

Answer to Dermacase continued from page 439

### 3. Black hairy tongue

Black hairy tongue, also known as *lingua villosa nigra*, is a benign, painless, self-limiting condition characterized by abnormal hypertrophy and elongation of keratinized filamentous lingual papillae, with defective desquamation and abnormal discoloration.<sup>1-4</sup> This condition commonly affects the dorsum of the tongue, where filamentous papillae predominate. Although commonly referred to as “black” hairy tongue, various hues—white, yellow, pink, green, and brown—can be observed, depending on contributory factors.<sup>1-3</sup> Normal filamentous papillae are approximately 1 mm in length; clinical hairy tongue is diagnosed when filamentous papillae are elongated to more than 3 mm.<sup>1</sup> Occasionally, they might be as long as 18 mm in length, causing tickling and gagging sensations in the soft palate during swallowing.



Although commonly asymptomatic, black hairy tongue can cause halitosis, alteration of taste, nausea, and aesthetic anxiety. In addition, overgrowth of *Candida albicans* within elongated filamentous lingual papillae can lead to glossopyrosis (ie, burning tongue).

The prevalence of black hairy tongue varies widely, depending on the population. It has been reported more frequently in men, heavy smokers, patients with xerostomia (ie, dry mouth), intravenous drug users, edentulous patients, coffee or tea drinkers, cancer patients, the elderly, and HIV patients.<sup>1-3</sup> Previously documented precipitating factors include the use of broad-spectrum antibiotics (eg, tetracycline, linezolid, amoxicillin), the use of oxidizing mouthwashes or antacids, poor oral hygiene, radiation therapy, and some psychotropic medications (ie, phenothiazines, tricyclic antidepressants, olanzapine, benzodiazepines, fluoxetine).<sup>1-2</sup> Darkening of the tongue is also associated with Addison disease, Peutz-Jeghers syndrome, melanoma, amalgam tattoo, toxic reactions to metals, hemochromatosis, pernicious anemia, scleroderma, and Laugier-Hunziker syndrome.<sup>4</sup>

Black hairy tongue is thought to be due to a lack of mechanical movement and debridement of the tongue, preventing normal desquamation of the keratinized layers of the filamentous papillae by friction with solid

food, the palate, and the teeth. Debilitated patients with decreased tongue movement are therefore particularly at risk.<sup>1</sup> The accompanying discoloration of the tongue and halitosis is a result of the accumulation of debris and overgrowth of porphyrin-producing chromogenic bacteria or yeast (eg, *C albicans*) between elongated filamentous papillae.<sup>1,3</sup>

### Differential diagnosis

The differential diagnosis of black hairy tongue includes a normal tongue that has been stained by food colouring or drugs, oral lichen planus, oral hairy leukoplakia, and pigmented fungiform papillae of the tongue.

Darkening of the tongue can be related to ingestion of foods with colouring agents or medications such as amitriptyline, benzotropine, cephalosporins, clarithromycin, clonazepam, corticosteroids, fluoxetine, griseofulvin, imipramine, lansoprazole, methyldopa, nortriptyline, penicillins, streptomycin, sulfonamides, and tetracycline.<sup>2</sup> Other exogenous causes of black discoloration of the tongue include tobacco, vegetable dyes, and bismuth.<sup>2</sup> Although the pigmentary changes might resemble those observed in cases of black hairy tongue, the tongue does not appear “hairy” in this condition.

Oral lichen planus is a chronic, autoimmune, inflammatory condition affecting the lining of the oral cavity. Two clinical forms of oral lichen planus exist: reticular and erosive. The classic reticular lesion can be diagnosed clinically by characteristic white lacy striations (Wickham striae) found on the buccal mucosa, gingiva, tongue, lips, and sometimes throat and esophagus. Conversely, the erosive type manifests as tender, erythematous ulcers with white striae on the periphery. In oral lichen planus, the tongue will also not appear “hairy.”

