

Resorcinol monobenzoate: a potential sensitizer in a computer mouse

A. Goossens¹, S. Blondeel¹ and E. Zimerson²

¹Department of Dermatology, Katholieke Universiteit Leuven, B-3000 Leuven, Belgium; and ²Department of Occupational and Environmental Dermatology, University Hospital Malmö, S-205 02 Malmö, Sweden

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Case Report

A 39-year-old nonatopic woman with an intolerance to jewellery consulted us in 1998 because of scaly, hyperkeratotic, fissured eczema of 6-month duration on the palmar side of the right hand. Since the lesions had almost cleared during a 1-week vacation and had reappeared at work, she presumed that her eruption was work-related, where she used a computer mouse and a metallic perforator with her right hand. According to the manufacturer, the mouse was made of polystyrene plastic. When the patient stopped working as a secretary, the dermatitis no longer recurred.

Patch testing with the standard series (Trolab, Reinbek, Germany) and also with a plastics and glues series (Chemotechnique, Malmö, Sweden) showed positive reactions to nickel (+ + D4), Myroxylon Pereirae resin (balsam of Peru) (+ D2, and + + D4), and benzoyl peroxide and resorcinol monobenzoate (+ + D3). Scrapings taken from the mouse were negative.

Chemical analysis

1 sample was prepared from the plastic cover of the mouse, and 1 from the buttons, with a file. Each 200 mg

sample was extracted with 2 mL acetonitrile for 5 min in an ultrasonic bath. After filtration, 0.2 mL water was added and the sample then filtered again. Analysis was performed by analytical HPLC (1): column (4.6 i.d. $\times$ 250 mm) packed with Nucleosil C₁₈, 5 μ m, 100 Å, flow rate 0.5 mL/min, eluent acetonitrile/water (50:50 v/v), UV detector operated at 280 nm. Resorcinol monobenzoate from Acros Organics (Geel, Belgium) was used as reference.

In the plastic of the cover and in that of the buttons, we found 0.0013 and 0.0016% w/w resorcinol monobenzoate, respectively. Another sample from the mouse was analysed for benzoyl peroxide (syn: dibenzoyl peroxide) with UV detector set at 254 nm. 197 mg of plastic was extracted with methanol (2 mL) for 5 min in an ultrasonic bath, filtered and injected into the same HPLC system. Benzoyl peroxide from Acros Organics was used as reference, eluent methanol/water (50:50 v/v). The level of benzoyl peroxide in the plastic cover was found to be less than 0.0001% (1 p.p.m.). In this analysis it was also detected that the main UV absorber in the extract was styrene, present at 0.081% w/w, which was, however, not tested.

Discussion

Contact allergic reactions to computer mice have been reported with phthalates as the responsible allergens (2). In addition to its irritant potential (3), cobalt naphthenate has also been suggested as an allergen (4). In the present case, resorcinol monobenzoate, a UV absorber used in plastics, seems likely to have been the allergen: the eczema corresponded to the contact site with the computer mouse, the lesions healed completely when the patient stopped working, and the presence of resorcinol monobenzoate in the computer mouse was chemically proven. Benzoyl peroxide is also used in plastics (5), but only in minute amounts. The reaction to it might be an expression

of cross-reactivity to Myroxylon Pereirae resin (via benzoic acid, a metabolite of benzoyl peroxide and a component of Myroxylon Pereirae resin, which was not tested), which itself cross-reacts with resorcinol monobenzoate (6).

The metallic perforator is less likely the cause of the dermatitis since the dimethylglyoxime test was negative, the presence of small amounts of nickel not being excluded though.

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Address:

A. Goossens
Department of Dermatology
Katholieke Universiteit Leuven
B-3000 Leuven
Belgium