6-23-2017

Hairy Tongue

Marc Zachary Handler
Mohs Micrographic Surgery, Skin Laser and Surgery Specialists of NY and NJ

David F. Butler
Texas A&M University College of Medicine

Drore Eisen
Dermatology of Southwest Ohio

Jeff Burgess
University of Washington School of Dental Medicine

Denis P. Lynch
Marquette University, denis.lynch@marquette.edu

See next page for additional authors

Published version. *Medscape Drugs & Diseases* (June 23, 2017). Publisher link.

Authors
Marc Zachary Handler, David F. Butler, Drore Eisen, Jeff Burgess, Denis P. Lynch, and Gary L. Stafford

Overview

Background

Hairy tongue (lingua villosa) is a commonly observed condition of defective desquamation of the filiform papillae that results from a variety of precipitating factors.{ref1} The condition is most frequently referred to as black hairy tongue (lingua villosa nigra); however, hairy tongue may also appear brown, white, green, pink, or any of a variety of hues depending on the specific etiology and secondary factors (eg, use of colored mouthwashes, breath mints, candies).{ref2}{ref3} See the images below:

Brown hairy tongue in a middle-aged woman who drinks coffee. Note how the condition is limited to the mid-dorsal part of the tongue, becoming more prominent toward the posterior part.

{file28156}

This patient is a middle-aged woman who drank coffee and smoked cigarettes for many years. Her chief complaint was a tickling sensation in the oral pharynx during swallowing. The slight greenish cast to her tongue was due to the use of a mouthwash immediately prior to her appointment.

{file28159}

Middle-aged woman with a hairy tongue that is brown.

{file28162}

Pathophysiology

Precipitating factors for hairy tongue include poor oral hygiene, the use of medications (especially broad-spectrum antibiotics), and therapeutic radiation of the head and the neck. All cases of hairy tongue are characterized by a hypertrophy and elongation of filiform papillae, with a lack of normal desquamation. Normal filiform papillae are approximately 1 mm in length, whereas filiform papillae in hairy tongue have been measured at more than 15 mm in length.

Epidemiology

Frequency

The prevalence of hairy tongue varies widely, from 8.3% in children and young adults to 57% in persons who are addicted to drugs and incarcerated. Hairy tongue has been reported with greater frequency in males, those who use tobacco, those who heavily drink coffee and tea, patients infected with HIV, and those who are HIV negative and use intravenous drugs.{ref4}{ref5}{ref6}{ref7}{ref8}

Race

No racial predilection is associated with hairy tongue.

Sex

Although hairy tongue is reported more often in males, it is not uncommon in females, especially those who drink coffee or tea and/or those who use tobacco.

Age

The incidence and the prevalence of hairy tongue increases with age,{ref9} possibly because a higher percentage of the population engage in activities (eg, using tobacco, drinking coffee or tea) that predispose to the condition.

Prognosis

The prognosis for hairy tongue is excellent. If the precipitating factors cannot be adequately controlled or compensated for, patients may have to make tongue brushing or scraping part of their daily oral hygiene regimen.

Hairy tongue is rarely symptomatic, although overgrowth of *Candida albicans* may result in glossopyrosis (burning tongue). Patients frequently complain of a tickling sensation in the soft palate and the oral pharynx during swallowing. In more severe cases, patients may actually complain of a gagging sensation. Retention of oral debris between the elongated papillae may result in halitosis.

Patient Education

Education regarding proper oral hygiene procedures is more easily provided to the patient as part of a routine dental appointment; however, encouragement in this regard is appropriate from any healthcare provider.

Presentation

History

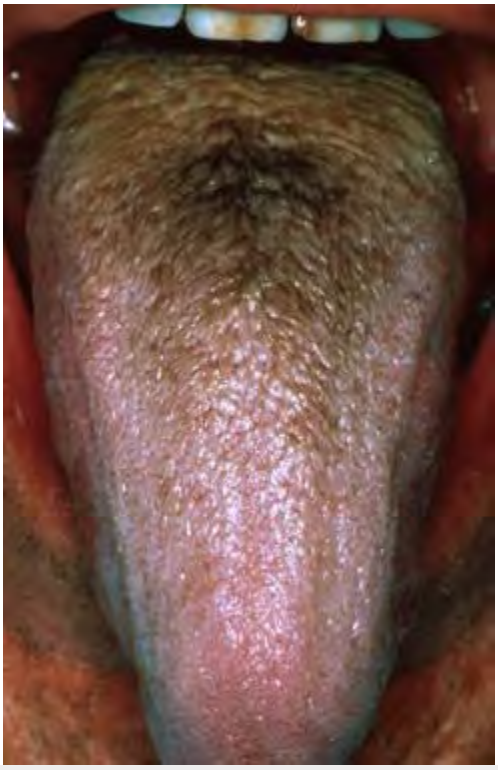
Because hairy tongue is usually asymptomatic, the history is often irrelevant.

