

Patch test reaction to *p*-phenylenediamine can persist for more than 1 month

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A long-lasting allergic patch test reaction is a positive patch test reaction persisting for > 2 weeks after application of the allergen (1). Here, we report a case of allergic contact dermatitis caused by *p*-phenylenediamine with both a long-lasting allergic patch test reaction and a flare-up reaction.

Case Report

A 61-year-old man was referred to us with pruritic eruptions on the upper back in January 2013. The patient had used a hair-dye for 12 years. The patient had felt a recurring pruritic sensation of the scalp after using the hair-dye for several months previously. Pruritic eruptions on the scalp and the upper back had occurred together with general fatigue 1 day after use of the hair-dye in December 2012. Betamethasone valerate 0.12% lotion and diflucortolone valerate 0.1% ointment had been applied on the scalp and the upper back, but pruritic eruptions had been persistent on the back. Physical examination at the initial examination revealed pruritic erythematous macules on the upper back (Fig. 1a). Difluprednate 0.05% ointment was applied on the affected lesions. The eruptions ceased 2 weeks later.

Patch testing (International Contact Dermatitis Research Group criteria; Finn Chambers® on Scanpor®



Fig. 1. (a) A clinical picture of pruritic erythematous macules on the upper back at the first examination. (b) A positive patch test reaction to *p*-phenylenediamine 1% pet. at D4. (c) A positive long-lasting allergic patch test reaction to *p*-phenylenediamine 1% pet. at D38. (d) A clinical picture of flare-up of dermatitis on the scalp at D4.

tape; Epitest Ltd, Tuusula, Finland) was performed with only the Japanese patch test series for hair dyes and permanent waves (supplied by Patch Test Materials 2011, Research Group of the Japanese Society for Dermatoallergy and Contact Dermatitis). Readings were performed on D2, D4, D7, and D38. The patient showed a positive reaction to *p*-phenylenediamine 1% pet. at D4 (+), D7 (+), and D38 (+), showing a long-lasting allergic patch test reaction (Fig. 1b,c). A flare-up of dermatitis on the scalp was present at D4 and D7 (Fig. 1d). Betamethasone valerate 0.12% lotion was topically applied to the flared dermatitis. We confirmed the disappearance of the flare-up at D38.

Discussion

The present patient had contact sensitivity to *p*-phenylenediamine, with both a long-lasting allergic patch test

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[†]Shusuke Uchida and Naoki Oiso patch tested and read the results.

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[§]Kayoko Matsunaga, Akira Kawada and Naoki Oiso prepared the paper for submission.

reaction and a flare-up reaction. The clinical history indicated that sensitization occurred previously, and that allergic contact dermatitis with widespread skin lesions developed after repeated elicitation of allergic contact dermatitis. We happened to confirm the long-lasting allergic patch test reaction to *p*-phenylenediamine at D38, when we checked the effectiveness of topical corticosteroid application to the flared lesion.

Lönngren et al. reported a case of scalp dermatitis and widespread skin lesions after repeated use of a hair-dye containing *p*-phenylenediamine (2). They showed a flare-up reaction on the patch tested lesion when the patient coloured her hair after examination (2).

Our case showed the concomitant occurrence of a long-lasting allergic patch test reaction and a flare-up reaction.

It has been suggested that long-lasting allergic patch test reactions are not as infrequent as suspected, because they are not expected by the clinician (3). Our case implies a possible relationship between a long-lasting allergic patch test reaction and a flare-up reaction in allergic contact dermatitis with widespread skin lesions.

Some allergens, such as gold and *p*-phenylenediamine, can cause very long-lasting reactions (3), even when the initial reaction was not very strong. We must inform our patients that a long-lasting allergic patch test reaction can occur, and be accessible to read the reaction again if it occurs.

References

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