

Intolerance to cosmetics as key to the diagnosis in a patient with allergic contact dermatitis caused by propylene glycol contained in a topical medication

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Given that many substances are used in the manufacture of cosmetics that are also used in topical medicines, patients who became sensitized to an excipient may show intolerance to cosmetic products, and vice versa.

Case Report

A 28-year-old woman had a 1-week history of herpes zoster on the chest, treated for the last 4 days with oral famciclovir and Zovirax[®] cream (GlaxoSmithkline, Madrid, Spain). She attended the dermatology service because of apparently worsening symptoms of the herpes zoster (Fig. 1). The patient had a past history of intolerance to several cosmetic products that prevented her from using these. After symptomatic treatment, patch tests were carried out according to ESCD criteria (1) with the Spanish baseline series (GEIDAC), the cosmetic and fragrance series from Chemotechnique Diagnostics (Vellinge, Sweden), and the individual components of Zovirax[®] supplied by the manufacturer (acyclovir 0.05%, acyclovir 1%, acyclovir 5%, propylene glycol 5%, cetostearyl alcohol 20%, all in pet.), applied in Finn Chambers[®] and read on day (D) 2 and D4. Positive reaction were observed to Zovirax[®] 'as is' (++) on D2 and (+++) on D4), propylene glycol 5% pet. (Chemotechnique) (+ on D2 and ++ on D4), propylene glycol supplied by the manufacturer, 5% pet. (+ on D4), triethanolamine 2% pet. (Chemotechnique) (+ on D2 and D4), amercchol L 50% pet. (Chemotechnique)



Fig. 1. Erythematous plaques with a clear border and scaly erosive surface on the left hemithorax, axilla and submammary region.

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(+ on D4), thiomersal 0.1% pet. (Chemotechnique) (+ on D2 and ++ on D4), methyldibromo glutaronitrile 0.5% pet. (Chemotechnique) (++) on D4), shellac 20% (Chemotechnique) (++) on D4), and nickel sulfate (TRUE Test[®]; Smart Practice, Phoenix, AZ, USA) (++) on D2

and +++ on D4). The final diagnosis was allergic contact dermatitis caused by propylene glycol contained in Zovirax[®] cream. Sensitization to nickel sulfate was of past relevance, and the relevance for the other positive allergens was unknown.

Discussion

Propylene glycol (CAS no. 57-55-6) is used as a solvent and humectant (moisturizer), and has some antibacterial properties in cosmetic products, topical and systemic medicines, and food (2). Propylene glycol can cause irritant contact dermatitis, allergic contact dermatitis, contact urticaria, and subjective (sensory) irritation (3). Warshaw et al. found that sources of exposure to propylene glycol included personal care products (53%), topical corticosteroids (18%), and other medicaments

(4). A few older case reports exist of allergic contact dermatitis caused by propylene glycol contained in Zovirax[®] cream, which can be misinterpreted as worsening of the viral infection (2, 5). The fact that our patient did not tolerate some cosmetic products led us to suspect that she was sensitized to some component of the excipient of the cream, and not to the active ingredient itself, as was later confirmed by patch testing.

The use of topical drugs can result in contact dermatitis caused by the active ingredient, or by an excipient. As many components of cosmetic products are also commonly used in topical medications, a previous history of intolerance to cosmetic products in a patient with contact dermatitis caused by a topical medication should alert the physician to the possibility of contact allergy to one of the excipients of that medication.

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