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Allergic contact cheilitis from anethole-containing toothpastes: a practical solution.

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Editor,

In patients presenting with therapy-resistant cheilitis, especially when extending to the perioral skin, patch tests should be performed, even in longstanding cases¹⁻².

A 55-year-old woman suffered from an oozing cheilitis for three months with erythema, edema and crusting of the lips and perioral skin (**Fig.1**). An intra-oral burning sensation, loss of taste and a dry mouth were also present. Microbiological swabs and a blood analysis did not reveal any

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abnormalities, and the application of topical corticosteroids brought only temporary relief. Patch tests were performed with a baseline, cosmetic, dental, fragrance and bakery series (the latter containing anethole 5% pet. and trans-anethole 5% pet.), all from Chemotechnique® (Vellinge, Sweden), and with her own toothpastes (patch tested semi-open). Patch chambers were from Vanderbend® (Brielle, The Netherlands), and following occlusion with Fixomull® stretch (BSN medical, Hamburg, Germany) the tests were removed and read at day (D)2 and again at D4, according to the guidelines of the European Society of Contact Dermatitis (ESCD)³; no late reactions were reported. All tests were negative, except for anethole (++)(**Fig. 2**) and trans-anethole (++) .Fragrances and flavouring agents present in the baseline, fragrance and bakery series gave no reactions. All her dental care products mentioned only the (aspecific) ingredient “*aroma*” on their label, but a short inquiry with 5 manufacturers of oral hygiene products (Colgate-Palmolive®, Procter and Gamble®, Johnson and Johnson®, GABA® and Henkel®) revealed that (trans-)anethole was present in nearly all of their (rinse-off) dental cosmetics, ranging from less than 100 p.p.m. (0.01%) to 1300 p.p.m. (0.13 %). Thereupon, the patient was advised to use an aroma-free toothpaste, compounded by the pharmacist, and consisting of: baking soda (60 gr), sodium chloride (20 gr), glycerine (17.5 ml) and water (7.5 ml). This approach rapidly led to resolution of the dermatitis, without any recurrence after a follow-up of 2 years.

A second 49-year-old female patient, presented with a similar cheilitis and perioral eczema, dysgeusia and a recalcitrant, dyshidrotic eczema of her right (dominant) hand, related to the use of toothpastes. The regular eating of Dutch liquorice (“drop”) also seemed to aggravate the cheilitis. Patch tests were performed as in Case 1 and again revealed sensitization to anethole and trans-anethole (both 1+). No reactions to other fragrances or flavouring agents could be observed. During the patch tests a flare-up

of the perioral eczema, and of the dyshidrotic hand dermatitis, occurred, confirming the contact-allergic mechanism of the skin condition. The patient was prescribed the same compounded toothpaste as in Case 1, upon which her hand dermatitis disappeared and her perioral eczema significantly improved, although minor flare-ups occasionally still occurred.

Anethole and its isomer trans-anethole are natural flavouring substances, widely used in (dental care) cosmetics, food, alcoholic beverages, liquid medicines, herbal remedies, aromatherapy, photography appliances, embedding materials for microscopy, and even in medical devices ^{4,5}. It is a rare contact allergen and allergic contact dermatitis may occur from its presence in toothpastes and lipsticks⁴.

Aphthous stomatitis, gingivitis and glossitis, but also “dryness of the mouth”, “taste disturbances”, a “sore mouth” and “painful, burning lips” have been described^{4,6-8}. A (dyshidrotic) dermatitis of the dominant hand holding the toothbrush may also be present⁹. Minor flare-ups due to the eating of Dutch liquorice, which is known to contain anethole, might have occurred in our second patient¹⁰. Concomitant reactions to other flavourings and fragrance allergens (fragrance mix I and II, and to balsam of Peru, in particular) may remain absent. As fragrance-free toothpastes may sometimes be hard to find, a compounded, flavourings-free toothpaste may be a practical solution.

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- Accepted Article
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Figures and figure legends



Fig. 1 Pronounced angular cheilitis in Case 1.

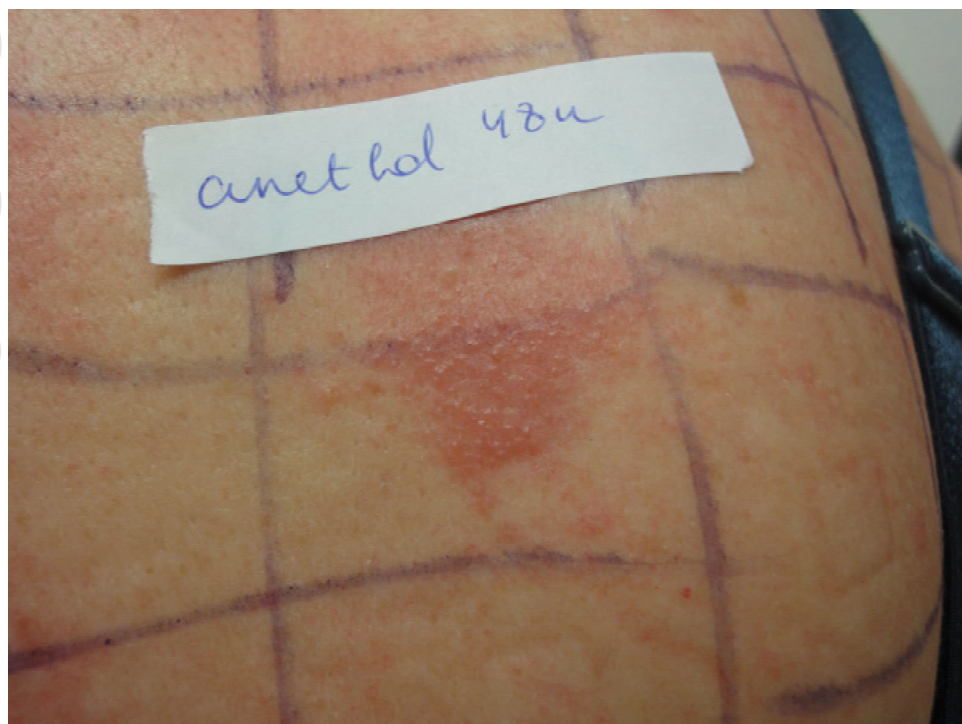


Fig. 2 Strong positive patch test reaction (++) to anethole in Case 1 at the reading on day 2.