

# Tongue Lesions as an Oral Diagnostic Challenge for a Primary Care Physician- A Clinical Case series

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### ABSTRACT

Tongue acts as a mirror of our body. Diagnosis of tongue lesions is challenging to primary physicians as they might be the first sign or may be a part of underlying systemic diseases. Knowledge on the lesions of tongue is necessary for oral and overall health planning and education. Hence, this article illustrates a clinical case series of tongue lesions among a rural population in south Chennai, thus imparting a higher awareness of the specific tongue pathology-related etiology and management to increase the awareness on thorough oral screening including detailed assessment of tongue and provide a holistic care to patients to improve the Oral health related and Overall quality of life of patients (OHRQOL/QOL).

**Keywords:** Cancer of the tongue, fissured tongue, geographic tongue, oral diagnosis, physician, primary care, tongue, tongue abnormalities, tongue diagnosis, tongue diseases, tongue lesions

### Introduction

Oral Mucosal Lesions are considered as the first sign in many systemic disorders, tongue changes being one among the most important signs. The tongue acts as a mirror and it was considered as a prognostic importance even during the ancient period of Hippocrates and Galen.<sup>[1-3]</sup> Tongue lesions can be developmental, infectious, idiopathic, malignant or due to underlying systemic illness. Many pathological lesions are diagnosed exclusively on the tongue. Around the globe, several epidemiological studies have shown the prevalence of tongue lesions as nearly as 18.5%.<sup>[1-3]</sup> Tongue is one of the top two most common sub sites in the prevalence of oral cancer as shown by many studies in India.

There are reports of physician's delay in diagnosing or misdiagnosis of the oral, potentially malignant disorders due to lack of awareness of the plethora of clinical presentations, lack of timely counselling, and compassionate care.<sup>[4,5]</sup> Hence, diagnosing a tongue lesion is

challenging to the primary physician due to varied presentations and lack of awareness of such patterns of lesions. This clinical case series illustrates the description of 17 varied presentations of tongue lesions among a rural population in south Chennai.

### Case Presentations

Informed consent was obtained; however, only intraoral presentations are shared. The demographic details, chief complaint, past medical history, tongue symptom, investigations, diagnosis and treatment plan given to each patient is illustrated in Table 1. The clinical examination and description of each lesion is described below.

#### Case 1

A well-defined, ovoid-shaped ulcer, approximately measuring <1 cm, at tip of the tongue with erythematous border and yellowish base was seen. Ulcer was tender with a sloping edge with no secondary changes on palpation [Figure 1].

#### Case 2

Deep, vertically aligned central fissure was seen at the anterior portion of the dorsum of the tongue interspersed with multiple,

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**Table 1: Illustration of the Case Series on Tongue Lesions**

Age (in years)/Sex, Chief complaint	History	Painful Tongue	Lab tests	Diagnosis and Treatment Plan
Case 1: 27/F- Difficulty in speech due to an irritation on tip of the tongue.	IBD	Yes	CBC and Hb	Minor Aphthous ulcer- Topical Curcumin and Nutritional supplements
Case 2: 47/F- Tooth stains and bad breath since more than a year.	Nil	No	Nil	Fissured tongue- OHI with soft-bristled toothbrush and diluted hydrogen peroxide rinse
Case 3: 34/M- Pain and bleeding at his right-side tip of the tongue for 2 days associated with difficulty in speech and mastication	Allergic to Brinjal and tomatoes	Yes	CBC and Hb	Major aphthous ulcer causing Glossitis. Topical steroid gel, Nutritional supplements
Case 4: 53/F - Deposits and bad breath.		No	Nil	Coated tongue- OHI
Case 5: 67/F- Burning sensation on her tongue for 3 months.	Chewing tobacco for 37 years	Yes	CBC and Hb	Chewer's mucositis and Glossitis- Tobacco cessation counselling, ice cold sips,
Case 6: 69/F- Decayed tooth.	DM. Under alternative medicines for 30 years.	No	Nil	Pigmented tongue and macroglossia- Counselling and OHI
Case 7: 70/F- Missing tooth.	Positive tobacco history.	No	CBC, Biopsy	Candida Leukoplakia- Counselling, Topical anti-fungal, antioxidant
Case 8: 58/M- Decay tooth.	No	No	Nil	Geographic tongue- Counselling and OHI
Case 9: 43/F- Bad breath.	Hypothyroid, under OC pills for menstrual problem	Yes	CBC	Anaemic stomatitis and bald tongue- Topical anti-fungal and steroid gel, Nutritional supplements
Case 10: 36/M- Painful tongue. History of licking spicy pickle marketed road side a day back	No	Yes	Nil	Inflamed tongue/glossitis- soft diet, Topical anaesthetics.
Case 11: 43/F- Pain on roof of her mouth for 2 days.	No	Yes	CBC, Hb, HIV test	Kissing's disease- Topical anti-fungal, OHI
Case 12: 57/M- Decay tooth.	No	No	Nil	Reticular LP- Counselling and follow-up
Case 13: 38/F- Broken filling	H/O Malaria and was under anti-malarial drugs	No	-	Lichenoid reactions. Follow-up
Case 14: 48/M- Difficulty in speech for 2 days	No	Yes	Nil	Traumatic ulcer due to sharp tooth. Topical anaesthetic gel and enameloplasty. Extraction.
Case 15: 67/M- Painful tongue and difficulty in speech.	Tobacco history + Diabetes	Yes	CBC, Biopsy, CT	OSCC- stage 2. Biopsy and referral to cancer institute
Case 16: 23/M- Painless growth on his centre of tongue due to attempt of tongue piercing	No	No	CBC, Biopsy	Traumatic Fibroma. Excisional biopsy
Case 17: 59/M- Tooth stains	Bronchial asthma and DM	No	CBC, Exfoliative cytology	Secondary candidiasis- Biopsy and OHI, Topical anti-fungal. Regular follow-up

