

Allergic contact dermatitis caused by ascorbyl tetraisopalmitate

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Case Report

A 54-year-old non-atopic woman presented at our outpatient clinic with a history of a skin reaction 2 days after the first application of an anti-ageing skin care product, Hydracyd C 20 cream® (Laboratoires SVR, Le Plessis-Pâté, France). The reaction had started on the face, and spread to the arms and pre-sternum. One week before the onset of the skin complaints, the patient had been exposed for 2 days to a new acrylic wall paint. She had regularly come into contact with other acrylic paints, without any problems. Patch testing with the European baseline series (Trolab®; Hermal, Reinbek, Germany), a cosmetic series, a pharmaceutical series and her own products was performed, using van der Bend patch test chambers (van der Bend, Brielle, The Netherlands) applied on Micropore® (3M Health Care, Borken, Germany), and fixed with Mefix® (Mölnlycke Health Care, Göteborg, Sweden). The readings were performed according to the guidelines of the International Contact Dermatitis

Research Group, on D2, D4, and also D7. The patient showed positive reactions to methyl(chloro)thiazolinone 100 ppm, thiomersal, and Hydracid C20. A repeated open application test (ROAT) with the latter became positive after 3 days.

Four months later, additional patch testing with the ingredients of Hydracyd C20, kindly provided by the manufacturer, were performed. This revealed a strong positive reaction to ascorbyl tetraisopalmitate (diluted 20% in liquid paraffin) (Fig. 1). Twenty control subjects gave negative results on patch testing to this substance.

In order to look for possible cross-reactions, we additionally tested with ascorbylpalmitate (5% in alcohol) and isopropylpalmitate (as is), which have a chemically analogous structure and are frequently used in cosmetics, as well as with ascorbic acid (5% in water), but all remained negative. During this second test session, the patient presented with a flare-up on the cheeks and upper arm, the latter being at the ROAT site of application with Hydracid C20.

Methylchloroisothiazolinone (MCI)/methylisothiazolinone (MI) was found to be a component of the new acrylic wallpaint to which the patient had been exposed. However, direct questioning revealed that she had frequently used wipes for intimate hygiene in the past, and had developed vaginal pruritus from them: they

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Fig. 1. Positive patch test reaction to ascorbyl tetraisopalmitate (D2).

most probably contained MCI/MI or MI (1). Furthermore, she had also previously received chemical peels followed by application of an anti-ageing cream containing vitamin A and C derivatives, after which she had developed erythema and a burning sensation of the skin.

Discussion

Ascorbyl tetraisopalmitate (CAS 183476-82-6) is a lipid-soluble synthetic derivative of ascorbic acid, used as an antioxidant, emollient, and skin conditioning agent.

References

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Antioxidants are photoprotective, and are nowadays frequently used in anti-ageing products (2). One of the most frequently used antioxidants is ascorbic acid, which is extremely unstable. Therefore, it is chemically modified by esterification of the hydroxyl group, leading to derivatives such as ascorbyl tetraisopalmitate and ascorbyl palmitate. In our cosmetic database containing ingredient information on cosmetic products delivered in pharmacies, we found ascorbyl tetraisopalmitate to be also present in sunscreens and a depigmenting cream.

We describe here a patient who was probably primarily sensitized by isothiazolinones present in wipes; this was followed by airborne dermatitis caused by acrylic wallpaint exposure, and a reaction following application of an anti-ageing cream, the responsible allergen of which was ascorbyl tetraisopalmitate, which might have been present in previously applied anti-ageing products.

We could not find any reports in the literature regarding allergic contact reactions to ascorbyl tetraisopalmitate.

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