

# Fissured Tongue: A Case Report and Review of Literature

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## Abstract

Fissured tongue is a benign condition characterized by numerous shallow to deep grooves or furrows on the dorsal surface of the tongue. Aging, malnutrition and local factors such as infection and may contribute to its development and symptoms. Fissured tongue may have a familial occurrence and can be associated with certain underlying syndromes. A case of a 50 years female with fissured tongue along with a review of literature is being presented.

## INTRODUCTION

Patients with fissured tongue may present with multiple grooves, or furrows on the dorsal surface tongue ranging from 2 to 6 mm in depth. The condition is usually asymptomatic unless debris is entrapped within fissure. Patients may also present with complains of burning and soreness in tongue. The mucosa of the dorsal surface of the tongue has filiform papillae, the hairs of which may shelter the superficial epithelial cells from the mechanical stress.<sup>1</sup> This mechanical protection of tongue mucosa is lowered in fissured tongue in the absence of hairs, keratin and keratohyaline granules and may contribute to inflammation.<sup>2</sup> A case of fissured tongue is being reported, etiologic factors and management of this entity are discussed.

## CASE REPORT

A 50 year old female from the rural area with poor socioeconomic background presented in the dental outpatient department with one month history of mild pain and burning sensation on the tongue which aggravated on intake of citrus and spicy foods. She also complained of discomfort during chewing and malodor. Medical and family history were non-contributory.

General clinical examination demonstrated the patient was normal except for mild anemia. Extra-oral examination revealed normal facial morphology, no skin lesions were seen. Intra-oral examination revealed poor oral hygiene, halitosis and deeply grooved lesions on the dorsal surface of the tongue with entrapped food debris. Flushing was done on the tongue surface with diluted povidone-iodine solution which revealed numerous prominent fissures covering the entire dorsal surface and dividing the tongue papillae into

multiple separate lobules. (Fig 1) No other tongue lesion or associated syndrome was observed.

## Figure 1

Fig 1: Showing fissured tongue



Routine blood investigation revealed mild anemia. Nutrition education and diet modification was advised. The patient was put on oral iron therapy. Patient was advised to maintain the lingual hygiene by 10 times stroking the tongue with soft tooth brush after meals and bedtime supplemented with mouthwash (0.2% solution w/v of Chlorhexidine gluconate) prescribed to swish and spit with 10 ml twice daily for one minute and to strictly adhere to the oral hygiene instructions. Patient had symptomatic improvement with the treatment.

## DISCUSSION

Fissured tongue is a common variant of the tongue that has numerous grooves or fissures on the dorsum of the tongue<sup>3</sup>.

The prevalence rate varies in different geological regions: it's reported to be 0.6% in South Africa, 27.7% in Brazil<sup>4</sup>, 5.71% in southern India<sup>5</sup>. It occurs worldwide with no predilection for any particular race. Benevides<sup>6</sup> supported a difference in prevalence between the sexes, and reported a higher frequency among males. Motalebnejad also reported a higher prevalence in males in an epidemiological study in Iranian patients<sup>7</sup> while Benczy<sup>8</sup> reported higher frequency in women.

The etiology is unknown but hereditary plays a significant role. The condition may be congenital, present at birth, or may become apparent during childhood or later in life. Ajra examined clinical and genetic characteristics of histologically defined fissured tongue in a familial study and reported that fissured tongue with smooth-surfaced papillae was transmitted as a dominant characteristic with incomplete penetrance and was preceded by geographic tongue. The severity of fissured tongue changed with increasing age. Tongue fissuring with normal appearing filiform papillae was not familial and was not associated with geographic tongue. Fissuring with normal-appearing structure should be considered as variation of normal anatomy, whereas fissured tongue and geographical tongue are clinical and etiological disease entity.<sup>9</sup>