F/M- Female/Male, OHI- Oral Hygiene Instructions, DM- Diabetes Mellitus, H/O- History of, CBC-Complete Blood count, OSCC- Oral squamous cell carcinoma, IBD- Irritable bowel syndrome, Hb- Haemoglobin, OC- Oral Contraceptive pills, CT- Computed Tomography

horizontal, shallow fissures posteriorly, which were non-tender on palpation [Figure 2].

### Case 3

A large, ovoid-shaped ulcer approximately measuring around 2 cm × 1.5 cm was seen at the right-side tip of the tongue with erythematous borders, yellow base, irregular edges and a purulent base, covered with mucous [Figure 3].

### Case 4

Poor oral hygiene with dorsum tongue covered by yellow and white layer of desquamated epithelium, debris and other micro-organisms with no secondary changes and tenderness [Figure 4].

### Case 5

Inflamed, shiny, smooth, glossy appearance with red and pink background with diffuse dorsal hyper-pigmentations and loss of papilla [Figure 5].

### Case 6

A large-sized, broader tongue with diffuse greyish-black pigmentations and multiple shallow fissures on the dorsal surface [Figure 6].

### Case 7

Non-scrapable, diffuse, greyish-white, curdy patch on entire anterior two-third of right half of tongue, appearing as cracked mud [Figure 7].

### Case 8

Multiple patchy areas of de-papillations over the lateral borders of tongue throughout the dorsal surface appearing serpiginous with white, greyish-white, well-defined borders [Figure 8].

### Case 9

Complete depapillation of the anterior tongue, appearing pale, smooth and glossy with yellow and white layer of desquamated



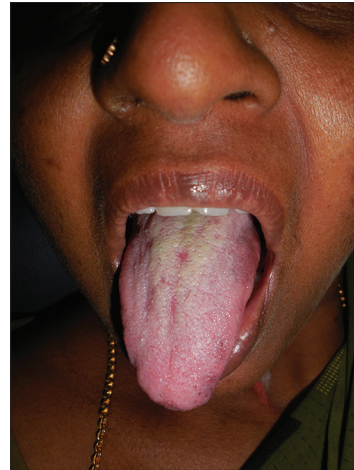
**Figure 1:** A single, ovoid-shaped ulcer at the tip of the tongue measuring <1 cm



**Figure 2:** Deep, vertically aligned central fissure at the anterior portion of the dorsum of the tongue interspersed with multiple horizontal shallow fissures posteriorly



**Figure 3:** (a) A large, ovoid-shaped ulcer approximately measuring around 2 cm × 1.5 cm at the right-side tip of the tongue with erythematous borders and yellow base. (b) The surrounding mucosa of the ovoid ulcer appears to be erythematous



**Figure 4:** Dorsum tongue covered by yellow and white layer of desquamated epithelium, debris



**Figure 5:** Inflamed, shiny, smooth, glossy appearance with red and pick background with diffuse dorsal hyper-pigmentations and loss of papilla



**Figure 6:** Large-sized, broader tongue with diffuse greyish-black pigmentations and multiple shallow fissures on the dorsal surface

epithelium and debris on the posterior portion. Lip examination revealed bilateral ulcers appearing as erythematous fissures at the commissures [Figure 9].

