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Facial allergic contact dermatitis caused by caprylic/capric triglyceride in a cosmetic cream

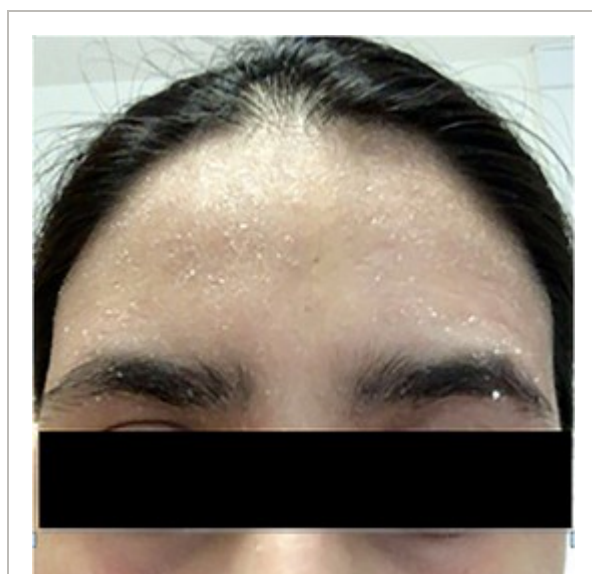
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CASE REPORT

A 21-year-old atopic woman was referred with a 6-month history of eyelid eczema, which had slowly progressed to involve the whole face (Figure 1). She was otherwise fit and well. Application of mild topical corticosteroids had not helped, but on stopping all cosmetics and over-the-counter face cream her dermatitis had settled completely. Patch testing was performed to the British Society for Cutaneous Allergy (BSCA) standard, medicament, and facial series, as well to the patient's own products. The patch tests were read, according to criteria of the International Contact Dermatitis Research Group, on day (D) 2 and D4 (no late readings were performed in accordance with our standard practice). There was one reaction only on D4 to one of the patient's own products, Aquaporin active revitalising eye cream (Beiersdorf, UK), tested undiluted. The patient recalled having started daily application of this eye cream a few months prior to the onset of the rash.



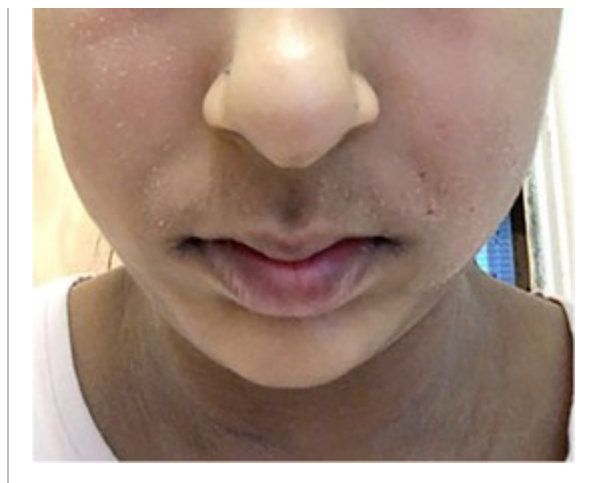


FIGURE 1

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Scaly dermatitis involving the face and neck after using the Aquaporin active revitalising eye cream

Patch testing with the eye cream ingredients, kindly supplied by the manufacturer ready diluted for patch testing, revealed a single positive patch test reaction to caprylic/capric triglyceride (10% in pet.), negative on D2 and positive on D4 (2+). Further patch tests with caprylic/capric triglyceride (10% in pet.) in 10 consecutive control patients were negative. Patch test chambers used were Finn chambers (SmartPractice, Phoenix, Arizona) on Scanpor tape.

DISCUSSION

Caprylic/capric triglycerides (CAS no. 73398-61-5; related to glyceryl and coco caprylate/caprate) are medium-chain fatty acids extracted from coconut or palm oil that are combined with glycerine to form triglycerides. They are considered to be a more 'natural' alternative to other emollients, as they are derived from coconut or palm oil. The term 'natural' is quite loose and there is no certifying body which tests and verifies that products are safe by certain standards. Besides, natural does not ensure healthier or safer skin in anyway. Many plant-based products such as essential oils (eg, limonene, linalool, balsam of peru) are common allergens. Using terminologies as natural, safe, or green are on rampant and is a clever marketing tactic to draw profits.

Caprylic/capric triglycerides are widely used as texture enhancers and for binding and blending agents in skin care products. They have rapid penetration ability¹ and have a neutral colour and odour. As such, they are used in hundreds of personal care and household products, such as baby wipes, lotion, perfumes, make-up, deodorant, sunscreen, and hair-care items.

To the best of our knowledge, there has been only two previous reports of allergic contact dermatitis (ACD) to these medium-chain triglycerides, one presenting as facial ACD through use of an anti-ageing 'melatonin' face cream,² and one facial and arm ACD from a cucumber

moisturizing cream.³ There have, however, been single case reports of ACD to the chemically related glycerol (mono) caprylate through use in a cosmetic facial cream⁴ and sorbitan caprylate in a deodorant.⁵ In the latter case, half of the patients reacted to sorbitan mono-oleate (ACD to the sorbitan part), but the authors stressed the importance of testing for sorbitan and caprylate separately as well, emphasizing the unacknowledged caprylate part as a possible culprit.

Caprylic/capric triglyceride is generally considered to be a safe chemical with weak sensitizing potential. The widespread use of this chemical compound, however, particularly in leave-on cosmetic creams in sensitive body sites, raises the possibility that this chemical group may be an under recognized cause of ACD.

ACKNOWLEDGEMENTS

We are grateful to the manufacturer, Beiersdorf, who kindly delivered the ingredients to carry out patch tests.

AUTHOR CONTRIBUTIONS

Wajeeha Khan: Data curation (equal); formal analysis (equal); methodology (equal); writing – original draft (equal); writing – review and editing (equal). **Natalie Stone:** Conceptualization (equal); formal analysis (equal); methodology (equal); writing – original draft (equal); writing – review and editing (equal).

CONFLICTS OF INTEREST

None to declare.

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