Oral hairy leukoplakia, a disease of the mucosa, is associated with opportunistic infection by the Epstein-Barr virus, and most often occurs in those with HIV or other immunocompromising conditions. Oral hairy leukoplakia is characterized by asymptomatic white plaques on the lateral tongue. These plaques might have prominent folds or projections that render them “hairy” or “feathery” in appearance. The dorsal or ventral surfaces of the tongue, the buccal mucosa, or the gingiva might also be implicated; however, lateral tongue involvement is most common and helps to differentiate this entity from black hairy tongue. The plaques of oral hairy leukoplakia can come and go with regularity and no increased pigmentation is observed.

Pigmented fungiform papillae of the tongue is an asymptomatic, benign, normal variant of oral pigmentation commonly found in dark-skinned individuals, and is associated with melanin deposition rather than

debris and chromogenic organisms. This condition is characterized by pigmentation of the fungiform papillae, which are present along the lateral edges and apex of the tongue. Black hairy tongue, in contrast, involves the filamentous papillae, which are present primarily on the dorsal tongue.<sup>4</sup>

A summary of the differential diagnoses involved with symptoms of black hairy tongue are described in Table 1.

**Table 1. Differential diagnoses for symptoms of black hairy tongue**

| DIAGNOSIS                                  | CLINICAL CHARACTERISTICS   |
|--|--|
| Discoloration of the tongue                | Discoloration of the tongue from food or drugs<br>Tongue does not appear "hairy"   |
| Oral hairy leukoplakia                     | Lateral tongue plaques with a folded, "feathery" appearance<br>Associated with HIV and immunocompromised patients<br>Plaques disappear and reappear spontaneously<br>Buccal mucosa or gingiva might be involved                          |
| Pigmented fungiform papillae of the tongue | Normal variant in dark-skinned individuals<br>Pigmented fungiform papillae along the lateral edges and apex of the tongue<br>Tongue does not appear "hairy"  |
| Lingua villosa nigra (black hairy tongue)  | Discoloration of tongue with characteristic "hairy" papillary projections<br>Mainly involves the dorsal surface of the tongue, where filamentous papillae predominate<br>Associated with poor oral hygiene                               |
| Oral lichen planus                         | Chronic autoimmune inflammatory condition affecting the mucosa of the oral cavity<br>White lacy striations (Wickham striae) found on the buccal mucosa, gingiva, tongue, and lips<br>Tongue does not appear "hairy" nor darkly pigmented |

### Treatment

Our patient developed black hairy tongue secondary to poor oral hygiene.

Treatment for black hairy tongue begins with elimination of triggering factors and improvement of oral hygiene. Gentle brushing of the tongue with a soft toothbrush or a tongue scraper removes excess keratin and helps retard further hyperkeratosis. Eating rough foods, such as celery or carrots, might also aid in mechanical debridement.<sup>1</sup> Topical keratolytics, including topical retinoids, urea, and salicylic acid, have also been tried in an attempt to remove papillary hyperkeratosis.<sup>1</sup> Yogurt or other *Lactobacillus acidophilus* cultures might also be of benefit.<sup>3</sup> Surgical removal by clipping, electrodesiccation, or carbon dioxide laser

can be considered as a last resort if noninvasive treatments fail.<sup>1</sup>

Mr Yan is a third-year medical student at the University of British Columbia in Vancouver. Dr Mistry is a third-year dermatology resident in the Department of Dermatology and Skin Science at the University of British Columbia. Dr Au is a Clinical Assistant Professor in the Department of Dermatology and Skin Science at the University of British Columbia.

#### Competing interests

None declared

#### References

1. Tamam L, Annagur BB. Black hairy tongue associated with olanzapine treatment: a case report. *Mt Sinai J Med* 2006;73(6):891-4.
2. Abdollahi M, Radfar M. A review of drug-induced oral reactions. *J Contemp Dent Pract* 2003;4(1):10-31.
3. Sarti GM, Haddy RI, Schaffer D, Kihm J. Black hairy tongue. *Am Fam Physician* 1990;41(6):1751-5.
4. Pehoushek JF, Norton SA. Black taste buds. *Arch Fam Med* 2000;9:219-220.

