

Occupational allergic contact dermatitis to sodium metabisulfite in shredded coconut

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Occupational hand dermatitis is often multifactorial in nature, with allergic, irritant and atopic factors all playing a potential role. Patch testing is integral in the workup of chronic occupational hand dermatitis. Sodium metabisulfite (SMS) is used both in the food and drug industries, primarily as a preservative, but also as an antioxidant and bleaching agent.^{1,2} Reports of allergic contact dermatitis (ACD) to SMS reflect these exposures, primarily with occupational cases in food workers and non-occupational cases among individuals using SMS-containing topical medications, cosmetics or intralesional or intravenous anaesthetics.^{3–5} It has recently been added to the North American Contact Dermatitis Group Series (NACDG) and been considered as an addition to the European baseline series.^{1,6} Interpretation of positive SMS patch tests and patient education can be challenging, as relevance can be difficult to ascertain.

1 | CASE REPORT

A 52-year-old female with a 5+ year history of refractory hand dermatitis related to her occupation as a commercial baker presented to our tertiary referral center for extended patch testing. Patch testing 9 years prior showed positives to fragrance mix 1, jasmine, cocamide diethanolamine and Compositae mix. She reported that the dermatitis was temporally related to work and cleared during vacation periods. The dermatitis had failed to respond to twice daily topical potent corticosteroids, sensitive skin care (including recognition and avoidance of known contact allergies) and nitrile glove use during wet work. On exam, she had red, scaly well-demarcated pruritic plaques on the bilateral dorsal hands with distal fissuring and pulpitis (Figure 1). She was patch tested to the NACDG series; day 5 readings according to International Contact Dermatitis Research Group criteria: 3+ to fragrance mix I 8% pet., 2+ to disperse dye mix 5.6% pet., propolis 10% pet.,

Compositae mix 6% pet., and ylang-ylang oil 2% pet. and 1+ to Myroxylon Pereirae 25% pet. and SMS 1% pet. (AllergEAZE in Finn

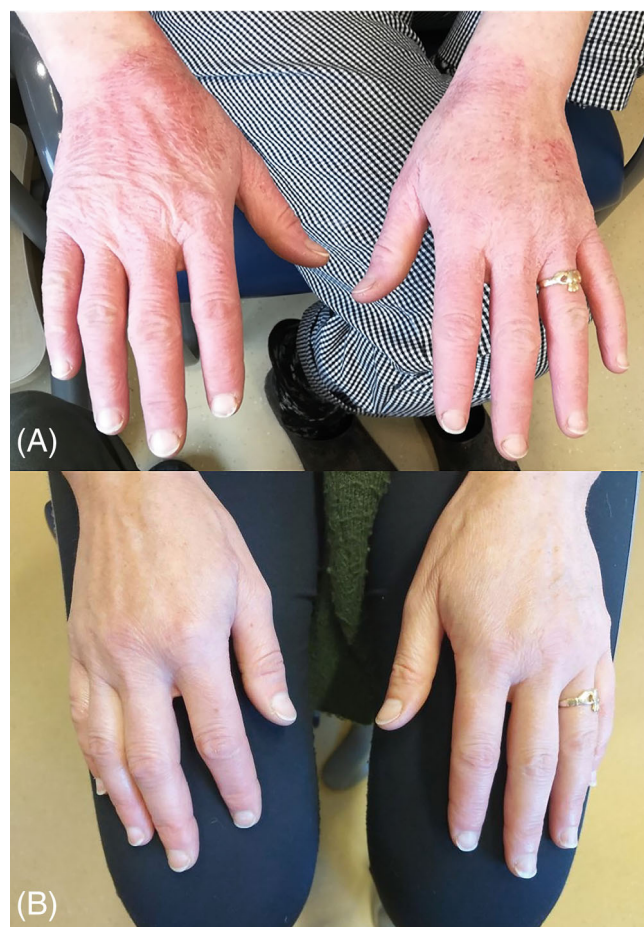


FIGURE 1 (A) Red, scaly well-demarcated pruritic plaques on the bilateral dorsal hands with distal fissuring and pulpitis; (B) clear hands at 3-month follow-up

Abbreviations: ACD, allergic contact dermatitis; NACDG, North American Contact Dermatitis Group; SMS, sodium metabisulfite.

Chambers, SmartPractice Canada, Calgary, Canada). A thorough evaluation of personal care products and occupational exposures revealed occasional use of a fragranced soap as well as daily handling of shredded coconut preserved with SMS in the making of macaroons, granola and health bars. Her dermatitis cleared in 3 months with avoidance and remained clear at 3-year follow-up (Figure 1).

2 | DISCUSSION

We report a case of occupational SMS ACD in a baker. Though SMS allergy has been reported in bakers and other food workers, in this case, the patient was exposed to SMS through a shredded coconut product, a novel exposure source.⁷ This case also highlights both the reality that occupational ACD is often multifactorial, as in the case of this patient's concomitant fragrance sensitization, and the utility of repeat patch testing in the setting of uncontrolled occupational ACD. The use of SMS in coconut processing is variable but it may be used to coat young de-husked coconuts both to prevent mould infection and limit browning.^{8,9} In the European Union, SMS is allowed at levels up to 2 mg/kg in foods and 2 mg/L in beverages.¹⁰ SMS allergy may be occupationally related in bakers and other food workers. As testing of SMS grows, clinicians should be cognizant of this potential occupational relationship and contact with coconut products should be queried.

AUTHOR CONTRIBUTIONS

Dr. Carsten R. Hamann had full access to all of data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: Drs. Carsten R. Hamann and Kathryn A. Zug. Acquisition, analysis and interpretation of data: All authors. Drafting of the manuscript: All authors. Critical revision of the manuscript for important intellectual content: All authors. Statistical analysis: N/A. Obtained funding: None. Administrative, technical, or material support: All authors. Study supervision: All authors.

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None.

CONFLICT OF INTEREST

Dr. Carsten R. Hamann is the son of Curt Hamann, CEO of SmartPractice, a company that manufactures and sells patch testing materials. Drs. Catherine Baker, Keegan O'Hern and Kathryn A. Zug have no relevant conflicts of interest to declare.

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