Aging and local environmental factors may also contribute to its development. Fissured tongue may present as an independent manifestation or associated with certain underlying syndromes or familial conditions.<sup>10,11</sup> Conditions associated with fissured tongue include Melkersson-Rosenthal syndrome, Down syndrome, acromegaly, Sjorgen's syndrome, oro-facial granulomatosis, psoriasis and geographic tongue.<sup>12</sup>

The Melkersson-Rosenthal syndrome consists of recurrent swelling of the lip or face, intermittent facial palsy and fissured tongue. Lengthy intervals may occur between various manifestations.<sup>13</sup>

Fissured tongue is the most common oral finding in psoriasis. But the severity of fissured tongue does not seem to increase with increasing severity of psoriasis.<sup>14</sup>

Sjorgen's syndrome is an autoimmune exocrinopathy characterized by lymphocyte infiltration of salivary and lacrimal glands that leads to progressive xerostomia and xerophthalmia. One-third of patients suffer of systemic manifestations including arthritis, fever, fatigue and mucosal dryness whereas those with major salivary involvement

show an increased risk to develop low-grade non-Hodgkin lymphomas<sup>15</sup>. The tongue in Sjorgen's syndrome often becomes fissured as a result of decreased salivary secretion.

Geographic tongue (benign migratory glossitis) is an entity of unknown cause and presents clinically with loss of the filiform papillae on the dorsal and lateral surfaces of the tongue sometimes accompanied by an advancing white border with or without erythema. There might also be fissures on the tongue. If symptomatic, patients experience burning and stinging after ingestion of spicy and acidic foods.<sup>16</sup> Geographical tongue occurs in about 1% of general population, and 50% in association with fissured tongue.<sup>17</sup>

Fissured tongue is diagnosed clinically on the basis of fissures. Based on the position of the fissures, fissured tongue can be classified as median and lateral types.<sup>18</sup> Considerable variation is seen in the presentation of grooves or furrows ranging from fissures that are located mostly on the dorso-lateral area of the tongue. The second pattern is a large central fissure with smaller fissures branching outwards at right angles. In the most severe cases, numerous fissures cover the entire dorsal surface dividing the tongue papillae into multiple separate "icelands" or lobules as in our case. The condition is usually asymptomatic. Some patients may complain of mild pain.<sup>19</sup> The condition is worsened by entrapment of food particles within the fissures and in patients with poor oral hygiene and nutrition.

Clinical presentation is characteristically diagnostic and biopsy is rarely done. Inflammation has been described to be the most striking histological finding in the various forms of fissured tongue but not in tongue with normal appearing filiform papillae. Histological examination shows an increase in the thickness of lamina propria, hyperplasia of rete-pegs, neutrophilic micro-abscess in the upper epithelial layers and mixed inflammatory infiltrate in lamina propria. An erythematous tongue resembles the inflammatory condition known as traumatic ulcerative granuloma with stromal eosinophilia (TUGSE), mainly found in the tongue manifesting as an ulcer with elevated margin. Trauma plays an important role in its development.<sup>20</sup> Lack of traumatic event and the clinical presentation in our case, renders TUGSE an unlikely consideration. Melkersson-Rosenthal syndrome was not considered as the patient did not exhibit the other cardinal signs namely, cheilitis granulomatosa and Bell's palsy.<sup>21</sup> Normal facial morphology of the patient ruled out acromegaly and Down syndrome. Fissured tongue as a result of decreased salivary secretion in Sjorgen syndrome

was also ruled out on the basis of clinical signs and symptoms seen in this autoimmune condition that involves salivary glands.

Fissured tongue is a benign condition and no specific treatment is indicated but in patients with severe conditions the first goal of management should be discovery of the irritating cause. Local measures to resolve the clinical manifestations can be attempted. The patient should be encouraged to maintain the oral hygiene and balanced diet.

### CONCLUSION

Fissured tongue is frequently misdiagnosed and over-treated. Oral hygiene and nutrition need to be emphasized to prevent the symptoms caused by local irritating factors.

