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Letter

Contact dermatitis to vitamin K1 in an eye cream

Vitamin K1 is used systemically for the prophylaxis of bleeding disorders in patients with hypoprothrombinemia or as antidote to oral anticoagulant therapy. Since 2004 phytonadione has been marketed for topical use in cosmetics.

In 2006, a 23-year-old woman with an unremarkable medical history presented with eyelid dermatitis. For 2 months before the onset of the dermatitis, she had used a cosmetic treatment (anti-wrinkle eye cream). The application of the cream was stopped, and the eczematous reaction healed with topical corticosteroids.

Four weeks later, the patient was patch tested in accordance with the International Contact Dermatitis Research Group criteria¹ with the European baseline, cosmetics, sunscreen, and plant series (Chemotechnique Diagnostics, Vellinge, Sweden). Initial patch testing elicited an allergic patch test reaction to nickel sulfate (5% in petrolatum) (D2+ /D4++) and to the cosmetic cream (as is) (D2–/D4++) The cosmetic product had a long list of ingredients: vitamin K1, urea, ubiquinone, titanium dioxide, parabens, fragrance, and other additives. At our request, the product manufacturer supplied the cream components separately and confirmed that the cream did not contain nickel. The patient was subsequently patch tested. The only reaction was to vitamin K1 (2%) (D2–/D4++) (Fig 1). Patch tests in 20 healthy controls were negative.

Cosmetics are a common cause of eyelid allergic contact dermatitis. It is frequently caused by dyes, fragrances, resins, preservatives, and vehicles of cosmetics applied on the face, hair, and fingernails. Claimed uses for vitamin K in cosmetics include skin lightening, periorbital pigmentation, and treatment of actinic and traumatic purpura. For these reasons these cosmetics are also advised to help clear and prevent bruising associated with cosmetic surgery or laser therapy. Vitamin K skin creams are recommended by some physicians and beauticians as a remedy for dark eye circles, bruising, spider veins, and varicose veins. Vitamin K creams are available in prescription strength to over-the-counter products sold in the local drugstore, cosmetics shop, natural food store, or any number of online retailers. These products can be purchased in a range of formulations, containing differing concentrations of vitamin K (2%–5%). Cutaneous adverse effects to topical vitamin K1 had been reported in publications focused on contact dermatitis.^{2,3} In November 2009, phytonadione but not its oxidized form has been banned for its cosmetic use in the European Union. Allergic contact dermatitis in cosmetics containing vitamin K1 oxide as the non-oxidized form has been described.^{2,3} In our case, the

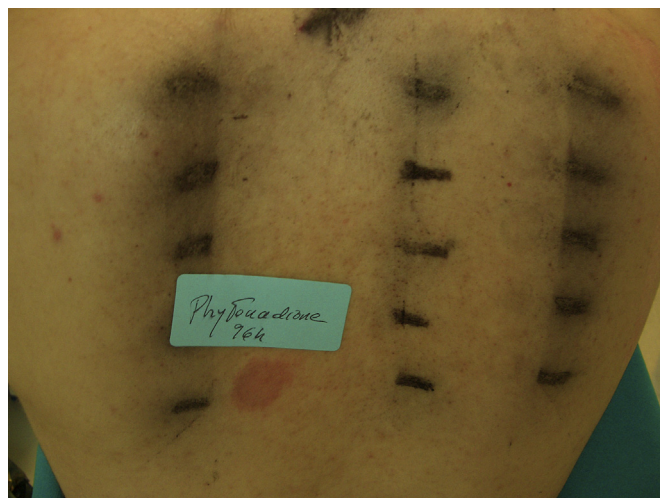


Figure 1. Patch testing reactions with components of the cream (D4).

formulation was the non-oxidized form of vitamin K1. Although vitamin K1–induced allergic contact dermatitis is rare, individuals so affected may be denied an important therapeutic agent.⁴

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