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Hairy Tongue

Denis Lynch, DDS, PhD, Associate Dean for Academic Affairs, School of Dentistry, Office of the Dean, Marquette University

Updated: Jun 25, 2009

Introduction

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. 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).[1,2]

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.

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.

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

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.

Frequency

United States

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.

Mortality/Morbidity

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.

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

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Age

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

Clinical

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.

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.

Close-up view of the patient in Media File 2.

Physical

- 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 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.[3,4]

Differential Diagnoses

Candidiasis, Mucosal

Leukoplakia, Oral

Lichen Planus

Other Problems to Be Considered

Oral hairy leukoplakia

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

- Distinguishing between oral hairy leukoplakia and hairy tongue is important if patients are found or suspected to be HIV positive. This can be accomplished by a simple mucosal punch biopsy and appropriate immunostaining of the specimen for the presence of Epstein-Barr virus, the causative agent of oral hairy leukoplakia. However, in most cases, the diagnosis is made retrospectively on the basis of the clinical response to mechanical debridement.

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

Medical Care

The treatment of hairy tongue is variable. In many 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.[5]

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.

The same patient as in Image 5 one 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.

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.

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.

Medication

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. 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.

Antifungal agents

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

Clotrimazole (Mycelex)

Broad-spectrum antifungal agent that inhibits yeast growth by altering cell membrane permeability, causing death of fungal cells. Reevaluate diagnosis if no clinical improvement after 2 wk. Effective in the treatment of oral candidiasis; however, it has some drawbacks. Has high sugar content and peppermint flavor to mask the bitter taste of clotrimazole. High sugar content makes it relatively contraindicated in persons with diabetes. 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.

Dosing

Adult

10 mg troche dissolved in mouth 5 times/d for 2 wk; do not eat or drink for 30 min after treatment

Pediatric

Not established

Interactions

None reported

Contraindications

Documented hypersensitivity

Precautions

Pregnancy

B - Fetal risk not confirmed in studies in humans but has been shown in some studies in animals

Precautions

Not for treatment of systemic fungal infections; avoid contact with the eyes; discontinue use and institute appropriate therapy if irritation or sensitivity develops; caution in persons with diabetes because of high sugar content of troche; dental carries may occur in individuals who are prone; patients with xerostomia may not be able to dissolve troches

Nystatin (Mycostatin)

Fungicidal and fungistatic antibiotic obtained from *Streptomyces noursei*. Effective against various yeasts and yeastlike fungi. Changes permeability of fungal cell membrane after binding to cell membrane sterols, causing cellular contents to leak. Treatment should continue until 48 h after disappearance of symptoms. Drug is not significantly absorbed from GI tract.
Effective to treat oral candidiasis; however, it has some drawbacks. Has high sugar content and licorice flavor to mask the bitter taste of nystatin. High sugar content makes it relatively contraindicated in persons with diabetes. Some patients have an aversion to licorice flavoring. 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.

Dosing

Adult

200,000-400,000 U pastilles dissolved in mouth q4h for 2 wk; do not eat or drink for 30 min after treatment

Pediatric

Not established

Interactions

None reported

Contraindications

Documented hypersensitivity

Precautions

Pregnancy

C - Fetal risk revealed in studies in animals but not established or not studied in humans; may use if benefits outweigh risk to fetus

Precautions

Do not use to treat systemic mycoses; caution in persons with diabetes because of high sugar content of pastille; dental carries may occur in individuals who are prone; patients with xerostomia may not be able to dissolve troches

Ketoconazole (Nizoral)

Fungistatic activity. Imidazole broad-spectrum antifungal agent. Inhibits synthesis of ergosterol, causing cellular components to leak and resulting in fungal cell death. 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 with food.

Dosing

Adult

200 mg PO qd for 2 wk

Pediatric

Not established

Interactions

Isoniazid may decrease bioavailability; coadministration decreases effects of either rifampin or ketoconazole; may increase effect of anticoagulants; may increase toxicity of corticosteroids and cyclosporine (cyclosporine dosage can be adjusted); may decrease theophylline levels

Contraindications

Documented hypersensitivity

Precautions

Pregnancy

C - Fetal risk revealed in studies in animals but not established or not studied in humans; may use if benefits outweigh risk to fetus

Precautions

Hepatotoxicity may occur; may reversibly decrease corticosteroid serum levels (adverse effects avoided with dose of 200-400 mg/d); administer antacid, anticholinergics, or H2-blockers at least 2 h after ketoconazole

Fluconazole (Diflucan)

Fungistatic activity. 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. 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. Normally prescribed in situations where other topical or systemic medications have not been successful. Especially useful in treating oral candidiasis in patients who are immunosuppressed.

Dosing

Adult

150 mg PO once or 400 mg qd, depending on severity of infection

Pediatric

Not established

Interactions

Levels may increase with hydrochlorothiazide; levels may decrease with chronic coadministration of rifampin; coadministration may decrease phenytoin clearance; may increase concentrations of theophylline, tolbutamide, glyburide, and glipizide; effects of anticoagulants may increase with coadministration; increases in cyclosporine concentrations may occur when administered concurrently

Contraindications

Documented hypersensitivity

Precautions

Pregnancy

C - Fetal risk revealed in studies in animals but not established or not studied in humans; may use if benefits outweigh risk to fetus

Precautions

Adjust dose for renal insufficiency; monitor closely if rash develops and discontinue drug if lesions progress; may cause clinical hepatitis, cholestasis, and fulminant hepatic failure (including death) with underlying medical conditions (eg, AIDS, malignancy) or while taking multiple concomitant medications; not recommended in breastfeeding

Follow-up

Further Inpatient Care

- 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.

Further Outpatient Care

- 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.

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.

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.

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 health care provider.

Multimedia

Media file 1: 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.

Media file 2: 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.

Media file 3: Close-up view of the patient in Media File 2.

Media file 4: 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.

Media file 5: 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.

Media file 6: The same patient as in Image 5 one 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.

Media file 7: Middle-aged woman with a hairy tongue that is brown.

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