



Occupational allergic contact dermatitis caused by sulfite in a seafood section worker of a supermarket

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CASE REPORT

A 56-year-old female patient was referred for itchy face dermatitis of a few months' duration (Figure 1). She had had allergic contact dermatitis caused by cheap jewellery and by an antifungal cream (Kétoderm), and was regularly using cosmetics for vascular rosacea. She had been employed in the seafood section of a supermarket for the past 3 years, and had noticed flares of her facial inflammatory lesions whenever she handled cooked shrimps with PVC gloves and

put them on ice. Patch tests were performed on the upper back, with IQ Ultra patch test chambers (Chemotechnique Diagnostics, Vellinge, Sweden) under occlusion for 2 days with Oper tape (Iberhospitex; Innovative Health Technologies, Barcelona, Spain). The European baseline series, a cosmetic series (Chemotechnique Diagnostics), the patient's personal cosmetics and the cream Ketoderm were tested. Tests were read on day (D) 2 and D4 according to ICDRG criteria. All patch tests gave negative results, except for nickel sulfate (+ on D2 and D4) with past relevance, sodium metabisulfite (SMB) 1% pet. (++)



FIGURE 1 Erythematous and squamous lesions of the face

on D2 and D4), and the cream Ketoderm, which contains anhydrous sodium sulfite (++) on D2 and D4) (Supporting Information Figure S1). Patch tests with small pieces of cooked shrimp meat and shells “as is” gave negative results. The patient pointed out that the presence of sulfites as allergens was clearly mentioned on the sign that also indicated the price of the shrimps. A relocation to the delicatessen department of the same supermarket resulted in the disappearance of facial inflammatory flares, with no recurrence after 18 months of follow-up.

DISCUSSION

Sulfites are used as preservatives and antioxidants for many cosmetic, pharmaceutical and industrial purposes.^{1,2} They may be contact allergens; however, the relevance of positive reactions is sometimes difficult to establish. Patch testing with SMB 1% pet. is currently considered to be the best method for detecting sulfite contact allergy. Occupational allergic contact dermatitis caused by sulfites is mostly related to food, beverages, textiles, leather, and photographic products, mainly presenting with hand eczema.^{1,2}

In the EU, sulfur dioxide and sulfites (E220-E224 and E226-E228) are authorized as food additives in accordance with Annex II and Annex III to Regulation (EC) No. 1333/2008.³ Their presence must be explicitly mentioned on the product packaging with the term “contains sulfites” if their concentration exceeds 10 mg/kg or 10 mg/L

total SO₂. Occupational allergic contact dermatitis caused by sulfites has also been reported in the wine-related industry, in a fast food clerk who sliced already peeled potatoes to prepare French fries, in butchers, and in workers handling food and wine.^{2,4,5} Regarding seafood products, occupational asthma has already been reported in the seafood industry, most notably in patients preparing shrimps, and in fishermen.^{6,7} To reduce enzymatic brown discolouration of crustaceans, they are immediately soaked in a sodium bisulfite solution after harvesting, with the shells being exposed to the highest dose of sulfites. Tablets of sulfites may also be added to the water used to produce the ice for the transport and presentation of crustaceans. In the EU, the maximum permitted levels of sulfur dioxide-sulfites in processed fishes, molluscs and crustaceans vary from 135 to 270 mg/kg.³

To conclude, our patient very likely developed airborne allergic contact dermatitis caused by sulfites after previous skin contact and sensitization to sulfites contained in the antifungal cream Ketoderm. The absence of lesions on the hands is explained by the use of vinyl gloves at work. However, we would not exclude the possibility of handborne accidental exposure. Airborne exposure is rare in sulfite sensitivity. Only one occupational case has been reported, in a wine-maker who added potassium metabisulfite to the must to prevent the proliferation of yeast and bacteria and wine oxidation.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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