



Independent contact allergy to bisphenol F epoxy resin: A case report

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Diglycidyl ether of bisphenol A epoxy resin (DGEBA-ER; CAS no. 1675-54-3) is among the most prevalent occupational industrial contact allergens nowadays.¹ Diglycidyl ether of bisphenol F epoxy resin (DGEBF-ER; CAS no. 9003-36-5) products are also widely used, but independent contact allergy to DGEBF-ER has been considered rare.² According to the European Chemicals Agency, 1000 to 10 000 metric tonnes of DGEBF-ER are registered to be manufactured or imported into the European Union per year. Increased use of bisphenol A alternatives in Europe can be expected in line with bisphenol A legislative restrictions.³

CASE REPORT

A case of a 48-year-old male painter, with total work experience of 17 years (last 12 years as a painter) is presented. For the last 1.5 year he had been applying anticorrosive protection on oil tanks, which included sand blasting, washing with acetone, and spraying with two-component epoxy-based paint preheated at 30°C. After 5 months of performing these tasks, he developed eczema (erythema, itchy vesicles, induration) on his face, neck, hands and forearms, which tended to diminish during periods off work. The company's occupational physician initiated diagnostic workup for suspected occupational skin disease. Patch tests with the European baseline series (Chemotechnique Diagnostics, Vellinge, Sweden) were performed by a dermatologist with negative results, including for DGEBA-ER.⁴ Analysis of the safety data sheets revealed that the relevant paint contained >70% DGEBF-ER, and <10% of each talc, titanium dioxide, barium sulfate, and silicon dioxide, that is, inorganic fillers not classified and labeled as skin sensitizers. Additional patch tests with 48 hours of exposure time, and readings at day (D) 2 and D3 were performed in the worker and two control subjects with the relevant paint provided from the workplace, diluted 0.5% and 1% pet., because commercial DGEBF-ER allergen was not available. The patient reacted ++/++ to 0.5% and +++/+++ to 1%, while no reaction was seen in both controls. Therefore, occupational allergic

contact dermatitis, most likely caused by DGEBF-ER was diagnosed and notified, and a change of workplace was arranged by the occupational physician.

DISCUSSION

Significant cross-reactivity has been described between DGEBA-ER and DGEBF-ER.⁵ However, it was suggested that this cross-reactivity is not equally presented for all main DGEBF-ER isomers, particularly the o,o' isomer which showed no cross-reactivity to DGEBA-ER in an animal study.⁶ In line with the expected increase in use of DGEBF-ER in Europe, this report emphasizes earlier suggestions that the independent sensitization to DGEBF-ER should be evaluated in cases with typical exposure and clinical appearance, and that a negative patch test with epoxy resin from European baseline series will mostly rule out only sensitization to DGEBA-ER.^{1,4}

CONFLICT OF INTEREST

Authors declare no conflicts of interest.

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Allergic contact dermatitis caused by the elastic borders of diapers

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Rubber contact dermatitis, although declining, still represents a widespread problem involving not only workers in the rubber industry but also the general population.¹⁻³ In this paper, we report a case of allergic diaper dermatitis in a 1-year-old boy, caused by benzothiazoles (mercapto compounds).

CASE REPORT

A 1-year-old male infant presented with a 4-week-history of diaper rash, being otherwise healthy. Physical examination revealed oval, sharply demarcated erythematous and exudative plaques on his upper thighs. Some scattered erythematous papules were also observed on the pubic and perineal area (Figure 1). Over 1 week, the lesions gradually improved with oral cetirizine and topical zinc oxide. We performed patch tests with the AL test (Euromedical, Calolziocorte, Italy) on Scanpor tape (Norgesplaster, Vennesla, Norway) fixed on the back with Hypafix (BSN Medical, Hamburg, Germany) with an occlusion time of 2 days. The patient was tested with allergens potentially contained in the disposable diapers and diaper wipes in use, including thiuram mix 1% pet., colophonium 20% pet., mercapto mix 2% pet., fragrance mix I 8% pet., mercaptobenzothiazole (MBT) 2% pet., methylchloroisothiazolinone/methylisothiazolinone (0.02% aq.), fragrance mix II 14% pet. and *p*-tert-butylphenol formaldehyde resin (PTBFR) 1% pet. Patch tests showed a +

+ reaction on day (D) 2 and D 4 to both mercapto mix and MBT. After switching diapers, the lesions totally disappeared without relapses.

DISCUSSION

Irritant contact dermatitis with maceration and breakdown of the skin barrier caused by urine and feces is a common dermatological problem in the diapered pediatric population. Because damaged skin facilitates the penetration of potential allergens, chronic allergic contact dermatitis with a "swimsuit distribution" in diapered infants can ensue.⁴ The most common potential allergens in diapers include botanical extracts, alpha-tocopherol, fragrances, propylene glycol, parabens, iodopropynyl butylcarbamate, and lanolin.⁴

Moreover, contact dermatitis from diapers due to rubber chemicals (mercaptobenzothiazole) or glues such as PTBFR has been reported. In these cases the eczematous lesions are located on the outer buttocks and hips (named "Lucky Luke" contact dermatitis for the particular distribution of eczema recalling a cowboy's gun belt holster) or in the upper thighs corresponding to elastic borders of the diaper.¹⁻⁶ In our case, the clinical history and the initial presentation of the lesions in the perineal area and inguinal folds were suggestive for an irritant diaper dermatitis that had probably facilitated penetration of allergens and led to a contact allergy from rubber chemicals. Accordingly, patch testing was performed and was positive for both mercapto mix and MBT. However,