

Leukoderma as a side-effect of patch testing with acrylates: A case report

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Patch tests are at the core of the diagnosis of contact allergy but sometimes they can have unexpected and serious side-effects as in this patient.

CASE REPORT

A 25-year-old female patient presented with dermatitis of both hands, mainly on her fingers, which started after about 6 months of use of a

do-it-yourself acrylic-based nail kit both on her own nails and also those of her friend. She was patch tested using TRUE Test baseline series (Mekos Laboratories, Hillerød, Denmark) and an acrylate series (Chemotechnique Diagnostics, Vellinge, Sweden). Results were read on day (D)2 and D4. The baseline series was positive to



FIGURE 1 Patch test reactions on day 4



FIGURE 2 Leukoderma after 2 months

methylchloroisothiazolinone /methylisothiazolinone on D2 and on D4 (++) with possible relevance to dermatitis in her past caused by sunscreens. The acrylic series yielded ++ reactions on D2 and +++ on D4 (Figure 1) to the following acrylates: 2-hydroxyethylmethacrylate (HEMA), hydroxypropylmethacrylate (HPMA), ethylene glycol dimethacrylate (EGDMA), ethylacrylate, and 2-hydroxyethylacrylate (HEA). She was subsequently advised to stop using any acrylates.

After about 2 months she contacted us again and explained that several of the acrylate reactions had developed into depigmented lesions (Figure 2), namely, two large patches corresponding to HEMA and EGDMA and two small patches corresponding to HPMA and HEA. There were no other areas of depigmentation on the rest of her body. She denied any family history of vitiligo. Treatment with a strong topical corticosteroid had no effect whatsoever. She did not agree to a biopsy of one of the lesions.

DISCUSSION

In 1998, Kanerva and Estlander¹ published a case report describing leukoderma following patch testing with dental acrylates. They speculated that the main reason for that reaction was testing with acrylics undiluted "as is" but also suspected a role of hydroquinones possibly contained in the acrylates. More recently, in 2011, Kwok et al² described another case, quite similar to ours, following patch testing with an acrylate series. In a recent paper, Herman et al³ described a case of contact dermatitis under the contact area of the FreeStyle Libre glucose sensor, developing subsequently to leukoderma. There were positive patch test reactions to isobornyl acrylate (IBOA) and *N,N*-dimethylacrylamide. The authors considered that hydroquinone monomethyl ether (HMME), known to be present in the IBOA they had used for testing, could be the possible culprit, as the hydroquinones are known to be melanotoxic substances.⁴

The question arises whether it is possible that the acrylic substances used for patch testing in our case and in the case presented by Kwok² contain hydroquinone. It would be important to perform such an analysis but we are unable to do it at our institution. Leukoderma has also been described after contact with nonacrylic substances such as triglycidyl-*p*-aminophenol⁵ or *p*-phenylenediamine (PPD),⁶ possibly caused in those cases by strong inflammatory reactions.

What can be learned from this case? Leukoderma is a rare but possible and, more troubling, permanent side effect after patch testing, especially with acrylics. One way to avoid this complication is, in cases where the diagnosis is clear-cut, to consider not performing patch tests, as in the case I just presented (acrylic nail allergy), or in some cases of clear reactions to nickel, PPD, or henna tattoos. Usually, a thorough history of these patients will already pinpoint the allergen and obviate the test and its side effects. Thus, as a final thought, it seems that sometimes doing less is doing more!

CONFLICT OF INTEREST

None to declare.

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