Airborne sensitization to isothiazolinones observed in a 3-month-old boy

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Both methylchloroisothiazolinone (MCI) (CAS: 26172-55-4) and methylisothiazolinone (MI) (CAS: 2682-20-4) are highly effective biocides used as preservatives in various products such as paints, glues, printing inks, and cosmetics (1). Allergic reactions have been extensively reported since their introduction in 1980s, and they constitute one of the most frequent causes of preservative contact allergy (2–4). We report here on what, to our knowledge, is the youngest reported case of contact dermatitis caused by airborne exposure to MI and MCI/MI.

Case Report

In August 2012, an otherwise healthy 3-year-old boy was referred to us with a recurrent itchy rash. He was referred from a local dermatologist who had followed the patient for the last couple of years, interpreting and treating the symptoms as being those of atopic dermatitis.

When he was ~3 months of age, the patient and his family moved to a freshly painted house. Only 1 month...
On physical examination, erythematous eczema were observed in the popliteal fossae and on the dorsal surfaces of the hands. Patch testing was performed with the European baseline series with the addition of our baseline children’s series; patch and photo patch tests were performed with the sunscreen series and with the personal products used (Derma Eco Baby SPF 30, La Roche Posay Anthelios SPF 50, and Kids Sollotion SPF 15).

The patch tests read at D2 and D4 gave ++ reactions to MCI/MI on D2 and D4, and ++ reactions to MI. No other positive reactions were seen. MI and MCI/MI were found in the patient’s own shampoo, soap, and sunscreen. Prick testing with aeroallergens gave a positive result only for Timothy grass.

The patient underwent short-term treatment with topical steroid, and the eczema had improved, but not cleared, after 1 month. The history led to the conclusion that he suffers from atopic eczema, which had been either triggered or worsened by his severe allergy.

Discussion

The case presented above is not the first reported case of allergic dermatitis after airborne exposure to MI and MCI/MI (5). The first symptoms occurred in relation to being in newly painted rooms, and flares were also seen later after such exposures, indicating that the child was sensitized in this way. Later, the use of cosmetic products containing MCI/MI and MI also contributed to the disease. What makes this case worthy of attention is the age of the patient and the level of exposure. Previous cases of airborne sensitization to isothiazolinones have resulted from heavy exposure to industrial products and in consumers. This case should serve as a basis for appraisal of the use of these preservatives.

References