In most cases, lesions are noted as part of an intraoral examination, although patients may complain of a tickling or gagging sensation. Most patients with hairy tongue have a positive history of coffee or tea drinking, often in addition to tobacco use.

Although hairy tongue has been reported with increasing prevalence in persons who are HIV positive and in persons who are HIV negative and use intravenous drugs, it is not considered to be of any diagnostic or predictive value and probably represents a manifestation of social habits (eg, using tobacco, drinking coffee or tea).

Patients occasionally notice the condition of the tongue during tooth brushing and present to the office with concerns regarding potential malignancy.

See the images below.



Brown hairy tongue in a middle-aged man who smokes cigarettes. The condition is limited to the posterior two thirds of the dorsal surface of the tongue.

{file28157}

Close-up view of brown hairy tongue in a middle-aged man who smokes cigarettes. The condition is limited to the posterior two thirds of the dorsal surface of the tongue.

{file28158}

Physical Examination

Hairy tongue clinically appears as an elongation of the filiform papillae on the dorsal surface of the tongue.

Papillae, which are normally minimally keratinized and appear pinkish white, often retain pigments from food, beverages, and candies, resulting in the varying colors associated with the condition (eg, black, brown, white, green, pink). The tongue has a thick coating in the middle, with a greater accentuation toward the back.

Bacterial and fungal overgrowth, such as chromogenic bacteria or *Candida* species,{ref10} play a role in the color of the tongue.

In extreme cases of hairy tongue, a blast of compressed air results in the papillae "waving in the breeze."

Causes

The basic defect in hairy tongue is a hypertrophy of filiform papillae on the dorsal surface of the tongue, usually due to a lack of mechanical stimulation and debridement. This condition often occurs in individuals with poor oral hygiene (eg, lack of tooth brushing, eating a soft diet with no roughage that would otherwise mechanically debride the dorsal surface of the tongue).

Contributory factors for hairy tongue are numerous and include tobacco use and coffee or tea drinking. These factors account for the various colors associated with the condition.{ref11}{ref12}{ref13} Medications, such as lorazepam,{ref14} lithium,{ref15} and linezolid, have been implicated.{ref16}{ref17}{ref18} Other medications that have been reported to induce black hairy tongue

include doxycycline, penicillin lozenges, mepazine, oral tetracycline, olanzapine, and oral erythromycin.{ref19}

Complications

The only complication associated with hairy tongue is an occasional candidal overgrowth, which often results in an uncomfortable glossopyrosis (burning tongue). Altered taste sensation is a rare complication.

DDx

Diagnostic Considerations

Consider whether the patient has a physiologic pigmentation, a local tumor, an external cause (eg, medication), or is manifesting a systemic disease.{ref20}{ref21}

Differentials

Amalgam tattoo

Black hairy tongue

Dermatologic Manifestations of Oral Leukoplakia

Drug-induced hyperpigmentation

Heavy metal deposits

Melanocytic Nevi

Melanoma

Mucosal Candidiasis

Oral Melanoacanthoma

Postinflammatory Hyperpigmentation

Smoker's Melanosis

Workup

Laboratory Studies

Culture of the tongue's dorsal surface may be taken if a superimposed oral candidiasis or other specific oral infection is suspected.

Cytologic smears stained with Gram stain or periodic acid-Schiff stain may reveal candidal organisms.

Potassium hydroxide preparations are useful for rapid diagnosis of oral candidiasis, as are latex agglutination-based card tests (eg, CandidaSure).

Procedures

As the finding of pigmentation in the oral cavity may represent systemic disease, normal physiologic pigmentation, medication-induced hyperpigmentation, or a localized neoplasm, a biopsy may be in order to help with diagnosis.{ref22} A simple biopsy and histologic examination may be helpful in distinguishing between similar-appearing conditions. In HIV patients, oral hairy leukoplakia may appear similarly to hairy tongue. A mucosal punch biopsy and appropriate immunostaining of the specimen for the presence of Epstein-Barr virus may differentiate the two conditions. However, mechanical debridement of suspected hairy tongue may be the most straightforward approach.{ref23}

Histologic Findings

Histopathologic findings in hairy tongue consist of elongated filiform papillae, with mild hyperkeratosis and occasional inflammatory cells. Finding accumulated debris intermingled among the papillae and candidal pseudohyphae is not unusual. No other specific microscopic findings are associated with this entity.

Treatment

Approach Considerations

Owing to the striking color, patients benefit from reassurance that they have a benign condition. Maintenance of good oral hygiene in addition to gentle mechanical debridement of the dark tongue surface matter optimally controls the condition.{ref24} Reducing the lingual coating prevents bacterial colonization of the tongue. If medications are the cause of the black hairy tongue, then consideration could be given to changing to a similar medication.

