6 %) and type III, 2(2 %). The least prevalent pattern was type III, double fissures. There was no significant association of fissured tongue with systemic conditions.
Conclusion: The fissured tongue was most prevalent in the 21-40 age group and in the males. Central longitudinal fissuring was the most prevalent pattern seen. The occurrence of fissured tongue showed no association with any systemic conditions.

Keywords: Tongue, fissured tongue, central longitudinal fissuring

Introduction
Fissured tongue (lingua plicata) is a common normal variant or sign of age of the tongue surface, which does not require treatment. Tongue is known as the mirror of oral and general health. Fissured tongue is an inherited disorder manifested with grooves that can vary in depth [1]. Fissure tongue is a commonly encountered tongue disorder in dental practice, it is also termed as scrotal tongue or lingua plicata often presents as groove oriented antero-posteriorly with multiple branch fissures extending laterally, which does not require treatment. The depth of the fissures ranges from 2 milli-meters up to 6 mm [2]. Mostly, a central longitudinal furrow (median sulcus) initially develops in the middle of the dorsum of the tongue. The deeper this median sulcus, the more numerous transversal furrows radiate from it. Extensive furrows can be connected with each other, making the tongue look like composed of separate lobes. The condition is confined to the anterior two-thirds of the tongue which are of ectodermal origin, whereas the endodermal base (radix) of the tongue located behind the sulcus terminalis is spared.
Diagnosis of fissured tongue is based on clinical examination, biopsies are rarely taken. The tongue has to be protruded to unfold the fissures so that the fissures are visible [2]. Variable range of prevalence rates has been reported in different parts of the world. A definite etiology does not exist but a polygenic mode of inheritance is postulated. In general fissured tongue occurs more frequently in males as compared to females [3, 4] and it increases with age in both genders [5-7]. The aim of the present study was to determine the most prevalent pattern of fissured tongue and also to assess the possible association between the occurrence of fissured tongue with age, gender, systemic conditions.

Subjects and Methods

A Cross sectional study was conducted in the Department of Oral Medicine and Radiology. The sample size of the study was 100 subjects. Only those patients were selected who were willing to participate in this study. Exclusion criteria was patients with limited mouth opening, any trauma to the tongue, severe ankylo-glossia, limited protrusion of the tongue, any previous tongue surgery. Informed consent was taken from all subjects. The tongue examination was done by a trained single oral medicine resident. Medical history of the subjects were noted down. Subjects were also interviewed regarding any symptoms like burning sensation and altered taste. The patients were divided into four groups based on their ages from birth to 80 years. The patients were seated upright on the dental chair and were examined using sterile hand gloves, mouth mirror, straight probe and under adequate illumination. They were asked to swish their mouth with sterile water before performing the intraoral examination of the tongue. The patients were asked to open the mouth and protrude the tongue as much as possible and were examined with sterile gloves. Sterile gloves were used to hold the tip of the tongue to ease complete examination of the tongue. Tongue examination was performed according to the guidelines by WHO and no cytology or biopsy was performed. All the participants were examined for the presence or absence of fissure and also regarding the type of fissured tongue. When fissures were present, depending on the pattern of fissure, they are classified into the following types based on the classification given by AG Farman in 1976.

- Type I - Placation
- Type II - Central longitudinal fissure
- Type III - Double fissure
- Type IV - Transverse fissure from a central fissure
- Type V - Transverse fissure without a central fissure
- Type VI - Lateral longitudinal fissure

Results

Chi-square test was used to associate the occurrence of fissured tongue with age, gender, symptoms and medical illness. A total of 100 patients whose age ranged from 0-80 years, 68 were males and 32 were females (Fig. 1)

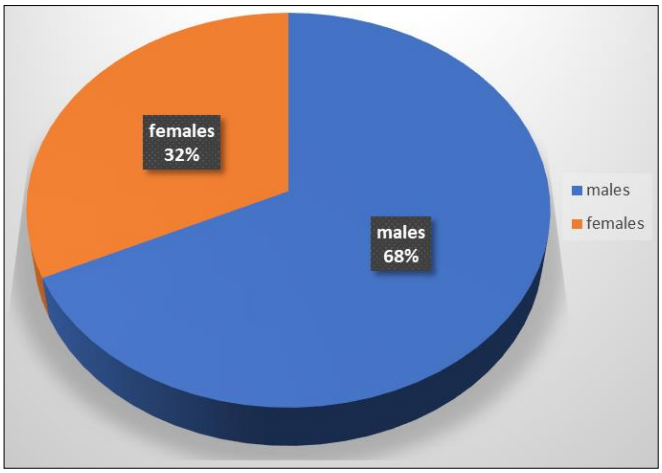

Fig 1: Gender Distribution

The fissures were found to be least in the 0-20 year age group, 4(38 %) and it was most prevalent in the 21-40 age group, 38 (38 %), followed by 41-60, 33(33 %) and 61-80, 25(25 %) years of age (Fig. 2)

