

Multiple manifestations of chromate contact allergy

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Chromate contact allergy has varied
clinical presentations, and a high
incidence amongst workers in the
construction industry.

Case Report

A 54-year-old man presented with
a 10-week history of palmar–plantar
eczema after cementing a swimming

pool. As he had previously worked with both cement and leather, patch testing was undertaken with the European standard and shoe series. He had a positive reaction to 0.5% potassium dichromate, 1% cobalt and 20% neomycin in petroleum jelly. At the time of patch testing, he was noted to have a localized area of eczema on his back under a leather tie used to secure his hair plait and a raised green area within his long-standing tattoo (Fig. 1). All these presentations may be manifestations of chromate allergy.

When patch testing for foot dermatitis, chromate and neomycin have been found to be the most common allergens in a shoe series causing positive reactions in 4% and 3%, respectively, in this patient group (1). Chrome (as trivalent chromium) is commonly used in the process of tanning shoe leather, which leaves variable residual chrome on the leather surface.

Cement contains hexavalent chromium, and construction workers are

known to have a high incidence of allergic contact dermatitis, with potassium dichromate and cobalt being 2 of the 3 most frequently relevant allergens detected on patch testing (2). Reactions occur concurrently to both of these significantly more often in construction workers than in other patch-tested groups (3), possibly reflecting coupled exposure to these allergens in construction. Following European legislation, the amount of soluble hexavalent chromium in cement used in the UK has been restricted since 2005, in order to reduce the incidence of chromate allergy in construction workers.

Allergic contact dermatitis to tattoo pigments is most frequently noted with mercury-containing red pigments, but cutaneous reactions have been reported with chromate-containing green pigments and cobalt-containing blue pigment. Occasional patients have been reported to have cement dermatitis in conjunction with green tattoo reactions, and it is speculated that both

are due to chromate sensitivity, as demonstrated on patch testing (4).

This case illustrates that sensitization to chromate may manifest in several ways clinically and that patients may be exposed to the allergen from multiple sources. It also highlights the importance of a detailed current and past occupational history in addition to a careful clinical history and examination.

References

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Fig. 1. Contact eczema is present under the leather hair tie, and a green area within the tattoo is raised.