Contact dermatitis caused by mehindi

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SUMMARY

Several cases of contact dermatitis from mehindi tattoos have already been reported in recent literature, in which the most frequent cause of sensitisation was para-phenylenediamine (PPD). In fact mixtures called with various names, for example "black henna", used to perform skin-drawings, possibly contain natural henna, a rare and weak sensitizer, and likely contain chemical colouring agents, such as PPD. Our case presented a highly positive patch test reaction to PPD as well as other positive reactions occurring close to the first one, in particular to disperse yellow 3, disperse red 1, balsam of Peru and benzocaine.

KEY WORDS

contact, dermatitis, allergic, mehindi, henna, para-phenylene-diamine

Introduction

Mehindi is an ancient art of painting the skin using a paste made from leaves of *Lawsonia inermis*. This is the botanical denomination given to a small shrub, which grows in Egypt, Tunisia, Iran, India, Arabia and tropical Africa, also known as henne, al-khanna and al-henna. The leaves of this plant are dried and then powdered in order to obtain a yellow-green powder, which is dissolved in hot water at the moment of use. The application of this paste on the skin for 30-40 minutes leaves temporary tattoos. The most probable cause of contact dermatitis due to mehindi is the presence of para-phenylenediamine (PPD), which is added to the paste to strengthen the colour. Among the numerous mixtures containing henna and chemical colouring agents, there is the so-called "black henna" (1).

Case report

We report the case of a 39-year-old woman, housewife, presented with acute blistering eruptions respectively on her upper back and left arm, the shape of which corresponded exactly to temporary tattoos made with "black henna" during a holiday in Egypt (Fig.1 and 2).

The patient complained for intense itching and burning localized at the site of the dermatitis.

Figure 1. On the left arm, acute blistering eruption localized in the area of dye application.

Figure 2. On the back, erythemato-oedematous reaction that reproduced the original design.

The eruption resolved on treatment with systemic steroid and topical antibiotics leaving a slightly atrophic skin.

Patch testing was performed using the GIRDCA series (Trolab), using Haye's Test Chambers, and showed (Fig. 3) the following unexpected results:

	D2	D3
Para-phenylenediamine (PPD) 1% pet.	+++	+++
Balsam of Peru	++	++
Disperse yellow 3 1% pet.	++	++
Disperse red 1 1% pet.	+	+
Benzocaine	+++	+++

Discussion

Several cases of contact dermatitis from mehindi tattoos, in which the most frequent cause of sensitisation was PPD, have already been reported in recent literature. As a matter of fact the mixtures used to perform these skin-drawings possibly contain natural henna, a rare and weak sensitizer, and likely contain chemical colouring agents, such as PPD (1, 2).

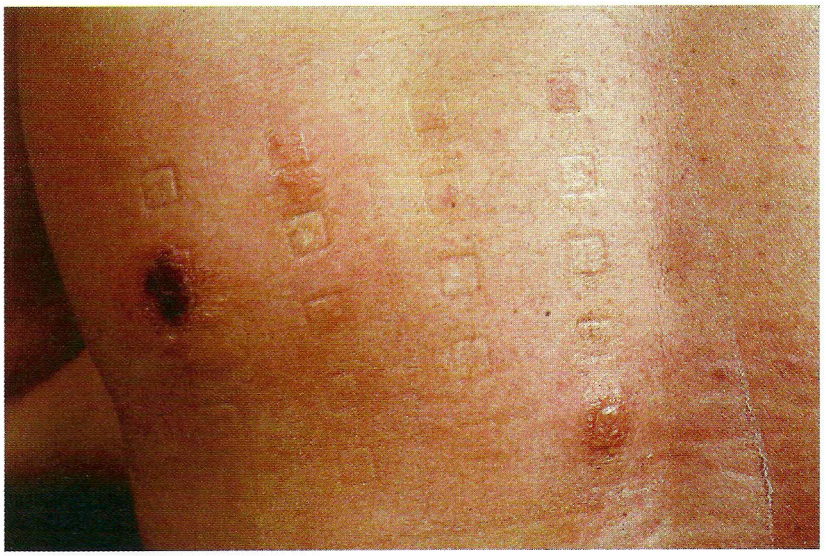
Our case presented a highly positive patch test reaction to PPD as well as other positive reactions occurring close to the first one.

We considered the positive reaction to PPD as indicative of a real sensitisation; in fact the patient declared a previous use of chemical hair dye, although she didn't remember any related cutaneous problem.

A chemical correlation may explain the concomitant responses to PPD, benzocaine and aniline dyes, but not to balsam of Peru, even if multiple primary specific sensitivities or concomitant sensitivities to substances, which are unrelated chemically, are frequent among patients with contact dermatitis (3).

Another possible interpretation of these multiple responses is in a pattern of "angry back" or "excited skin syndrome (ESS).

The phenomenon, described by Mitchell in 1975 as ESS, indicates false secondary non-specific reactions close to genuine positive ones (4). This can be due to hyperirritability resulting from pre-existing dermatitis, or from fluctuation of humoral and cellular inflammation-modulating phenomena (5). The underlying mechanisms are not fully understood (6-8).



The 'false' nature of these reactions can usually be resolved by repeating the patch tests individually, some weeks later and at various dilutions, as irritant reactions tend to stop abruptly below a certain concentration, whereas allergic responses persist albeit proportionally weaker, at lower concentrations.

In our case it wasn't possible to proceed in performing further tests due to a lack of compliance of the patient.

Anyway, we suggested avoidance of any possible contact with PPD and chemical related substances.

Figure 3. Patch testing in our patient showed multiple reactions.

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