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Eugenol allergy mimicking burning mouth syndrome

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We report a patient with burning mouth syndrome caused by allergic contact dermatitis due to eugenol (found in condiments and dental mouth wash) and aggravated by lingua plicata.

Case report

A 68-year-old woman was referred to the Department of Dermatology because of lingua plicata and burning mouth syndrome for two years. Six months prior to the onset of her symptoms she had a new metallic prosthesis in the upper yaw. The patient was screened for deficiency conditions, auto-immune disease and infections such as by *Candida* spp. and *Herpes simplex* virus, without any abnormal finding.

As contact dermatitis due to dental materials or oral hygiene products was initially suspected, patch testing was performed using the European baseline series (including cobalt chloride), supplemented with a dental series, the mouthwash used by the patient "as is", and constituents of the products she had been using including sodium benzoate (in the toothpaste) and eugenol (in the mouthwash). Testing was performed with the TRUE test panel 1-3 (SmartPractice Mekos, Hillerød, Denmark), supplemented with the additional allergens in Finn Chambers on Scanpor tape (SmartPractice, Phoenix, Arizona) using 2 day exposure. Readings were performed on day (D) 3 and D7, according to published guidelines (1). The patient only reacted to the mouthwash and eugenol 2% pet. with + reactions (but interestingly not to fragrance mix I), suggesting contact allergy to eugenol. This was in consistence with the original suspicion. When discussing the tests results with the patient, addressing potential exposures to eugenol besides in her mouthwash, the patient reported that every morning she ate yogurt sprinkled with cinnamon and that she chewed cloves (*Syzygium aromaticum*) to freshen her breath during the day.

Discussion

Lingua plicata, also known as fissured tongue, is a benign idiopathic condition, which may increase the sensitivity to oral irritants and probably allergens (2). Eugenol is found in spices such as cinnamon and cloves (3), and is commonly used in dentistry as an analgesic and antimicrobial agent (4). Eugenol is also a commonly used fragrance component (5). In this case eugenol was found both in the patient's mouthwash and quite surprisingly additionally constituted a daily part of the patient's diet. Burning sensations orally as well as contact allergy due to eugenol is well known (6-8). In the present case, the bulk of eugenol exposure was from eating cinnamon every morning and chewing cloves during the day, as the mouthwash was not used on a daily basis. The patient was told to avoid all identified exposures. At follow-up after 8 weeks the burning sensation was significantly reduced, while the lingua plicata remained.

Burning mouth syndrome is still poorly understood diagnosis of exclusion (9); in this case the patient actually suffered from contact allergy to eugenol in the spices the patient ingested in vast amounts.

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