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CASE REPORT

Exuberant connubial allergic contact dermatitis from diphenhydramine

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Abstract

Connubial or consort allergic contact dermatitis occurs when the agent causing the dermatitis has not been used by the patient but by his partner or other cohabitants or proxy. Most cases are due to fragrances, cosmetics or topical nonsteroidal anti-inflammatory agents. We report a case of a connubial dermatitis caused by topical diphenhydramine in a woman who applied the cream on her husband's back.

Keywords

Allergic, connubial, diphenhydramine

History

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Introduction

Connubial or consort allergic contact dermatitis occurs when the agent causing the dermatitis has not been used by the patient but by his partner or other cohabitants or proxy. Most cases are due to fragrances, cosmetics or topical nonsteroidal anti-inflammatory agents^{1,2}.

Case report

A 58-year-old woman was observed in the emergency room, in August 2012, with a severe acute eczematous reaction progressing for 4 d. On clinical examination, there was an exuberant facial edema and exudation and erythematovesicular plaques with serous and sero-hemorrhagic confluent vesicles, distributed along the posterior neck, upper extremities, inner thighs and knees, with a linear pattern in some areas (Figure 1). Hands were not affected. Pruritus was intense. The clinical picture was suggestive of a severe acute allergic contact dermatitis, or attending to the sunny period of the year, and a linear distribution phytophotodermatitis was suspected though the localization of lesions was uncommon. The patient recorded a similar episode, though more discrete exactly one year earlier, when she and her husband were on their holiday house. She denied any contact with plants, gardening or new medications. However, in the night before this outbreak she had applied on her husband's back diphenhydramine cream (Benaderma®, SOFEX Pharmaceuticals, Lda, Queluz, Portugal, containing diphenhydramine hydrochloride 2%, methylcellulose, menthol, glycerin, ethanol, methylparaben). She could not recall exposure to Benaderma® cream during the previous episode. Reactions resolved completely on systemic steroids.

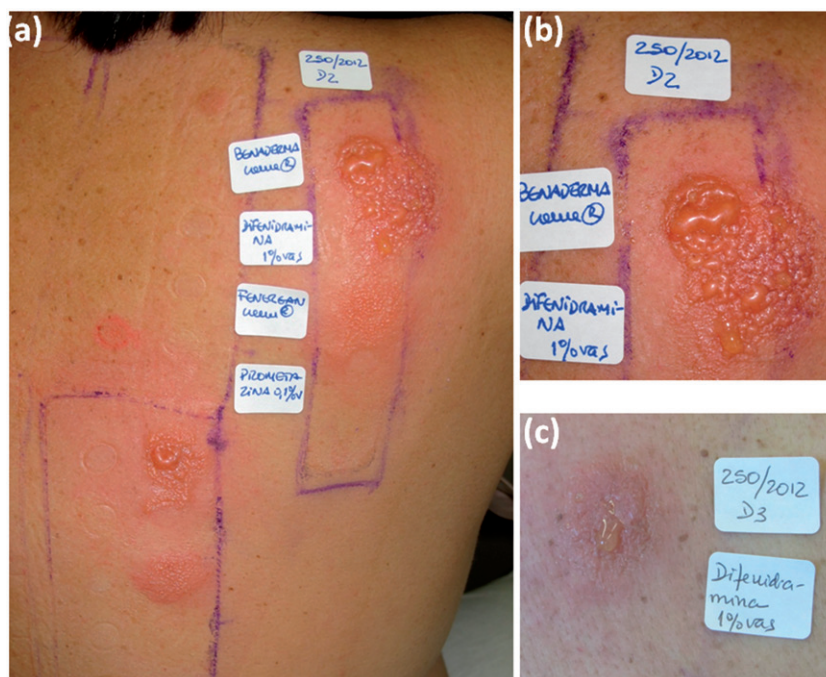
Patch tests were performed with the European/Portuguese baseline series (Chemotechnique Diagnostics™, Vellinge, Sweden), topical drugs and, as there are reports of photoallergy from diphenhydramine, a duplicate set of tests was applied for photopatch testing with diphenhydramine and the topical antihistamine creams, Benaderma® and Fenergan® (Lab. Vitória, S.A., Amadora, Portugal, containing promethazine hydrochloride 2%, stearic acid, cholesterol, lanolin hydrate, trolamine, glycerol, methyl para-hydroxybenzoate, coumarin, cetostearyl alcohol [sipol wax], lavender essential oil). Allergens were applied on the back for 48 h using Finnchambers on Scanpor tape. Readings, performed at D2 and D3, according to ICDRG criteria, showed strongly positive reactions only to Benaderma® cream (3+) and Fenergan® cream (3+) simulating the intensity of the clinical lesions. Due to the intensity of these reactions, UV irradiation was not performed. It was difficult to evaluate the reaction to diphenhydramine hydrochloride 1% pet. as a “spill-over” effect from neighboring positive tests could not be excluded (Figure 2a,b). To clarify the positive reaction of Benaderma®, further patch tests were performed 6 weeks later with the active ingredient (diphenhydramine) and the excipients of Benaderma® cream and allergens of the preservatives and perfumes series. A positive reaction was observed only to diphenhydramine hydrochloride 1% pet., again a 3+ reaction with confluent vesicles, confirming the relation of the ACD with the active ingredient of Benaderma® cream (Figure 2c). As the patient had no direct contact with the cream, except in the palmar skin which was not affected, and some of the localizations of her dermatitis were not very easily accessible by her own hands (Figure 1d), we propose that this is due to the transfer of the allergen from her husband's skin, and therefore a case of connubial contact dermatitis. We could not find relevance to the positive reaction to Fenergan® cream, a very frequently used topical antihistamine, but the patient did

