

Pustular allergic contact dermatitis caused by sunscreen

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Allergic contact dermatitis (ACD) from cosmetics, sunscreens and topical treatment is a well-recognized adverse event. The clinical appearance of an ACD can be atypical, may resemble acute generalized exanthematous pustulosis, lupus erythematosus or rarely be pustular (1-3).

Case Report

Our case is a 4-year-old girl, known with severe pustular psoriasis, caused by a pathogenic variant in IL 36 RN (DITRA). The patient developed a psoriasiform dermatosis at 6 weeks of age, evolving into universal pustular psoriasis after an operation for Steno Fallot tetralogy at the age of 4 months. The disease was well controlled on combined therapy with ustekinumab and methotrexate, until the patient developed recurring flares of a pustular pruritic eruption. Contact allergy was suspected since the parents had observed recurrent pustular dermatitis after the use of sunscreens. The rash resembled a severe flare of pustular psoriasis (Fig.1), with monomorphic pustular elements on an erythematous, slightly oedematous background, affecting the face, neck and trunk. In addition, the patient had a history of a vaccination granuloma.

Patch testing was performed according to International Contact Dermatitis Research Group guidelines, with our paediatric baseline series, photo patch test series, additional allergens according to ingredient label in sunscreens (Chemotechnique Diagnostics, Vellinge, Sweden and Trolab, Reinbek, Germany) and sunscreens tested "as is" (Table 1) using allergEAZE patch test chambers (SmartPractice Canada) on Scanpor tape (Alpharma) with readings on day (D) 3 and D7. Multiple positive pustular reactions to triethanolamine, propolis, benzoic acid and aluminium (III) chloride hexahydrate were observed (Table 1 and Fig. 2). Triethanolamine is commonly used as an emulsifier, and benzoic acid as a preservative in emollients and sunscreens. Both were present in several of the used sunscreens (Online supplemental Table 1).

Discussion

Earlier studies have demonstrated an inverse relation between autoimmune diseases as psoriasis and ACD (4). ACD and psoriasis can influence each other's clinical appearance, with a delayed and protracted reaction of ACD in patients with psoriasis (5). Pustular ACD is a rare clinical presentation, previously described in sporadic cases in relation to amongst others topical nitrofurazone (1) and fragrances (6), and might in this case of a

patient known to have psoriasis, be a Köbner phenomenon to the allergic reaction. To our knowledge this is the first report of pustular ACD caused by triethanolamine and benzoic acid, and also of a contact allergy in a patient with DITRA. Our case report illustrates the importance of patch testing in cases with atypical pustular eruptions, as a pustular contact allergy can be misinterpreted as a flare of pustular psoriasis.

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Legends

Fig. 1 Pustular eruption

Fig 2. Pustular patch test reaction to triethanolamine



75x63mm (220 x 220 DPI)



128x97mm (96 x 96 DPI)

Table 1.

Agent	Day 3	Day 7	Relevance
Triethanolamine	++	+	Present relevance, Apotekets sun lotion
Propolis	++	+	Unknown
Benzoic acid	+	+	Present relevance, Levevis kids sun protection lotion, Andrea Rudolph sun kids lotion, Derma, A-derma, Avène sun lotion kids, Änglamarks sun lotion
Aluminium (III) Chloride hexahydrate	+	+	Past relevance, vaccination-granuloma

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