



Clinical Pharmacology & Toxicology Pearl of the Week

~ Medication-induced hairy tongue ~

Introduction

Hairy tongue (*lingua villosa*), is characterized by elongated filiform papillae (due to defective desquamation and hypertrophy of the tongue filiform papillae) with a yellow, brown, or black discoloration. It is a benign condition caused by multiple factors including alcohol, smoking, poor oral hygiene, dehydration, hospitalized patients with G-tubes, and multiple medications including antibiotics. The incidence has been reported to be from 1.2% in a cross-sectional study of 1901 Iranian dental patients to 11.3% in a large cross-sectional study of 5150 Turkish dental outpatients.

Mechanism

The mechanism includes any or a mixture of the following:

- disruption of normal flora, leading to bacterial or fungal overgrowth
- xerostomia which promotes bacterial overgrowth
- and immune response alteration which allows opportunistic infections

Clinical presentation

Hairy tongue may appear black, brown, white, or green. The colors can vary due to different reasons. Porphyrin-producing chromogenic bacteria, or yeast, can cause black, yellow or green discoloration. Similarly, anaerobic bacteria fermentation of amino acids produces porphyrins, which can also produce a black or brown color discoloration. The average onset period is 14 days after exposure to the offending agent, however, it has been reported to be as long as 7 weeks to 5 months.

The patient is usually asymptomatic, and they present mostly due to cosmetic concerns. The diagnosis is clinical, nonetheless, dermoscopic evaluation can aid with the clinical assessment. The lesion usually scrapes off (as oral candidiasis does) with a tongue scraper, which differentiates it from leukoplakia or lichen planus that do not scrape off.

Some conditions that are in the differential include acanthosis nigricans, pigmented fungiform papillae of the tongue, and congenital lingual melanotic macules. Squamous cell carcinoma, premalignant leukoplakia, and hypertrophic HSV infection can also mimic hairy tongue, however, they have a poor prognosis if present.

Medications that have been associated with hairy tongue include:

- Antibiotics:
 - Minocycline, doxycycline, erythromycin, linezolid, amoxicillin-clavulanate, metronidazole and piperacillin-tazobactam
- Antipsychotics
 - Olanzapine, Clozapine
- Antidepressants
 - Amitriptyline, Fluoxetine
- Antihistamines
 - Diphenhydramine, Loratadine
- Immunosuppressants
 - Cyclosporine, Tacrolimus
- Bismuth-containing medications
 - Pepto-Bismol

Treatment

The condition improves after cessation of the offending agent and by maintaining good oral hygiene. There has been reported cases in which following good oral hygiene has helped improve the condition even during antibiotic therapy. Oral hygiene includes brushing or scraping that area of the tongue with a soft-bristle toothbrush or a tongue cleaner twice or three times per day. Some other agents that have been used with unclear efficacy include oral retinoids, trichloroacetic acid, topical urea solution, topical triamcinolone acetonide, etc. More research is needed to prove their efficacy.

References

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The Poison and Drug Information Service (PADIS) is available 24/7 for questions related to poisonings. Please call 1-800-332-1414 (AB and NWT) or 1-866-454-1212 (SK). Information about our outpatient Medical Toxicology Clinic can be found in [Alberta Referral Directory](#) (ARD) by searching "Toxicology" from the ARD home page.

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