

Occupational allergic contact dermatitis to polyfunctional aziridine crosslinker in a 'tufter'

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Case Report

A 55-year-old man presented with a 12-month history of an itchy, dry, erythematous rash, which initially affected his face, upper chest, and hands. There was some improvement when not at work. He had not experienced wheeze or dyspnoea. He described his occupation as a 'tufter', involved in the manufacture of artificial dry ski slopes. A few weeks before onset of the rash, polyfunctional aziridine (PFA) crosslinker was first used by the company. He was initially involved in mechanical agitation of the PFA crosslinker, which was mixed with an acrylic resin while being gently heated. This resulted in aerosol exposure to the mixture. Several months after onset of the rash, he avoided close proximity to the heated mixture and the facial and upper chest rash improved but hand eczema

remained. Personal protective clothing was worn intermittently in the form of a mouth breathing mask, overalls, goggles, and gloves.

Our differential diagnosis was of an airborne allergic contact dermatitis (ACD) to either PFA crosslinker or acrylic resin. He was patch tested to modified British Contact Dermatitis Society standard, medicament, plastics and glue, and acrylate series (allergens supplied by Chemotechnique, Crawford Pharmaceuticals, Milton Keynes, UK and Trolab, Hermal, Reinbek, Germany), as well as to a 0.1% aqueous solution of PFA crosslinker. Allergens were occluded for 2 D and read after 2 and 4 D. He tested positive to PFA crosslinker (D2++ and D4++) as well as to fragrance mix 1. Advice was given to avoid any exposure to PFA crosslinker and fragrance, and the remaining rash improved.

PFA is increasingly used as a water-based crosslinker. Occupational ACD to PFA has been reported because of its presence in adhesives (1), ink (2), paint primers, and other protective coatings (3). This is the first report of ACD caused by PFA crosslinker in a 'tufter'. This occupation takes its name from the practice of securing 'tufts' of fabric to a backing sheet to produce floor coverings. In this context, PFA crosslinker was used to improve the water resistance, tensile strength, and abrasion properties of the artificial ski slope.

The initial distribution of his rash was consistent with airborne exposure; the hand eczema probably persisted because of only intermittent use of gloves. Respiratory sensitization has been reported to PFA (3), but respiratory symptoms did not occur in this case. It is possible that fragrance allergy contributed to the problem, but there was resolution of the facial rash before fragrance was avoided.

This case reinforces the need to take a detailed occupational history and to patch test using a patient's own products.

References

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