### Case 10

Signs of inflammation on the tongue tip and along the anterior borders of the dorsal surface. The swelling on the tongue tip is soft, tender and fluctuant with no secondary changes [Figure 10].

### Case 11

Rhomboidal shape central de-papillation on the dorsal surface of tongue, with no secondary changes. Palate examination revealed multiple, diffuse ulcerations appearing erythematous [Figure 11].

### Case 12

Bilateral, greyish-white reticular Wickham's striations on the ventral surface with no secondary changes [Figure 12].

### Case 13

Unilateral, diffuse, greyish-white hyperpigmented striae on right side posterior dorsal tongue, with a single, well-defined, ovoid appearance anteriorly [Figure 13].

### Case 14

Single, well-defined, irregular-shaped ulcer on the left posterior ventral surface with erythematous border and yellow base, in contact with the sharp molar tooth. The ulcer was tender with a sloping edge [Figure 14].

### Case 15

An irregularly shaped, ulcero-proliferative growth along the left posterior lateral border of tongue. The surrounding mucosa appears to be erythematous. On palpation, the growth was tender and indurated, with tendency to bleed and attached to underlying structures [Figure 15].

### Case 16

A well-defined, non-tender, soft-firm spherical growth on the centre of dorsal tongue with no evidence of lobulations and no secondary changes [Figure 16].

### Case 17

Diffuse, non-tender, scrapable, greyish-white curdy patch along the right lateral border of tongue [Figure 17].

## Discussion

Tongue lesions present a diagnostic and therapeutic dilemma. Diagnosis of teeth alone should not be restricted while screening. Early identification and diagnosis can be done by a thorough history of signs and symptoms from patient, related medical history, habit history, habits of tobacco smoking, alcohol, investigations, and a detailed clinical examination.



**Figure 7:** Diffuse greyish-white curdy patch on the entire anterior two-third of right half of tongue, appearing as cracked mud



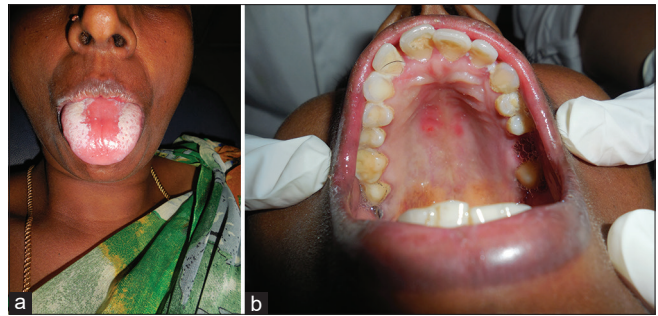
**Figure 8:** Multiple patchy areas of de-papillations over the lateral borders of tongue throughout the dorsal surface appearing serpiginous with white, greyish-white, well-defined borders



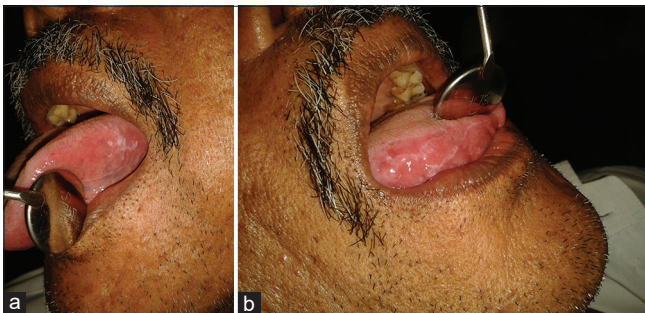
**Figure 9:** Complete de-papillation of the anterior tongue, appearing pale, smooth and glossy with yellow and white layer of desquamated epithelium and debris on the posterior portion. Bilateral ulcers at corners of lip appearing as erythematous fissures at the commissures



**Figure 10:** Signs of inflammation on the tongue tip and along the anterior borders of the dorsal surface with a swelling at the tip



**Figure 11:** (a) Rhomboidal shape central de-papillation on the dorsal surface of tongue, with appearance of yellow and white layer of desquamated epithelium, debris and other micro-organisms along the right and left borders. (b) Multiple diffuse ulcerations approximately measuring <1 cm, appearing erythematous on the palate



**Figure 12:** (a) Greyish-white reticular striations on the left ventral surface. (b) Greyish-white reticular striations on the right ventral surface



