

Burning red tongue with grooves



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A 75-year-old man presented with a 3-week history of a burning red tongue. The patient had no significant medical history and was on no medications. He did not smoke or drink alcohol and followed a normal diet. Examination found an erythematous tongue with deep grooves running along the dorsum of the tongue in a symmetrical pattern associated with a lack of papillae (Fig 1). There were no ulcers or white patches, and there was no angular cheilitis. Laboratory results showed no signs of anemia, normal iron studies, and vitamin B12 and were negative for HIV.

Question 1: What is the most likely diagnosis?

- A. Geographic tongue
- B. Strawberry tongue
- C. Fissured tongue
- D. Geometric glossitis
- E. Median rhomboid glossitis

Answers:

A. Geographic tongue — Incorrect. Geographic tongue, or benign migratory glossitis, is characterized by patches of papillary atrophy surrounded by raised white borders. These patches change in shape and size and move across the surface of the tongue over time.¹

B. Strawberry tongue — Incorrect. Strawberry tongue presents with enlarged lingual papillae, not a lack of papillae. Strawberry tongue has a white coating, whereas red strawberry tongue has a dark red surface.

C. Fissured tongue — Correct. Fissured (also known as scrotal) tongue presents with deep grooves on the dorsum of the tongue that are usually painless, although some patients do report a burning sensation.¹ This patient also has idiopathic atrophic glossitis, which results in the tongue having a smooth and glossy appearance.

D. Geometric glossitis — Incorrect. Also known as *herpetic geometric glossitis*, the tongue will present with linear fissures on the dorsal tongue, especially with a fissure down the center. However,

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the lesions are very tender and painful and are associated with immunocompromised patients with HSV-1.²

E. Median rhomboid glossitis — Incorrect. Only a rhomboidal portion of the central dorsal tongue is depapillated in median rhomboid glossitis, as opposed to total depapillation. It is commonly associated with oral candidiasis.³

Question 2: Which of the following is associated with fissured tongue?

- A.** Melkersson-Rosenthal syndrome
- B.** Reactive arthritis
- C.** Broad-spectrum antibiotics
- D.** Smoking/tobacco use
- E.** Chewing trauma to the tongue

Answers:

A. Melkersson-Rosenthal syndrome — Correct. Although fissured tongue is most commonly idiopathic, especially in older patients, it is also associated with a number of diseases. Along with Melkersson-Rosenthal syndrome, other common associations include Down syndrome, Sjogren syndrome, Cowden syndrome, acromegaly, and psoriasis.⁴

B. Reactive arthritis — Incorrect. Geographic tongue, not fissured tongue, can occur in association with reactive arthritis. The exact cause of geographic tongue is unknown, although it does display a familial tendency.³

C. Broad-spectrum antibiotics — Incorrect. Antibiotic and topical steroid use is associated with acute atrophic candidiasis, in which there is desquamation, erythematous patches, and a strong burning sensation. Antifungal agents act as appropriate therapy.³

D. Smoking/tobacco use — Incorrect. Tobacco use is associated with hairy tongue, in which excess keratin collects on the lingual papillae, thus creating long hair-like strands. Daily gentle scraping will remove the excess keratin.¹

E. Chewing trauma to the tongue — Incorrect. Chewing trauma is not associated with fissured tongue. This trauma normally occurs on the lateral edges of the tongue and can be associated with linea alba, which is a thin white line of thickened epithelium at the site of the trauma.¹

Question 3: Which of the following is associated with atrophic glossitis?

- A.** Use of corticosteroid spray
- B.** Celiac disease
- C.** Scarlet fever
- D.** Epstein-Barr virus
- E.** Beckwith-Wiedemann syndrome

Answers:

A. Use of corticosteroid spray — Incorrect. Use of corticosteroid sprays and inhalers are both associated with median rhomboid glossitis. Other associations include smoking, wearing of dentures, HIV infection, and chronic *Candida* infection.³

B. Celiac disease — Correct. Celiac disease, Sjogren syndrome, and sarcoidosis are all associated with atrophic glossitis. Other common underlying conditions associated with atrophic glossitis include nutritional deficiencies (iron, folic acid, vitamin B₁₂, riboflavin, niacin), alcoholism, iron deficiency anemia, pernicious anemia, xerostomia, and infection (systemic or local).¹

C. Scarlet fever — Incorrect. Scarlet fever, from a group A streptococcus infection, is associated with strawberry tongue. Over the course of a few days, the tongue progresses from white strawberry tongue to red.

D. Epstein-Barr virus — Incorrect. Epstein-Barr virus is associated with oral hairy leukoplakia. White lesions with a hairy appearance will appear on the lateral margins of the tongue.¹

E. Beckwith-Wiedemann syndrome — Incorrect. Beckwith-Wiedemann syndrome is a cause of macroglossia, or enlarged tongue. Macroglossia can be congenital or acquired, and a tongue that is out of proportion to jaw size will be seen.²

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