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Case Letter

Dear Editor,

Systemic contact dermatitis caused by inhalation of epoxy resin in industrial waste vapour

A 30-year-old employee of an industrial waste disposal facility presented with several episodes of erythema

appearing half a day after working without a gas mask. The erythema initially occurred when he first worked at the incinerator without a gas mask a month before the visit. The gas mask covered his nose and mouth and had a filter attached to prevent chemical molecules passing through it. In the facility, it was mandatory to wear thick and chemical-resistant protection (gloves, boots and clothes), except for a gas mask. He had previously been involved in the production of electronic components and sometimes used epoxy adhesive. A physical examination revealed erythemas on his hands, forearms and thighs but not on the exposed face (Fig. 1a,b). A biopsy specimen from his hand showed spongiotic vesicles in the epidermis with dermal oedema (Fig. 1c). A specimen from his thigh showed lymphocyte exocytosis with basal vacuolar changes (Fig. 1d). The eruptions occurred at almost same period and settled spontaneously in two weeks.

Patch testing according to International Contact Dermatitis Research Group guidelines with a Japanese standard series (Sato, Japan), a metal series (Torii, Japan) and industrial solvents showed a positive reaction only to epoxy resin (bisphenol A) at days 2, 3 and 7. Subsequent

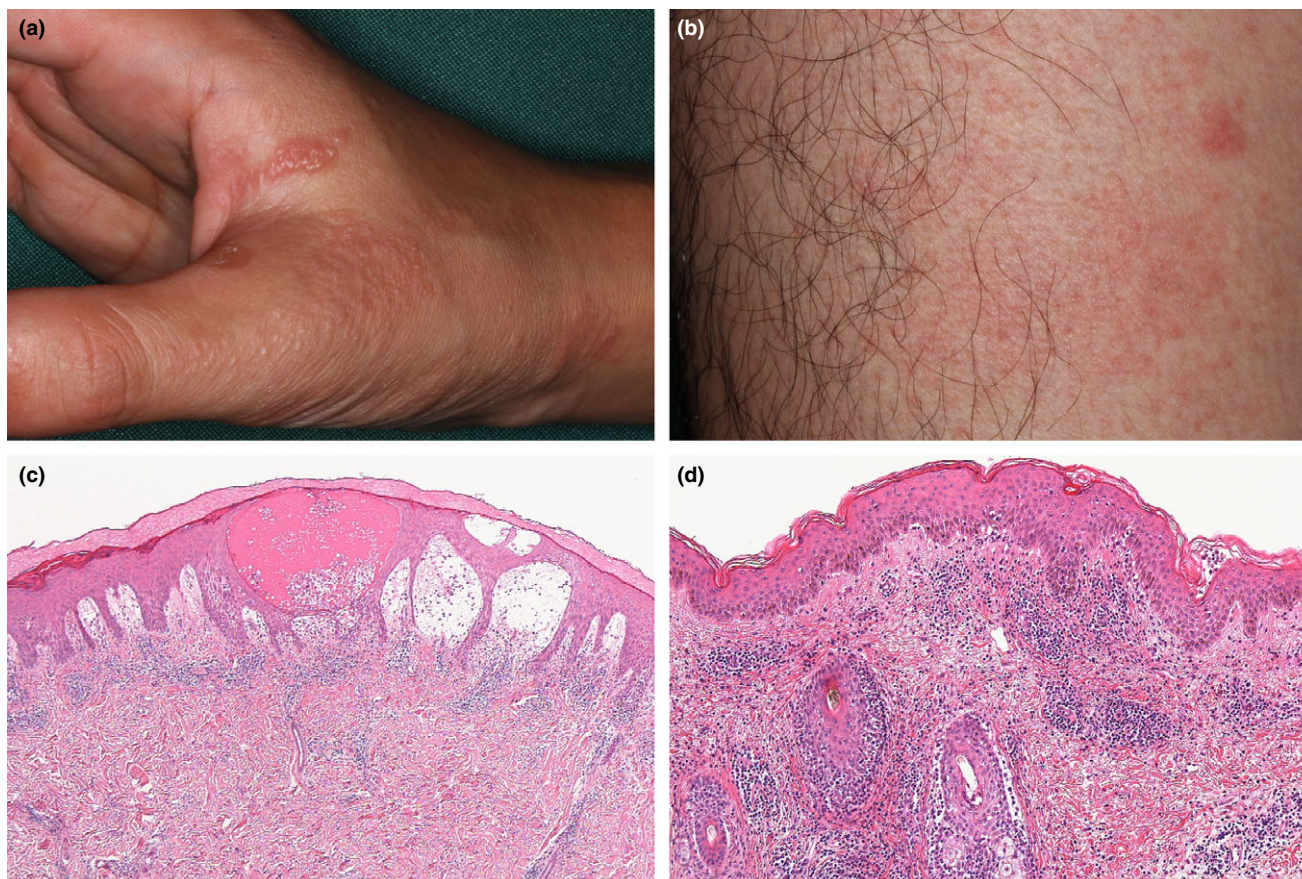


Figure 1 (a) Itchy erythema with vesicles on the hand and erythema on the forearms. (b) Erythema on the thigh. (c) A biopsy specimen from the right hand showed spongiotic vesicles with papillary dermal oedema and inflammatory cell infiltration in the upper dermis (HE $\times 40$). (d) A biopsy specimen from the right thigh showed lymphocyte exocytosis in the epidermis with basal vacuolar change, and perivascular and perifollicular infiltration of lymphocytes and eosinophils in the upper dermis (HE $\times 100$).

