

A new source for isothiazolinone contact allergy in traditional, non-digital photography

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CASE REPORT

A 61-year-old patient was referred because of a 1-year history of relapsing itchy erythematous and vesicular lesions on the dorsa of the hands, progressively extending to the neck, the neckline, and the face (Figure 1). The patient operated a camera shop and processed traditional photographs. He had retired 3 months before the skin problems started, but continued to practise this activity as a hobby. He clearly established a time relationship between this activity and the occurrence of the eruption. His medical history was limited to essential hypertension treated with ramipril.

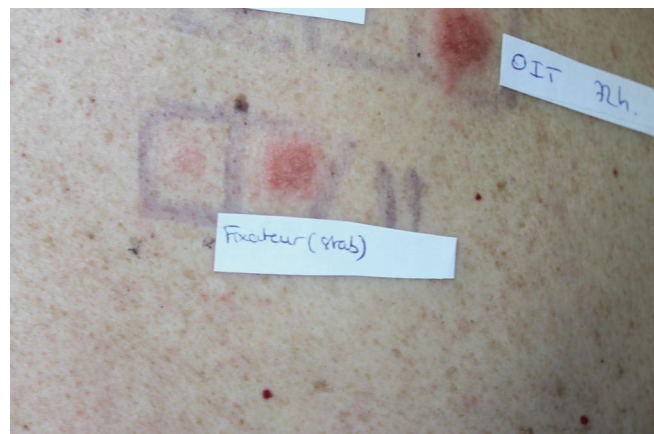


FIGURE 1 Positive patch test reactions to the stabilizing agent 1% aq. (++) and to OIT 1000 ppm (++) on day 3

Patch tests were performed with the European baseline series, an additive series from the REVIDAL group, including octylisothiazolinone (OIT), some allergens of the photographic chemical series (Supporting Information Table S1), dyes such as toluene-2,5-diamine 1% pet. (Chemotechnique Diagnostics, Vellinge, Sweden, and AllergEAZE SmartPractice, Calgary, Canada), and three personal photographic chemicals (colour developer, and stabilizing and bleaching agents). These tests were performed with IQ Ultra patch test chambers (Chemotechnique Diagnostics) occluded for 2 days with Oper-tape (Iberhospitex; Innovative Health Technologies, Barcelona, Spain), and read on day (D) 2 and D3.

Positive reactions were observed to fragrance mix I (?+ on D2; + on D3), fragrance mix II (+ on D2 and D3), methylchloroisothiazolinone (MCI)/methylisothiazolinone (MI) 200 ppm (+ on D2; ++ on D3), MI 2000 ppm (+ on D2; ++ on D3) and OIT 1000 ppm (+ on D2; ++ on D3). A weak positive reaction to ammonium persulfate 2.5% pet. (+ on D2 and D3) was also noted, whereas the stabilizing agent tested 1% aq. was the only positive professional product (+ on D2; ++ on D3) (Supporting Information Figure S1); at 0.1% aq, this yielded a doubtful reaction.

After reassessment of the technical data for each product, it was found that the stabilizing agent did indeed contain <1% MCI/MI and <1% OIT. The bleaching agent contained ammonium sulfite but not persulfates, so the weak reaction to ammonium persulfate was probably merely of past relevance. Moreover, no past or present relevance for fragrance mix I and fragrance mix II was established.

DISCUSSION

With the development of digital photography, the frequency of allergic contact dermatitis caused by photographic chemicals has progressively decreased. Previously, colouring agents used as colour developers, such as *p*-phenylenediamine and related chemical substances, were common sensitizers and could trigger eczematous contact dermatitis or lichenoid reactions.^{1,2} Bleaching agents such as persulfates or sulfites have also been reported as occupational allergens in photographers.^{3,4}

Contact allergy to isothiazolinones is a well-known issue, especially to MCI/MI and MI contained in cosmetic products.^{5,6} Regarding allergy to housekeeping products and paints, all isothiazolinones may be involved.^{7,8} Individuals suffering from isothiazolinone-related occupational allergic contact dermatitis mainly include mechanics, painters, hairdressers, and healthcare workers, some of these professional categories having only recently been identified.^{7,9} Interestingly, we found simultaneous contact sensitization to fragrance mix I and fragrance mix II, which is in accordance with some previous studies.^{7,10}

In our case, airborne contact dermatitis caused by isothiazolinones present in the stabilizing agent is suspected, similar to paints where it may lead to involvement not only of the hands, but also of the face and the neck.⁸

CONFLICTS OF INTEREST

The authors have no conflicts of interest to report.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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Online supplemental Table 1 : Allergens of the photo chemical series (Chemotechnique* and AllergEAZE**)

*Hydroquinone 1%pet
*Ammonium persulfate 2,5%pet
*Ethylenediamine dihydrochloride 1.0%pet
*Glutaraldehyde 0.2%pet
*Benzotriazole 1.0%pet
*Tricresyl phosphate 5.0%pet
*Benzyl alcohol 10.0%sof
**Sodium metabisulfite 1%pet
**Ethylenediamine Tetraaceticacid Disodium Dihydrate 1%pet