Patients with poor oral intake and mastication, such as those with trigeminal neuralgia, have been reported to have an increase development of black hairy tongue. Treatment of the condition that is producing the minimal mastication and tongue movement reduces the development of black hairy tongue.{ref25}

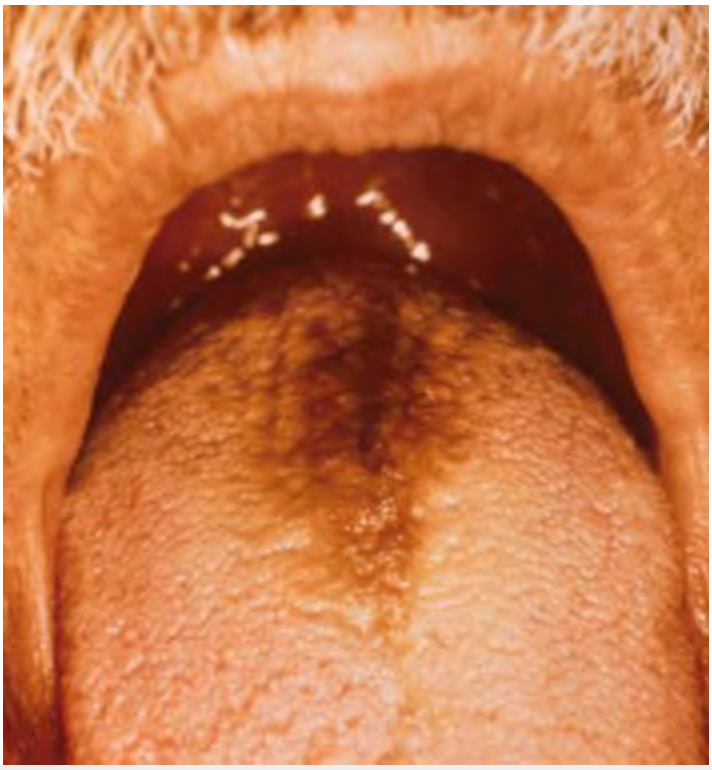
To rule out other causes, a punch biopsy is a simple approach. Because of a generous blood supply, the tongue heals quickly and does not easily become infected.

Medical Care

In the majority of cases, simply brushing the tongue with a toothbrush or using a commercially available tongue scraper is sufficient to remove elongated filiform papillae and retard the growth of additional ones.{ref26}

If hairy tongue is noted in a patient hospitalized for other reasons, instruct the nursing staff to encourage the patient to gently brush or scrape the tongue as necessary to debride the area. If the lesion persists, a dental consult is appropriate to rule out other clinically similar entities.

Note the transition in the images below.



This male geriatric patient had smoked a pipe for many years. He was unaware of the presence of his hairy tongue until it was brought to his attention during a routine dental examination.

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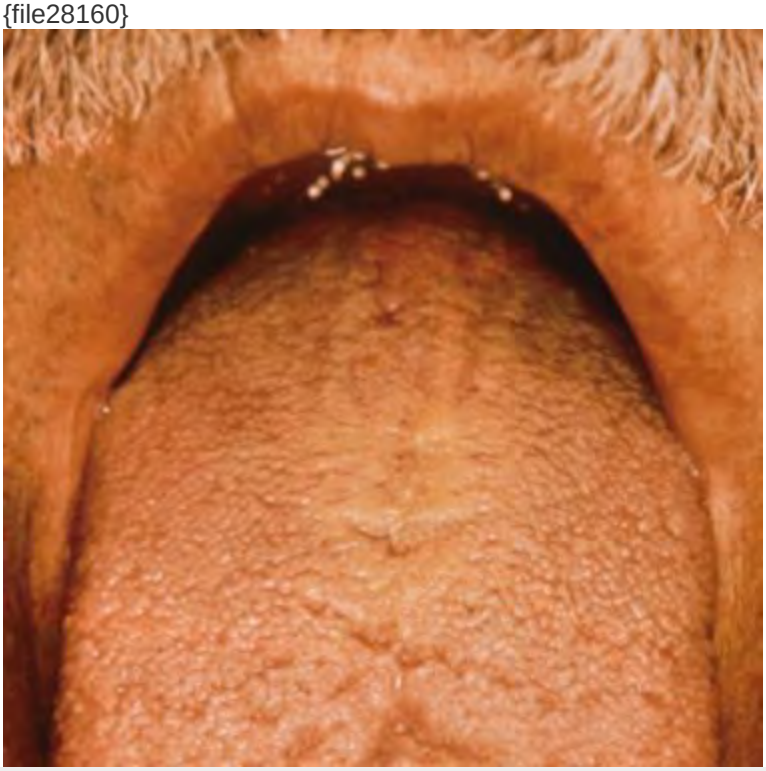

Male geriatric patient had smoked a pipe for many years. He was unaware of the presence of his hairy tongue until it was brought to his attention during a routine dental examination. Photo 1 month following

his initial examination. While he has not decreased his pipe smoking, he has gently brushed the dorsal surface of his tongue when he brushes his teeth during the intervening 4 weeks. The hairy tongue has completely resolved.

