

Short Communication

Contact dermatitis due to potassium persulfate

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Due to the widespread sensitization of bakers, the addition of potassium persulfate to flour was prohibited in many European countries in the 1950s. This was an early example of legislating the primary prevention of allergic contact dermatitis (1).

Case Report

A 36-year-old laboratory technician in a potato-flour factory was seen because of dermatitis on the face and the fingers of both hands, which she had had for as long as 6 years. There had also been irritation of the eyes and nose, particularly when cutaneous symptoms were at their most severe. The dermatitis was only present during certain months of the year, and review of her work schedule revealed that such episodes of dermatitis coincided with the addition of potassium persulfate to certain batches of potato flour to be used in the paper industry. She did several physical and chemical analyses of the finished product, in a laboratory equipped with a modern fume cupboard as well as fume extractors.

Patch testing with the European standard series showed a +++ reaction to nickel that was of past relevance. Patch testing with potassium persulfate 1, 2.5 and 5% aq. gave a ++ reaction to all 3 concentrations by D3. A patch test with ammonium persulfate 2.5% pet. elicited a + reaction. A prick test with potassium persulfate 1% aq. was negative. Allergen avoidance made it possible for her to continue working in the same laboratory.

Discussion

A case of allergic contact cheilitis from potassium persulfate in a denture cleanser has been reported (2). A

technician in a water-quality laboratory was diagnosed as having contact allergy to potassium persulfate following uninformative standard series patch testing (3). Sensitization has also occurred in the manufacture of persulfates (4).

Ammonium persulfate is primarily used for bleaching hair. Immediate-type allergic reactions, as well as delayed-type sensitivity and irritant reactions, have been seen in hairdressers, particularly during periods when fashion dictates highlights (5, 6). The reaction to ammonium persulfate in this patient was probably a cross-reaction, as she had never bleached her hair.

References

1. Cronin E. *Contact dermatitis*. Edinburgh: Churchill Livingstone, 1980.
2. Le Coz C J, Bezard M. Allergic contact cheilitis due to effervescent dental cleanser: combined responsibilities of the allergen persulfate and prosthesis porosity. *Contact Dermatitis* 1999; 41: 268–271.
3. Kanerva L, Alanko K, Jolanki R, Aalto-Korte K, Estlander T. Occupational allergic contact dermatitis from potassium persulfate. *Contact Dermatitis* 1999; 40: 116–117.
4. White I R, Catchpole H E, Rycroft R J G. Rashes amongst persulphate workers. *Contact Dermatitis* 1982; 8: 168–172.
5. Van Joost Th, Roesyanto I D. Sensitization to persulphates in occupational and non-occupational hand dermatitis. *Contact Dermatitis* 1991; 24: 376–378.
6. Van der Walle H B, Brunsveld V M. Dermatitis in hairdressers (I). The experience of the past 4 years. *Contact Dermatitis* 1994; 30: 217–221.