

Letter to the Editor

Cobalt – a possible sensitizer in personal computer (PC) mouse and polyester resins

Dear Sir

We recently reported contact dermatitis of the right hand in a woman using a personal computer (PC) mouse made of ABS plastic, i.e., a copolymer of acrylonitrile, butadiene and styrene (1). The patient had shown patch-test reactions to nickel sulfate, cobalt chloride, para-phenylenediamine, p-tertiary-butylphenol-formaldehyde resin, mercury chloride, diaminodiphenylmethane, diglycidyl ether of bisphenol A and various (meth)acrylates (1). We analyzed for such allergens in the PC plastic, especially (meth)acrylates, but did not identify any. Phthalates have been reported as allergens in ABS plastic (2, 3), diethyl phthalate and dimethyl phthalate specifically in computer mice. Our patient was negative on patch testing to dimethyl phthalate (5% pet.), dibutyl phthalate (5% pet.), dioctyl phthalate (2% pet.) and diethylhexyl phthalate (5% pet.), and we eventually concluded that our patient's hand dermatitis was probably irritant.

Derk Bruynzeel from Amsterdam then reminded us that a potential allergen in ABS plastic may be cobalt naphthenate, which acts as a catalyst in such plastic. Bruynzeel (4) had previously investigated a boy with cheilitis due to chewing ABS plastic pens. We therefore asked our reported patient to bring in the PC mouse that had caused her hand dermatitis. Cobalt and chromate were determined in it, as previously described by atomic absorption spectroscopy (5): chromium was present at 0.002 mg/g, but no cobalt could be identified (detection limit 0.001 mg/g). Accordingly, we concluded that the hand dermatitis of this patient was not caused by cobalt. Nevertheless, ABS plastic from some manufacturers may contain enough cobalt to induce allergic contact dermatitis (4), and could be used for PC mouse manufacture.

Polyester resins are another source of cobalt allergy (6). Cobalt naphthenate and other cobalt salts may be used as auxiliary chemicals in unsaturated polyester resins (7–9). We recently had a patient with no exposure to polyester resins who

showed a weak patch test reaction (?+) to a polyester resin in our resin series. On analysis, the resin from which our patch test material had been prepared contained 0.1 mg/g of cobalt (=100 ppm) (5). As patch testing was performed at 5% pet., the final patch test concentration of cobalt had been 5 ppm. Our patient had had a ++ patch test reaction to cobalt chloride (1% pet.). We concluded in this case that the patch-test reaction to polyester resin had probably been caused by cobalt.

Yours sincerely

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