**Figure 13:** Diffuse greyish-white hyperpigmented striae on the right side posterior dorsal tongue, with a single, well-defined ovoid appearance anteriorly



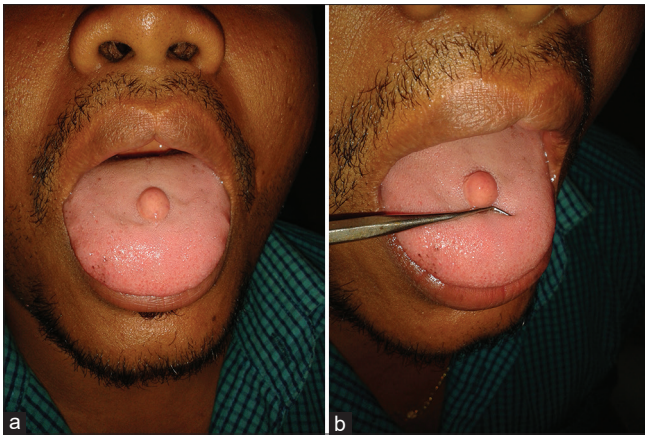
**Figure 14:** Single, well-defined irregular-shaped ulcer of the left posterior ventral surface with erythematous border and yellow base



**Figure 15:** An irregularly shaped ulcero-proliferative growth along the left posterior lateral border of tongue

Coated tongue is the most commonly observed lesion on tongue, followed by fissured tongue and recurrent aphthous ulcers.<sup>[4]</sup> Fissured tongue, also referred as ‘Scrotal tongue’ or ‘Plicated tongue’ is found approximately in 5% of population. The multiple fissures tend to cause a midline central groove, which can initiate accumulation of debris and food causing inflammation and pain.<sup>[6]</sup> Burning tongue has an unknown etiology and seems to

affect women seven times more often than men. Macroglossia is an abnormal enlargement of the tongue compared with the mouth and jaws. Tongue examination often reveals a scalloping appearance on the lateral margins caused by crowding against the



**Figure 16:** (a) A well-defined spherical growth on the centre of dorsal tongue. (b) No evidence of lobulations

teeth. It is always important to rule out the underlying associated disorder with macroglossia as in cases with hemangioma, or syndromes and a biopsy if necessary.<sup>[7-9]</sup> Clinically, candidiasis can mimic/mask malignant or premalignant lesions because of the white plaque-like appearance. Leukoplakia is a clinical diagnosis of exclusion, and lesions on floor of mouth or tongue can present a non-homogenous or speckled appearance. The condition may spontaneously resolve after tobacco cessation.<sup>[10]</sup> Geographic tongue, also referred to as 'wandering rash of the tongue' or 'benign migratory glossitis', is a common painless lesion, however, symptomatic lesions may be treated with topical corticosteroids. Median rhomboid glossitis with corresponding palatal lesion is termed as 'Kissing's disease', which may be indicative of immunosuppression, and human immunodeficiency virus (HIV).<sup>[11]</sup> Oral lichen planus typically presents with Wickham's striae as observed in our patient. Such patient requires periodic follow-up to assess the symptomatology. Lichenoid reactions resemble lichen planus; our patient had a history of anti-malarial drug consumption, which is a documented drug to cause oral pigmentations. Tongue is a frequent site for traumatic injury due to its anatomical location. Sharp tooth or edges of broken tooth fillings can cause chronic non-healing deep ulcers, which can resemble neoplasms.<sup>[12]</sup> Tongue is a rarely reported site for traumatic fibroma. Our patient reported in the clinic due to tongue piercing. Carcinoma of tongue presents as indurations with raised edges, bleeding and exophytic growth, which necessitates early screening of lesion and lymph chains for prompt care.<sup>[13]</sup>

Tongue observation and knowledge on the clinical characteristics, site, size, sign, symptom, surface morphology, extension, colour, duration and other palpatory findings is necessary for overall health planning with education. To our knowledge, this clinical atlas of tongue lesions is discussed for the first time in the literature.<sup>[14,15]</sup> In this context, this article is an important addition to the existing literature.

## Conclusions

The high prevalence and varied clinical presentations of tongue lesions possess an oral diagnostic challenge to a primary care



**Figure 17:** Greyish-white curdy patch along the right lateral border of tongue

physician and also necessitates a higher awareness of the specific tongue pathology-related etiology and management to provide a holistic care to patients to improve the Oral health related and Overall quality of life of patients (OHRQOL/QOL).

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

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