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Occupational allergic contact dermatitis caused by capsicum

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Case Report

A 23-year-old man was referred to us in January 2014 with persistent erythema, oedema, and scaling, which was work-related and had started to develop in September 2013. Initially, the fingers were affected, and later the forehead, cheeks, and nose, as well as the eyelids, which were sometimes severely swollen (Fig. 1). There were no respiratory, abdominal or other systemic complaints.

For 2 years, the patient had worked in a quality control unit of a potato chips factory, with a warm and humid environment, in which he came directly in contact with many spices and potato chips. He sometimes wore nitrile gloves.

Previous patch testing had shown a positive reaction to colophonium, which was not considered to be relevant for his dermatitis.

In January 2014, the spice mixtures ('as is') were tested semi-open, and patch testing was performed with the European baseline series, food additives [benzoic and sorbic acid, butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT), propyl gallate, tocopheryl acetate, sodium metabisulfite], and a rubber series (all from Chemotechnique Diagnostics, Vellinge, Sweden, except for BHT, which was from Almirall Hermal, Reinbek, Germany). The positive reaction to colophonium was confirmed (+ on D2 and D4); there was no other reaction.

In March 2014, the spice mixtures were again tested, but now diluted 5% in pet., and capsaicin was also tested (0.5% pet.) (all in-house preparations). IQ Ultra® patch test chambers (Chemotechnique Diagnostics) were covered with Mefix® (Mölnlycke Health Care, Göteborg,

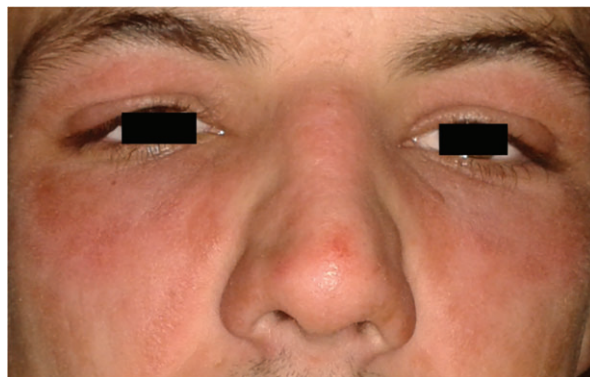


Fig. 1. Work-related eczematous lesions on the face resulting from contact with 'hot' spices in a potato chips factory.



Fig. 2. Positive patch test reaction to capsaicin (0.5% pet.) present in capsicum.

Sweden). Pieces of the nitrile gloves were also tested (as is). Readings were performed according to ICDRG guidelines after 2 and 4 days; they confirmed the positive reaction to colophonium (+ on D2; + on D4), and now showed capsaicin (? on D2; ++ on D4; Fig. 2) and the 'hot & spicy' spice mixture 5% pet. (? on D2; + on D4)

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to be the probable culprits. Capsicum was present in the latter, as well as in a 'paprika' mixture that was negative on patch testing. The patient was advised to avoid direct and airborne contact with these mixtures, and, since a change of job within the company, has remained free of dermatitis.

Thirty controls were negative on patch testing with capsaicin 0.5% pet.

Discussion and Conclusion

Capsaicin (8-methyl-*N*-vanillyl-6-nonenamide) is the main capsaicinoid in chilli peppers, the piquant (spicy) plant varieties belonging to the genus *Capsicum* (Solanaceae), the mild fruit of which is called paprika. They are used as spices and vegetables, and capsaicin and capsicum extracts are also found in medicines (as an analgesic in topical ointments, nasal sprays, and dermal patches, to relieve pain, typically at concentrations between 0.025% and 0.25%). Capsaicin is a lipophilic chemical that can produce a strong burning sensation.

Occupational allergic contact dermatitis caused by spices is relatively rare, but needs to be taken into consideration in patients who have hand dermatitis and/or facial lesions, and are in contact with spices (1). Patch testing with spices (as is) is useful, but testing with dilutions in pet. may be needed to confirm that the patch test reactions are allergic reactions (1); in this case, the paprika mixture tested false-negative, which, in contrast to the hot & spicy mixture, might be attributable to an insufficient amount of the allergen in the milder capsicum variety, that is, paprika.

Besides allergic contact dermatitis, capsicum has also been reported as a cause of protein contact dermatitis, rhinitis, asthma, contact urticaria, and even anaphylaxis (2, 3).

The presence of capsicum in the potato chips (paprika, hot & spicy) was, in this case, considered to be responsible for the eczematous lesions on the hands and face, by direct and airborne contact, respectively. It has been stated that, in some cases, colophonium, to which the patient also reacted, might be a possible indicator for allergy to spices (4).

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