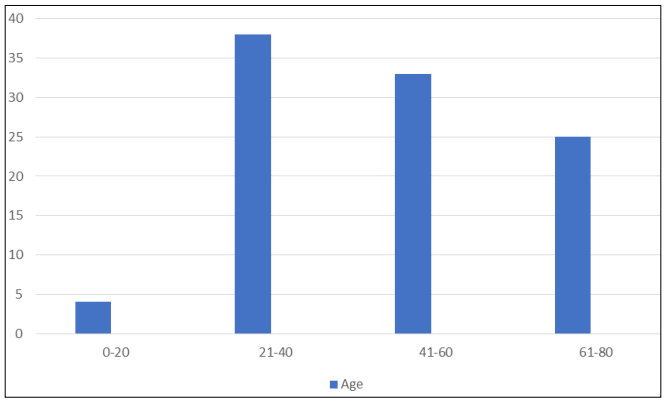

Fig 2: Prevalence of fissured tongue in terms of age group

The prevalence of fissured tongue was higher among males 44(67.69%) as compared to females, 21(32.30%) and was found to be statistically significant (Fig. 3).

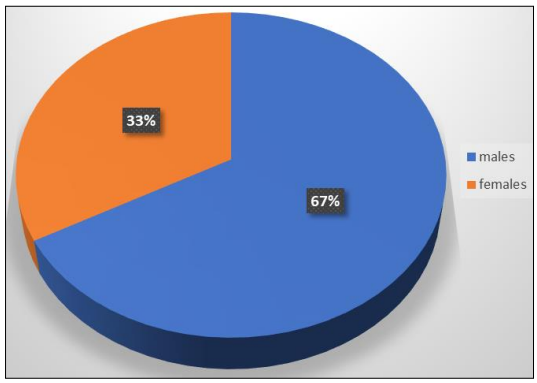

Fig 3: Prevalence of fissured tongue in terms of gender

Most common site of occurrence was anterior and middle portions of the tongue. The most prevalent pattern of fissure was found to be central longitudinal fissuring, 50 (50 %), followed by transverse fissures arising from a central fissure 16 (16 %), then type I, 13 (13 %) type V, 13 (13 %), type VI, 6 (6 %) and type III, 2 (2 %). The least prevalent pattern was type III, double fissures. There was no significant association of fissured tongue with systemic conditions. In our study all the patients were asymptomatic.

Discussion

Fissured tongue is a benign condition which is asymptomatic, and is usually seen in general population. The exact etiology is not completely known; a polygenic or autosomal dominant hereditary component is presumed [2]. However, the difference in prevalence observed in different age groups suggests that fissured tongue is not of genetic origin [5]. It affects both genders, but some studies have shown a male predilection [8] which was similar to our study. The prevalence of fissured tongue varies and various authors have published data based on the study done in different parts of the world. The study conducted by Khozeimeh and Rasti among Iranian population where they observed a prevalence of 11.8% in 1540 subjects [9]. Darwazeh and Almelaih also found a prevalence of 11.5% among 2000 Jordanian population [3]. The studies reported in Brazil (27.3%) by Dos Santos *et al*. [10] and among Lybian adults (48.4%) by Byahatti and Ingafou [11] were higher. The variations in the prevalence can be attributed to the different diagnostic criteria used by the examiners, difference in the race, ethnicity age and sex of the subjects, in addition to the difference in the methodologies used by different researchers.

Among the various age groups the 21-40 year age group had a slightly more predilection (38.0%), of fissured tongue with least prevalence among the 0-20 year age group. This was also observed by Kovac-Kovacic and Skaleric [12] and Darwezeh and Almelaih [3]. As the age advances the prevalence also increased this can be attributed to the reduced immune response, age related atrophy of oral tissues, salivary hypofunction, vitamin deficiencies and candidiasis. Fissured tongue was more prevalent among men than in women in our study which is in accordance with the findings of Aboyons and Ghaemma Ghami in Ljubljana and Darwezeh and Almelaih [3] and Pillai in Jordhan. Kelsch *et al*. [13] and Patil *et al*. [4] observed only slightly more frequent occurrences in males, whereas others found a strikingly increased frequency in females Darwazeh and Almelaih [3]. In other studies females were more affected according to Vieira-Andrade *et al*. [14] and Banoczy *et al*. [15] In our study the most prevalent pattern of fissured tongue was central longitudinal fissuring (50 %). The distribution pattern in our study is in accordance to the studies conducted by Omal *et al*. [16] where the most common pattern was central longitudinal fissuring. In our study, all the patients with fissured tongue were asymptomatic. Fissured tongue is usually asymptomatic, but may become symptomatic if fissures retain food debris. This finding is in accordance to the study by Maloth *et al*. [17] were 99% were asymptomatic and only 1% had burning sensation. This finding is in contrast to the study conducted by Darwazeh and Almelaih *et al*. [3] who observed that 23% of the subjects with fissured tongue reported symptoms like soreness.

Conclusion

Among the tongue lesions, fissured tongue is the most prevalent tongue lesion. Dental practitioners and health workers should be familiar with the clinical appearance, etiology and diagnosis of fissured tongue. Patients should be advised to implement dental home care on a regular basis. Brushing of the tongue should be included in the oral hygiene habits

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