Contact cheilitis caused by candelilla wax contained in lipstick

Nuria Barrientos, Patricia Abajo, Maria Moreno de Vega and José Domínguez

Department of Dermatology, Hospital Universitario del Henares, Coslada 28822, Spain
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We report a case of allergic contact dermatitis caused by candelilla wax. Candelilla wax is a natural vegetable wax obtained by boiling the leaves of the candelilla shrub and stems with diluted sulfuric acid, and the resulting ‘cerote’ is skimmed from the surface and further processed. It may be found in cosmetics such as lip balms, lipsticks, protective creams, pomades, mascaras, glosses, and lotions. Other products in which candelilla wax could be included are polishes for wood, leather, lubricants, adhesives, paper coating and sizing, chewing gum base, and candles (1, 2). Allergic contact dermatitis caused by waxes is very rare, and this is the first case related to candelilla wax (3).

Case Report

A 25-year-old woman with a history of atopic dermatitis was referred for recurrent episodes of cheilitis. She had suffered from this from childhood, but she had experienced an unusual flare-up of cheilitis in recent months.

Patch testing was performed with the European baseline series (TRUE Test®), a cosmetic extended series (Chemotechnique®, Vellinge, Sweden), and 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. Relevant positive reactions (+++) to her lip balm were found (Protector Labial Isdin 15®). An additional reaction to thiomersal, with unknown relevance, was found (++). The manufacturer kindly supplied the ingredients of the lip balm. The patient was patch tested with the provided ingredients as is, with Finn Chambers® on Scanpor® tape. A +++ reaction to candelilla wax was found (tested in 10% paraffin), and + reactions to octyldodecanol at D2 and D4. Discontinuation of use of the lip balm resulted in clearance of the cheilitis.

Discussion

Candelilla wax (CAS No. 8006-44-8) may be obtained from several species of Euphorbiacea; the primary sources are Euphorbia antisiphilitica and Euphorbia cerifera, which are native to northern Mexico and the southwest of the United States. It is mostly used mixed with other waxes to harden them. As a food additive, candelilla wax has the E number E-902, and is used as a glazing agent. Because of its hypoallergenic and emollient properties, as well as its shine, candelilla wax appears as an ingredient in many cosmetic formulas, where it is used to thicken lipstick, eyeliner, mascara, etc. Candelilla wax is a mixture of mainly hydrocarbons, esters of higher molecular weight, free acids, and resins. Skin sensitization or irritation is very rare (3). A few cases of contact dermatitis caused by
waxes have been reported, and none of them was related to candelilla wax. Most of these cases were caused by propolis and carnauba wax (3–6). Both waxes, candelilla and carnauba, are used in the cosmetic industry as components of lip balms. The high hydrocarbon content distinguishes candelilla wax from carnauba wax. No reports of allergic contact dermatitis caused by candelilla wax have been noted in the literature to date.

This case shows that waxes such as candelilla may be rare causes of contact dermatitis, mainly when they are components of cosmetics. Patch testing is essential for investigating a suspected contact cheilitis, and extended patch test series and/or testing with the patient’s personal products is very important to definitively establish the causative substance.

References
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