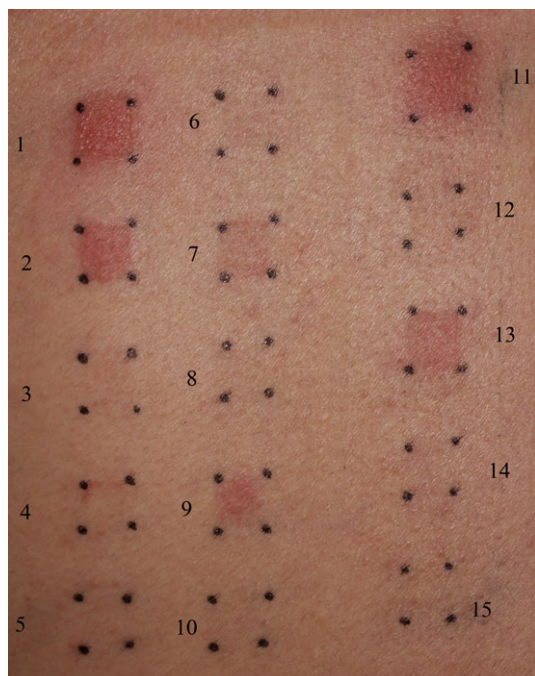


Figure 2 Positive results for the epoxy series (Day 3). Number 1 (No. 1) - bisphenol F, No. 2 - 1,4-butanediol diglycidyl ether, No. 11 - 2-phenyl glycidyl ether, No. 13 - trimethylolpropane triglycidyl ether. A doubtful reaction to No. 7 - epoxy resin base cycloaliphatic, and No. 9 - reactive diluent 1,6-hexanediol diglycidyl ether were observed at day 2 and 3, but the erythema resolved on day 7. The others (amine-based hardeners and phenol-based hardeners) gave negative results.

tests for an epoxy series (Chemotechnique, Vellinge, Sweden) showed a positive reaction to resin base (bisphenol F) and several diluents (Fig. 2). On a visit to the facility, we observed a large amount of epoxy paint waste, including bases, diluents and hardeners at the incinerator. It was suspected that epoxy resin in vapour, especially diluents, in view of their volatile properties, was the cause. His symptoms were resolved after he was relocated.

Epoxy resin systems, consisting of resin bases, diluents and hardeners, are used in many industrial fields. It is known that epoxy resin can cause characteristic dermatoses: firstly, through contact dermatitis not only on exposed but also on covered areas, because tiny molecules can penetrate protection except for thick and chemical-resistant materials and secondly, through airborne contact dermatitis on areas exposed to vapour.¹ However, our patient had two unique features. Firstly, the symptoms were seen only when he worked without a gas mask. Secondly, the eruptions arose on areas covered by thick chemical-resistant materials, not on his exposed face. Therefore, we considered that the eruptions were elicited by exhaling epoxy resin in vapour, resulting in systemic contact dermatitis.

Systemic contact dermatitis has various manifestations, including hand eczema, generalised maculopapular

eruptions, erythema multiforme and baboon syndrome.^{2,3} There are various routes of exposure, such as s.c., i.v., inhalation and transmucosal routes and oral ingestion.² Haptens are thought to reach the skin through haematogenous transport.⁴ Several metals, chemicals and plants have been reported to cause systemic contact dermatitis via inhaling the vapour.⁵ Allergens in the vapour may be absorbed through mucosa of the nose and mouth or bronchi. It is likely that our patient was previously sensitised to epoxy resins through contact and that the eruptions were elicited by the absorption of these resins in vapour.

In conclusion, clinicians should consider the possibility of systemic contact dermatitis caused by absorption of an allergen in vapour.

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Case Letter

Dear Editor,

Treatment of giant vulvar syringomas with topical adelmidrol: The role of mast cells

A 36-year-old woman presented with many 5–17-mm sized, flesh-coloured pruritic nodules on both labia majora, coalescing into plaques (Fig. 1a). They first appeared after the birth of her child, with severe pruritus exacerbation during menstruation. Antihistamines and topical steroids had been ineffective. Histopathology was diagnostic of vulvar syringoma (Fig. 2a). Due to the intense pruritus, the mast cells were stained immunohistochemically with

Conflict of interest: none.