

Short Communication

Occupational allergic contact dermatitis from tetrahydrofurfuryl acrylate in a medical-device adhesive

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Case Reports

Case no. 1

A 34-year-old atopic woman gave a history of a blistering rash on the lateral borders of the fingers on both hands, and itching with redness and dryness of her nose and eyelids. She worked as a machine operator for a company assembling surgical needles. A new medical-device adhesive had been introduced 2 months prior to the onset of the rash. She had been exposed to the product both accidentally and when filling a machine and had not been adequately protected. She was removed from her working environment and the rash settled within a week. Examination at the time of patch testing was normal.

Patch testing was performed using Finn Chambers. She was patch tested to the British standard series and preservative, facial, plastics and glues, and isocyanate series. Patch testing to the adhesive 0.1% and 1% pet. and its components was performed. She had a positive (+) reaction at 2 and 4 days (D) to tetrahydrofurfuryl acrylate 0.2% and 2% pet.

Case no. 2

A 42-year-old woman from the same factory was seen. She had developed a blistering rash on the dorsa of her fingers and chin 2–3 months after the new adhesive was introduced. Her skin settled after removal to a different work environment, but recurred on accidental re-exposure. Examination at the time of patch testing was normal.

She was patch tested to the British standard series, facial, preservative, plastics and glues, and isocyanate series and the adhesive 0.1% and 1% pet. and its ingredients. She had positive reactions at D2 and D4 to the adhesive 0.1% pet. (++), tetrahydrofurfuryl acrylate 0.2% pet. (+++) and N,N-dimethylacrylamide 1% pet. (+). She had weak positive reactions at D2 and D4, to

2 other components of the adhesive (1–231 urethane acrylate oligomer and 2-ethoxyethyl acrylate), possibly representing local skin hyperexcitability. At both D2 and D4, she reacted to nickel (+), interpreted as previously relevant, and butyl acrylate (++) in the plastics and glues series, interpreted as a cross-reaction.

Discussion

Acrylic resins have a wide range of uses, including plastics, adhesives, paints, inks and coatings in the printing industry, bone cement and denture manufacturing. Tetrahydrofurfuryl acrylate is a polyfunctional acrylate. Polyfunctional acrylates (which have at least 2 reactive acrylic groups) are particularly used in printing inks and dental adhesives.

Allergic contact dermatitis from acrylates has been well reported, but this has predominantly involved the monofunctional acrylates, such as methyl methacrylate (1). The increasing use of polyfunctional acrylates in industry has been associated with reports of allergy to these compounds, especially di- and tri-acrylics (2). To our knowledge, these are the 1st reported cases of allergic contact dermatitis from tetrahydrofurfuryl acrylate, though Kanerva et al. (3) described a cross-allergic reaction in 1995.

References

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