

Chronic Actinic Dermatitis After Occupational Sensitization to the Epoxy Resin, Bisphenol

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PRECIS

Although exceedingly uncommon, patients with allergic contact dermatitis (ACD) to epoxy resins may experience persistent photosensitivity dermatitis despite allergen avoidance.

DISCUSSION

A 44-year-old male construction worker presented with a 4-year history of pruritic, vesicular dermatitis that originated on his hands shortly after exposure to a grout mixture. With subsequent exposures, his eruption increased in severity, spreading to involve the forearms, face, neck, ears, and upper back. The Safety Data Sheet for the implicated grout declared bisphenol A (BPA) epoxy resin. Shortly after onset of his initial eruption, he also began to experience red, edematous, intensely pruritic plaques occurring with sun exposure. At the time of evaluation, this photosensitivity had persisted for more than 2 years since his last exposure to the grout.

Patch testing and photopatch testing were performed to the 2019–2020 North American Contact Dermatitis Group Standard Allergen series and several supplemental series including photoallergens, plastics/glues, and rubbers. Final (day 8) results demonstrated very strong (+++) reactions to both BPA (1.0% petrolatum [pet]; Figs. 1A, B) and bisphenol F (0.25% pet) epoxy resins. Additional positive reactions included captan 0.5% pet (++), benzophenone-4 10% pet (+), oleamidopropyl dimethylamine 0.1% aqueous (aq, +), cobalt chloride hexahydrate 1.0% pet (+), cetrimonium chloride 0.5% pet and 0.05% aq (+), biguanide 20 5% aq (+), menthyl anthranilate 5% pet (+ with irradiation), and musk ambrette 1% pet (+ with irradiation). Minimum erythema dose testing of sun-protected skin with UVA light (up to 5 J), UVB light (up to 40 mJ), and visible light (using a slide projector) failed to induce erythema. However, irradiation of previously affected skin (in his case, the forearm) with 40 mJ of UVB resulted in marked erythema beginning approximately 2 hours after exposure (Fig. 2). The erythema resolved after 2 weeks.

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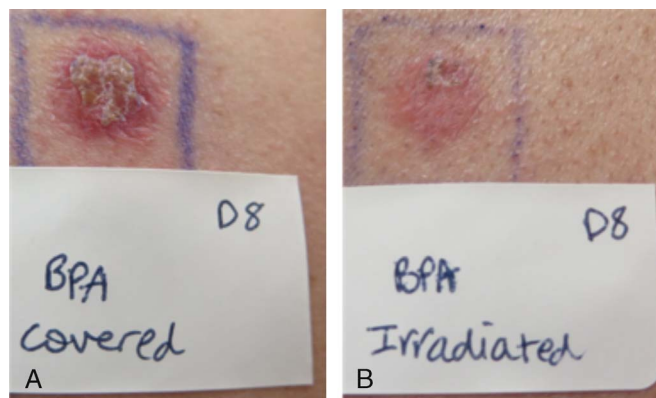


Figure 1. Bisphenol A patch and photopatch test results on day 8 resulted in +++ and ++ reactions when tested in the standard manner (A) and with 5 J of UVA irradiation (B), respectively.



Figure 2. Erythema resulted within 30 minutes after application of 40 mJ of UVB light to the right forearm. Minimum erythema dose testing on sun-protected skin was negative.

Irradiation of the opposite forearm with 5 J of UVA produced no reaction. It is interesting to note that our patient had a reduced minimum erythema dose to UVB only where skin was previously exposed to epoxy. This phenomenon has previously been described by Allen and Kaidbey¹ in relation to epoxy resin.

From these results, we concluded that our patient had developed ACD to BPA and, subsequently, chronic actinic dermatitis. As he denied use of any cologne, the musk ambrette reaction was not deemed clinically relevant. He was advised to follow strict sun avoidance and sun protection. He was also prescribed tacrolimus 0.1% ointment twice daily and referred to general dermatology for consideration of systemic immunosuppression.

Epoxy resins are notoriously common culprits of occupational ACD, particularly among construction workers.² However, the subsequent development of chronic actinic dermatitis has rarely been reported. Epoxy resin-associated photosensitivity was first described in 1979 among 8 men working with heated epoxy for a gas and electric company.¹ Kwok et al³ later described 5 patients with occupationally related ACD secondary to epoxy resin who subsequently developed chronic photosensitivity.

Chronic actinic dermatitis is thought to be an immune-mediated photodermatosis, usually presenting in men older than 50 years. Affected individuals typically present with eczematous eruptions in sun-exposed areas only.⁴ Many patients also have a preceding history of ACD.² Historically, the most commonly associated allergens were plants of the Compositae family and sunscreens, although *p*-phenylenediamine, rubber, and epoxy resin have also been implicated.^{4,5}

ZEBRA

Rare sequela of epoxy resin ACD includes persistent photosensitivity despite long-term allergen avoidance.

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Palmar Eczema From Secondary 2-Hydroxyethyl Methacrylate Exposure—The Artificial Nail Grip Sign

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PRECIS

Exposure of the palmar skin to 2-hydroxyethyl methacrylate (HEMA) may lead to contact dermatitis with no concomitant nail changes.

DISCUSSION

A 26-year-old nonatopic woman with no previous skin disease or allergies presented to a tertiary dermatology clinic for evaluation of bilateral chronic palmar hand eczema for a duration of 2 years. Clinical examination showed dermatitis with scales and underlying vesicles on the thenar region of the left hand and mild dermatitis on the palmar region of the right hand. There was no affection of the fingernails and only sparse scaly skin around the nails (Fig. 1).

She had been working as a florist 2 years before the onset of eczema. The patient suspected an allergy to flower preservatives and chrysanthemum. She was not exposed to acrylates at work. Treatment with mometasone furoate 0.1% cream and emollients had a good clinical effect, but the eczema returned after cessation of this treatment.

She was patch tested with the European baseline series and the extended baseline series, as well as single allergens for chrysanthemum, propolis, tulipalin A, selected flowers, plants, and her own products. Patch tests were read on day 2 (D2), D4, and D7 and revealed an unexpected positive test reaction (++) to HEMA. It turned out that she applied acrylic nails, such as gel nails, as well as long-lasting nail polish on herself and others in her leisure time. She was then tested with the department's acrylic nail test series. The patch test revealed positive test reactions to ethyl acrylate (++) , butyl acrylate (+) , 2-hydroxyethyl acrylate (+) , hydroxypropyl

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