

A rare case of acquired leukoderma following patch testing with an acrylate series

Chung Kwok, Mark Wilkinson and Sabine Sommer

Department of Dermatology, Leeds General Infirmary, Leeds, UK

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Patch testing is generally a safe procedure. Complications include flare-up of contact dermatitis, active sensitization, irritant reactions, scars, alteration of pigmentation,

pustular or microbial infection, reaction to plaster or test devices, and angry back syndrome (1).

Correspondence: Dr Chung Kwok, Department of Dermatology, Leeds General Infirmary, Great George Street, Leeds LS1 3EX, UK. Telephone: +44 7887942960; Fax: 0113 3923564. E-mail: chung_kwok@yahoo.co.uk

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Case Report

A 53-year-old woman with Fitzpatrick skin type IV and no history of atopy was referred for patch testing with an 8-month history of cheilitis and mild eczema of

Table 1. Positive patch testing reactions to baseline, acrylate nail, bakery and facial series on Day 2 and Day 4

Allergens	D2 reading	D4 reading
Methyl methacrylate 2% pet.	+	+
2-Hydroxyethyl methacrylate 2% pet.	+	+
2-Hydroxypropyl methacrylate 2% pet.	+	+
Ethyleneglycol dimethacrylate 2% pet.	+	+
Triethyleneglycol dimethacrylate 2% pet.	±	+
1,4-Butanediol dimethacrylate 2% pet.	±	+
Tetrahydrofurfuryl methacrylate 2% pet.	+	+
Tetraethyleneglycol dimethacrylate 2% pet.	±	+
Ethyl methacrylate 2% pet.	+	+
Ethyl acrylate 0.1% pet.	±	+
2-Hydroxyethyl acrylate 0.1% pet.	±	+

her right hand and left upper arm. Patch testing was undertaken with 8-mm Finn Chambers[®] read according to International Contact Dermatitis Research Group criteria.

**Fig. 1.** Five well-demarcated circular areas of depigmentation at sites of previous weakly positive patch test reactions.

Patch testing with the British Society of Cutaneous Allergy baseline, acrylate nail, bakery and facial series and her cosmetics gave the positive reactions shown in Table 1.

These reactions were of current relevance. She had her acrylic nails removed, and her rash resolved.

Nine months later, the patient re-presented with five circular asymptomatic depigmented macules at the sites of: methyl methacrylate, 2-hydroxyethyl methacrylate, 2-hydroxypropyl methacrylate, ethyleneglycol dimethacrylate, and ethyl methacrylate (Fig. 1).

There was perifollicular repigmentation at the patch testing sites of methyl methacrylate, 2-hydroxypropyl methacrylate, and ethyleneglycol dimethacrylate (Figs 1 and 2). On examination, there were no other areas of depigmentation. There was no personal or family history of vitiligo or any other organ-specific autoimmune disease. A diagnosis of acquired leukoderma secondary to patch testing was made. Our patient was treated with Elocon ointment for 6 weeks without any improvement. The patches of depigmentation persisted.

**Fig. 2.** Close-up of perifollicular repigmentation.

Discussion

Acquired leukoderma following patch testing has been reported for several substances, such as hydroquinone, *p*-phenylenediamine, and related chemical and phenolic substances (1–6). The pathogenesis of acquired leukoderma is not fully understood, but can result from a direct toxic effect on melanocytes or from induction of autoimmune vitiligo, or be post-inflammatory. Acrylates are not recognized as melanotoxic, and the persistence of complete depigmentation makes post-inflammatory change unlikely. Contact vitiligo is defined as an area of complete depigmentation without preceding inflammation,

and this would therefore seem to be unlikely in our case. It is, however, difficult to distinguish between a toxic leukoderma and vitiligo koebnerizing into areas of patch test positivity.

Depigmentation after patch testing with dental acrylics has been described (4). However, these dental acrylics also contained toxic depigmenting agents such as hydroquinone and phenolic substances, and testing with individual acrylate chemicals was not performed. This is the first report of acquired leukoderma following a positive patch test reaction to components of an acrylate series. Our case illustrates a rare adverse effect of patch testing.

References

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