

Short Communications

Dermatitis from epoxy resin and formaldehyde in shampoo packers

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Contact allergy to formaldehyde used as a preservative in shampoos is a hazard to which workers in the cosmetic and toiletries industries are exposed. However, sensitivity to epoxy resin is not common among workers in this field.

A case of a woman in charge of the packing of shampoos in polyvinyl chloride (PVC) tubes is reported. She handled the tubes, which she connected to a filling pump, without the use of protective gloves, thus ensuring direct and prolonged contact with the final product and the PVC bags. When first seen in our department, she reported that 10 months ago a dermatitis started on the dorsa of both hands, later spreading to the forearms, face and neck. She was patch-tested with the standard series and gave positive reactions to formaldehyde and epoxy resin. Positivity to formaldehyde was expected since it is frequently used as a preservative in shampoos, but the source of epoxy resin reaction was not traced immediately.

Calnan (1975) has said how difficult it often is to explain positive reactions to epoxy resins

in the female. Such cases may be better understood when one recalls the widespread use of the resin in household products.

A visit to the factory and the information given by the manufacturer disclosed that epoxy resin was employed as a plasticizer in the PVC tubes. Additional data obtained from the same source stated that diethylstilboestrol was not part of the ingredients of any of the products made by the factory; this ruled out the possibility of a cross-sensitization reaction to epoxy resin. Fregert & Rorsman (1963) reported a similar source of sensitization to epoxy resin in individuals wearing PVC mackintoshes.

References

- Calnan, C. D., (1975) Epoxy resin dermatitis. *Journal of the Society of Occupational Medicine* 25, 123.
- Fregert, S. & Rorsman, H. (1963) Hypersensitivity to epoxy resins used as plasticizers and stabilizers in polyvinyl chloride (PVC) resins. *Acta Dermato-venereologica* 43, 10.

Nickel vasculitis

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Ingestion of nickel is an important factor in the chronicity of hand eczema in nickel-sensi-

tive patients. In retrospect, I consider that allergic vasculitis may be another consequence

of nickel ingestion. One such case was discussed at a Consultants' Seminar at the Institute of Dermatology, London, in 1969.

Case: A thirty-year-old female worked as a public relations secretary at a pharmaceutical firm. From 1967 she suffered from circular excoriations on the back, buttocks and thighs (up to 4 mm diam). Presumptive diagnoses were: dermatitis herpetiformis or acne excoriée. The following modalities of treatment had no effect: dapsone, tetracycline, griseofulvin, steroid creams, Grenz rays, UV-light, outdoor sun.

Unlike most patients with acne excoriée, she insisted that she did not scratch, and that the excoriations could arise from gentle rubbing with a bath towel. Several biopsies were submitted to the panel at the Consultants' Seminar (E. Wilson-Jones and I. Whimster), whose diagnosis was: superficial allergic vasculitis.

Standard patch tests showed a strong positive reaction to nickel. Nickel 0.01 % intradermally gave a positive reaction at 48 hours. She never had nickel dermatitis under suspenders, clasps or elsewhere.

She was justifiably dissatisfied by the results of my treatment. I saw her last in 1970.

Comments

Since I became alerted to this manifestation of nickel sensitivity, I have seen several similar cases, although mainly in patients who also had suffered from a clinical nickel dermatitis. Excoriations of the back in nickel sensitive females is not a rarity. They should be biopsied and whenever possible, provocation experiments should be performed.

Water solubility of zinc chromate primer paints used as antirust agents

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Primers containing chromates can cause allergic contact dermatitis when they are painted on metal or when coated metal is polished or swarfed (Engel & Calnan 1963, Hall 1944).

The principal types of compound are:

Zinc potassium chromate: This commonly used form contains zinc chromate (ZnCrO_4) and potassium dichromate ($\text{K}_2\text{Cr}_2\text{O}_7$).

Basic zinc chromate: zinctetraoxy-chromate. $\text{ZnCrO}_4 \cdot 4\text{Zn(OH)}_2$.

There are also mixtures of these two types.

The two types are used for different purposes and are mixed in different paint bases. The ordinary zinc chromate is commonly mixed in an alkyd base.

The zinc chromate is classified as insoluble, the basic zinc chromate as slightly soluble, and potassium dichromate as freely soluble. Part of the primers should contain some soluble chromate in order to act as an antirust agent.

From a dermatological point of view we wanted to determine the water solubility of Cr^{6+} in the compounds, as this must relate to

their contact sensitization potential.

The method used was the British Standard No. 282, 389: 1963: 30 g of the compound is shaken in 100 ml of water for 1 hour at room temperature. Water soluble chromate is determined by Atomic Absorption Spectrophotometry. The solubility is given as % of CrO_3 dissolved in 100 ml of water.

We also washed J-1310 and 505-W with water. Two grams of each sample was washed six times with 2 litres of water each time (= 12 l).

The zinc potassium chromate J-1310 yielded 336 mg CrO_3/g in the first portion water and 2 mg in the last portion. Thus, the $\text{K}_2\text{Cr}_2\text{O}_7$ part is rapidly dissolved and the remaining ZnCrO_4 gives off little CrO_3 . The basic zinc chromate 505-W yielded only 1.7 mg CrO_3/g in the first portion of water and 0.8 mg in the last. Thus, this type has very little water soluble Cr, as was also found in the first mentioned analysis.

For comparison: 0.5 % patch test solution

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