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Case report: allergic contact cheilitis caused by ceresin wax

Mathieu Powell and Linda Moreau

Department of Dermatology, McGill University Health Centre, Royal Victoria Hospital, Montreal, QC H3A 1A1, Canada

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Ceresin is a mineral wax obtained from ozokerite (1). Its structure is similar to that of paraffin, providing a good level of flexibility, adhesiveness, and water resistance. When chlorinated, ceresin is a useful varnish product (1), and it is thus commonly used in floor waxes, textiles, and rubber compounds (2). Although rare, there are reports of occupational dermatoses, particularly among workers using ceresin-containing varnishes (1).

In its natural form, ceresin is suitable for use in personal care products such as creams, mascara, and lipsticks (3). To our knowledge, there are no available case reports of allergic contact dermatitis caused by ceresin as it pertains to cosmetic use.

Case Report

A 37-year-old female accountant presented with a 1-year history of recurrent cheilitis of the upper and lower lip, whose onset seemed to coincide with the use of a new lipstick. There was a personal and family history of atopy, including eczema and allergic rhinitis. There were no occupational exposures of note.

Patch testing was performed in two separate sessions. In June 2010, the patient was tested with the North American Contact Dermatitis Group Baseline (AllergEAZE; Smartpractice, Calgary, Canada) applied on IQ Ultra™ chambers (Chemotechnique Diagnostics AB, Vellinge, Sweden). Additional series included that of antimicrobials, vehicles, cosmetics, and bakers' ingredients, totalling 47 supplementary allergens (Chemotechnique Diagnostics AB), and four of the patient's own products. The patches were removed on D2, and the reaction was scored according to the International Contact Dermatitis Research

Group criteria at D2 and D4. On the latter, a 1+ positive reaction was noted to the patient's own product, Clinique 'Long last shine berry freeze' lipstick. All other 125 tested allergens were negative.

In October 2010, upon enquiry to the manufacturer Estée Lauder Companies, we performed further patch testing with the provided (unnamed) individual ingredients of the lipstick formulation. These ingredients were prepared by the company according to the standards indicated in Anton de Groot's book, *Patch Test Concentrations and Vehicles for Testing Contact Allergens*. On D2 and D4, the patient had a 1+ reaction to the divulged ingredient, called ceresin (tested in 30% pet.). We also asked 4 volunteers to be our control for testing of the same ceresin used in the patch test of our patient. The results for our 4 controls at both the D2 and D4 readings were negative.

Discussion

Given the patient's symptoms, both in onset and chronicity, as well as the positive patch test result upon exposure to isolated ceresin extract, a diagnosis of allergic contact dermatitis to ceresin is appropriate. Despite our comprehensive review of the literature with PubMed, Medline, and online journal reviews, we were unable to identify any documented case reports of similar findings. A few isolated cases with specific forms of wax, namely beeswax and carnauba wax, within similar cosmetic products have been reported in the United States, the United Kingdom, and Italy (4–6).

According to the *Cosmetic Ingredient Review*, ceresin is safe for use in cosmetics as a binding, epilating, viscosity-controlling and emulsion-stabilizing agent (3). Environment Canada has classified this ingredient as 'not expected to be potentially toxic or harmful'. However, there is incomplete evidence regarding

Correspondence: Mathieu Powell, Department of Dermatology, McGill University Health Centre, Royal Victoria Hospital, Montreal, QC H3A 1A1, Canada. Tel: +514 934 1934, ext: 34648; Fax: +514 843 1570. E-mail: mathieu.powell@mail.mcgill.ca

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the possibility of potential bioaccumulation and toxicity (3).

This report, along with previous data, shows that waxes such as ceresin constitute a very rare cause of contact dermatitis, particularly when included in cosmetics.

It underlines the importance of testing with the patient's own products, as a rare cause of allergy may be missed if the products are not tested. Cooperation with the cosmetic companies is essential to discover new and emerging allergens.

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