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Figure 1. Exuberant allergic contact dermatitis with facial eczema (a) and sero-hemorrhagic vesicles in the elbow (b) and inner thighs (c), and linear lesions on the knees (d) and neck/back (e).

Figure 2. Patch test result at day 2 with strongly positive reactions to antihistamines. A duplicate set of tests was applied on the back but no UV irradiation was performed due the intensity of the reactions (a); detail of the positive reaction to Benaderma[®] cream (3+) and a doubtful reaction with “spill-over” effect to diphenhydramine hydrochloride 1% pet. (b); the positive reaction to diphenhydramine hydrochloride 1% was confirmed (3+) 6 weeks later (c).



not recall previous exposure. Moreover, patch testing with its active ingredient, promethazine at 0.1% pet., was negative.

Discussion

Diphenhydramine is a first-generation sedating antihistamine derived from the ethanolamine that blocks H1 receptors. It can be used both systemically and topically. As other topical

antihistamines, diphenhydramine has been widely available as over-the-counter antipruritic medication. There are few reports of allergic contact dermatitis to diphenhydramine^{3,4}. Werner Aberer found no reaction to diphenhydramine among 100 consecutive patients tested, and Goossens et al. reported only 8 cases of contact allergy to diphenhydramine in 12 460 patch-tested patients over a 20-year period^{5,6}. Therefore, the intensity of the clinical lesions observed in our patient along

with a 3+ positive patch test reaction to Benaderma® cream and to its active ingredient – diphenhydramine, patch-tested at a concentration lower than the cream (1% pet.) – was somehow unexpected.

Diphenhydramine has also been referred to as causing photoallergic contact dermatitis^{7,8}, but in our case the patch test reaction was so intense that we did not proceed with further UV irradiation. Moreover, most lesions in our patient were localized in non-exposed areas.

Therefore, allergic and photoallergic reactions to topical antihistamines seem to be rare, with the exception of the phenothiazine derivative promethazine which frequently causes both allergic and photoallergic/phototoxic dermatitis in Belgium⁶ and in the Southern Europe, namely in Portugal⁹, Italy¹⁰ and Greece¹¹. The positive patch test reaction to Fenegan® cream with a negative reaction to its main ingredients, the anti-H1 promethazine, is apparently not relevant in our patient, but we cannot exclude previous use as this topical formulation is widely used in Portugal under prescription by general practitioners or over-the-counter.

In our patient palms that contacted Benaderma®, cream were spared but lesions occurred in areas difficultly reached by patients' own hands (back), therefore we suspected contact with her husband's skin contaminated with the cream. To our knowledge, this is the first case of connubial dermatitis induced by diphenhydramine. We highlight the importance of inquiring about any new medication used by the patients or relatives and keep a high degree of suspicion for connubial dermatitis. Many cases can be overlooked or misdiagnosed, as had happened with our patient in her first episode of allergic contact dermatitis.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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