

CONTACT POINT

Partially airborne allergic contact dermatitis to rubber additives in a car mechanic

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Car mechanics are exposed to various contact allergens at work.^{1,2} Here, we present the case of a car mechanic with partially airborne allergic contact dermatitis (ACD) to rubber additives.

CASE REPORT

A 57-year-old atopic man who had worked as car mechanic for 40 years presented with severe dermatitis of the hands, lower arms up to the distal parts of the upper arms, the neck, and the face with spreading lesions on the trunk and lower limbs (Figures 1 and 2). The dermatitis had started in

the past year and had shown a progressing, work-related course with worsening in the tyre changing season. After 4 weeks of absence from work and substantial improvements of skin lesions under treatment with topical corticosteroids, patch tests were performed and read according to the guidelines of the German Contact Dermatitis Research Group (DKG)³ with the DKG baseline series, the DKG series for rubber, topical preparations, preservatives, industrial biocides, glues, and resins (using test preparations from SmartPractice Europe, Greven, Germany, and Chemotechnique Diagnostics, Vellinge, Sweden), and a selection of patient's own products. Patch tests were removed on day (D) 2 and readings were performed on D2, D3, D4, and D7. Positive reactions to



FIGURE 1 Partially airborne allergic contact dermatitis in car mechanic

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FIGURE 2 Hand dermatitis in the same patient

N-isopropyl-*N'*-phenylparaphenylenediamine (IPPD) (D2/3/4/7: 1+), *N*-dimethyl-1,3 butyl-*N'*-phenylparaphenylenediamine (DMPPD) (D2/3/4/7: 1+), thiuram mix (D2/3/4/7: 2+), tetraethylthiuram disulfide (D2/D3/D4: 1+), dipentamethylene thiuram disulfide (D2/3/4/7: 1+), potassium dichromate (D2/3/4/7: 2+), cobalt chloride (D2/3/4/7: 1+), nickel sulfate (D2: ?+, D3/4/7: 1+), polyhexamethylene biguanide (PHMB) (D2: ?+, D3/4: 1+), and the PHMB-containing skin care product "Excipial Repair Sensitive" (Galderma Laboratorium, Düsseldorf, Germany) (D2: ?+, D3/D4/D7: 1+) tested "as is" were observed. Upon returning to work after replacing his dithiocarbamate-containing protective gloves with accelerator-free gloves as well as avoiding leather gloves and the PHMB-containing skin care product, the patient developed a major relapse of skin lesions on the hands, arms, face, and neck within a few days, finally leading to abandoning the occupation. Three months later, the lesions had completely cleared apart from a mild hand dermatitis.

DISCUSSION

Ubiquitous occupational exposure to rubber additives, in particular from tyres and their debris, as well as from other automobile rubber accessories such as hoses and seals, is the most likely explanation for the severe spreading, partially airborne ACD observed in this car mechanic. Cross-reacting IPPD and DMPPD are antioxidants used in tyres.⁴ Sensitizations to IPPD or to the black rubber mix (containing IPPD) are frequent in mechanics with dermatitis.^{1,2} This also holds true for sensitizations to rubber accelerators, such as thiurams.^{1,2} Airborne ACD caused by rubber chemicals is known, but rarely reported.⁵ Work-related cases included a dental technician sensitized to thiurams⁶ and a nurse sensitized to thiurams and benzothiazoles.⁷ The other sensitizations may have played an additional role in the patient's hand dermatitis, for example, by nickel- and/or cobalt-

releasing tools, cobalt- and/or chromium-containing leather gloves. Moreover, the PHMB-containing skin care product may have contributed to the hand dermatitis.⁸ However, the strong relapse with facial dermatitis after avoidance of most other potential allergen sources points towards the rubber additives as major cause of ACD. Hence, airborne ACD from rubber additives must be considered in car mechanics and may render continuance in the profession impossible.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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