

Allergic contact dermatitis from black tattoo

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Case Report

In July 1996, a 22-year-old student, with no previous known allergies, acquired a professional tattoo on his left leg. 2 weeks later, he presented with itching and erythema in the tattooed area. There was a black tattoo on the lateral calf with severe perilesional erythema, swelling, crusts and papulovesicles. No lymphadenopathy was present. Differential blood count, ESR and total IgE (CAP-FEIA; Pharmacia, Freiburg, Germany) were within normal range. Histologic examination showed black pigment in the upper and mid dermis, with perivascular lymphocytic and eosinophilic infiltrates. Topical hydrocortisone 1% and systemic clarithromycin over 5 days led to complete resolution. The reaction did not reappear up to his last consultation in May 1997. Patch testing was positive to the black tattoo colour (as is) at 2 and 3 days, while all other standard allergens, including cobalt chloride, mercury and potassium dichromate, were negative. Positive patch testing to the black colour, a viscous, apparently aqueous, solution, was reconfirmed a few months later, even though no more clinical symptoms were present. No such patch test reactions were seen in 5 healthy individuals tested as controls.

Discussion

In earlier publications, various types of skin reactions have been reported in tattooed areas. The time interval before the reaction appeared has varied between a few weeks and several years (3, 7). Allergic contact dermatitis was related to metal salts, mercury (in red colours), potassium (green), cobalt chloride (blue) and cadmium (yellow) (2, 8). Lichenoid and granulomatous reactions, even sarcoidosis, pseudolymphoma and lymphadenosis benigna cutis have also been reported, mainly in response to red colours (1, 3, 5, 7–11). Reactions to black tattoo colours seem to be rare (9, 11). In Germany, tattoo dyes are not officially controlled; thus, it is not known which substances are used (6). According to a literature review, black tattoo colours may contain carbon, iron oxide or logwood (9, 11).

In our patient, the positive patch test reaction suggests that the clinical reaction may be related to Type IV allergy to the black tattoo colour. Remarkably, the acute erythematous reaction subsided after treatment with antibiotics and topical hydrocortisone, although the allergen still remained in tissue. We hypothesize that local clinical tolerance may be reached by intradermal alterations to the pigment leading to modification of its allergenicity. Thus, skin reactions after tattooing do not necessarily require surgical removal of the responsible agent.

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