### References

1. Kullaa-Mikkonen A, Tenovuo J, Sorvari T. Changes in composition of whole saliva in patients with fissured tongue. *Scand J Dent Res* 1985; 93: 522-8.
2. Nevelle BW, Damm DD, Allen CM, Bouquot JE. *Oral and Maxillofacial Pathology*, 2004; 2nd edition Saunders New Delhi India. p. 12-3.
3. Yarom N, Cantony U, Gorsky M. Prevalence of fissured tongue, geographic tongue and median rhomboid glossitis among Israeli adults of different ethnic origins. *Dermatol* 2004; 209: 88-94.
4. Rioboo-Crespso MR, Planells-del Pozo P, Rioboo-Gracia R. Epidemiology of the most common oral mucosal diseases in children. *Med Oral Patol Cir Bucal* 2005; 10: 376-87.
5. Mathew AL, Pai KM, Sholapurkar AA, Vengal M. The prevalence of oral mucosal lesions in patients visiting a dental school in Southern India. *Indian J Dent Res* 2008; 19: 99-103.
6. Benevides dos Santos PJ, Ferreira C, Ferreira de Aguiar MC, Vieria do Carmo MA. Cross-sectional study of oral mucosal conditions among a central Amazonian Indian community. *Brazil J Oral Pathol Med* 2004; 33: 7-12.
7. Motalebnejad M, Babae N, Sakhdari S, Tavasoli M. An epidemiologic study of tongue lesions in 1901 Iranian dental outpatients. *J Contemp Dent Pract* 2008; 1: 73-80.
8. Banoczy J, Rigó O, Albrecht M. Prevalence study of tongue lesions in a Hungarian population. *Community Dent Oral Epidemiol* 1993; 21: 224-6.
9. Kullaa-Mikkonen A. A familial study of fissured tongue. *Scand J Dent Res* 1988; 96: 366-75.
10. Rogers RS 3rd, Bruce AJ. The tongue in clinical diagnosis. *J Eur Acad Dermatol Venerol* 2004; 18: 254-9.
11. Zargari O. The prevalence and significance of fissured tongue and geographical tongue in psoriatic patients. *Clin Exp Dermatol* 2006; 31: 192-5.
12. Jainkittivong A, Langlais RP. Geographic tongue: Clinical characteristics of 188 cases. *J Contemp Dent Pract* 2005; 15: 123-35.
13. Wadlington WB, Riley HD Jr, Lowbeen L. The Melkersson-Rosenthal syndrome. *Pediatrics* 1984; 73:502-6.
14. Richardson LJ, Kratochvil FJ, Zieper MB. Unusual palatal presentation of oral psoriasis. *J Can Dent Assoc* 2000; 66: 80-2.
15. Tucci M, Quatraro C, Silvestris F. Sjorgen's syndrome: An autoimmune disorder with otolaryngological involvement. *Acta Otorhinolaryngol Ital* 2005; 25: 139-44.
16. Adams SP. Geographic tongue. *Can Fam Physician* 2002; 48:697-702.
17. Assimakopoulos D, Patrikakos G, Fotika C, Elisaf M. Benign migratory glossitis or geographic tongue: an enigmatic oral lesion. *Am J Med* 2002; 113: 751-55.
18. Aboyans V, Ghaemmaghami A. The incidence of fissured tongue among 4,009 Iranian dental outpatients. *Oral Surg* 1973; 36: 34-8.
19. Jontell M, Haraldson T, Persson L-O, Ohman S-C. An oral and psychosocial examination of patients with presumed oral galvanism. *Swed Dent J* 1985; 9: 175-85.
20. Hirshberg A, Amariglio N, Akrish S, Yahalom R, Rosenbaum H, Okon E, et al. Traumatic ulcerative granuloma with stromal eosinophilia: A reactive lesion of oral mucosa. *Am J Clin Pathol* 2006; 126: 522-9.
21. Hoexter DL. Melkersson Rosenthal syndrome. *N Y State Dent J* 2007; 73: 30-2.

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