{file28161}

Surgical Care

Surgical removal of the papillae by using electrodesiccation, carbon dioxide laser, or even scissors is the treatment of last resort when less complicated therapies prove ineffective. A punch biopsy may be performed as a mechanism of establishing the diagnosis, if in doubt.

Consultations

Consultation with or referral to a general dentist may be indicated if the etiology of a patient's hairy tongue appears to be primarily one of poor oral hygiene.

Diet

Patients who are on a continuous soft diet occasionally develop hairy tongue because the consistency of the diet does nothing to mechanically debride the dorsal surface of the tongue during eating and swallowing. If adding more roughage to the patient's diet is not feasible, encourage the patient to cleanse the dorsal surface of the tongue daily by brushing or scraping.

Long-Term Monitoring

If hairy tongue is noted in a patient as part of a routine outpatient examination, encourage the patient to gently brush or scrape the tongue as necessary to debride the area. In addition, encourage the patient to consult a dentist.

Medication

Medication Summary

In most cases, the treatment of hairy tongue does not require pharmacologic intervention. If *Candida albicans* is present, topical antifungal medications can be used when the condition is symptomatic (eg, glossopyrosis). Topical application of retinoids has been used with some success.{ref27}{ref28} Keratolytic agents are effective but may be irritating. Although reportedly successful, the agents listed above (with the exception of treatment of oral candidiasis) are used off label and their application should be limited to selected cases with close monitoring.

Medications

Antifungal agents

These agents are used to treat oral candidiasis in association with hairy tongue.

Clotrimazole (Mycelex)

Clotrimazole is a broad-spectrum antifungal agent that inhibits yeast growth by altering cell membrane permeability, causing death of fungal cells. Reevaluate the diagnosis if no clinical improvement occurs after 2 weeks. Clotrimazole is effective in the treatment of oral candidiasis; however, it has some drawbacks. It has a high sugar content and peppermint flavor to mask the bitter taste of clotrimazole. The high sugar content makes it relatively contraindicated in persons with diabetes. The dosing regimen occasionally results in poor patient compliance; nevertheless, it is an effective medication to treat oral candidiasis and is especially efficacious in treating candidal infections on the dorsal surface of the tongue.

Nystatin (Mycostatin)

Nystatin is a fungicidal and fungistatic antibiotic obtained from *Streptomyces noursei*. It is effective against various yeasts and yeastlike fungi. Nystatin changes the permeability of the fungal cell membrane after binding to cell membrane sterols, causing cellular contents to leak. Treatment should continue until 48 hours after the disappearance of symptoms. Nystatin is not significantly absorbed from the GI tract.

It is effective for treating oral candidiasis; however, it has some drawbacks. It has a high sugar content and licorice flavor to mask the bitter taste of nystatin. The high sugar content makes it relatively contraindicated in persons with diabetes. Some patients have an aversion to licorice flavoring. The dosing regimen occasionally results in poor patient compliance; nevertheless, it is an effective medication to treat oral candidiasis and is especially efficacious in treating candidal infections on the dorsal surface of the tongue.

Ketoconazole (Nizoral)

Ketoconazole has fungistatic activity. It is an imidazole broad-spectrum antifungal agent. It inhibits the synthesis of ergosterol, causing cellular components to leak and resulting in fungal cell death. It is effective in treating oral candidiasis, especially when patients do not comply with multidosing topical therapies or are unable to tolerate sugar-containing troches and pastilles. Take ketoconazole with food.

Fluconazole (Diflucan)

Fluconazole has fungistatic activity. It is a synthetic oral antifungal (broad-spectrum bistriazole) that selectively inhibits fungal cytochrome P-450 and sterol C-14 alpha-demethylation, which prevents conversion of lanosterol to

ergosterol, thereby disrupting cellular membranes. Fluconazole is effective in treating oral candidiasis, especially when patients do not comply with multidosing topical therapies or are unable to tolerate sugar-containing troches and pastilles. Fluconazole is normally prescribed in situations in which other topical or systemic medications have not been successful. It is especially useful in treating oral candidiasis in patients who are immunosuppressed.

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Citation: Handler MZ. Hairy Tongue. *Medscape Drugs & Diseases*. Updated June 23, 2017. Available at: https://emedicine.medscape.com/article/1075886-overview.