

Contact Dermatitis With Henna Tattoo

NEVIN UZUNER, DUYGU OLMEZ, ARZU BABAYIGIT AND *OZLEM VAYVADA

From the Department of Pediatrics, Division of Allergy and *Dermatology, Dokuz Eylul University, Faculty of Medicine, Inciralti, Izmir, Turkey.

Correspondence to: Nevin Uzun, Dokuz Eylul University, Faculty of Medicine, Department of Pediatrics, Division of Allergy, Inciralti, 35340, Izmir, Turkey.

E-mail: nuzuner@deu.edu.tr

Manuscript received: July 5, 2007;

Review completed: December 11,

2007; Accepted: May 14, 2008.

Allergic and irritant reactions to henna are rare. Para-phenylenediamine, which is sometimes added to obtain a dark, blackish henna, causes the majority of contact dermatitis reported related with tattoos. Allergic contact dermatitis due to temporary paint-on tattoo with black henna is described in two adolescents.

Key words: Allergy, Contact dermatitis, Henna tattoo, Para-phenylenediamine.

Temporary henna tattoos are becoming popular, especially among teenagers(1). The use of henna dye is also traditional in Islamic countries(2). Henna is a greenish powder made from the leaves of *Lawsonia alba* containing lawsone (2 hydroxyl-1, 4-naphthoquinone) as the active substance(1). It is used alone or in combination with other coloring agents, such as para-phenylenediamine (PPD)(2). Allergic and irritant reactions to henna are rare(3,4). PPD, which is sometimes added to obtain a dark, blackish henna, causes the majority of contact dermatitis reported with tattoos(5). We describe allergic contact dermatitis due to temporary paint-on tattoo with black henna in two adolescents.

CASE REPORT

Case 1: A healthy 15 year old boy was referred to our clinic for an erythematous and edematous reaction localized on the left arm which had appeared 20 days prior to admission. To acquire a temporary tattoo, he applied black henna containing PPD to his left arm using a brush and then outlined the figure with a pencil. The boy waited until the henna was dried and after rinsing it with water, he tried to remove the figure by brushing firmly. Within 48 hours, he developed an acute allergic contact dermatitis

reaction with pruritis, pain, edema and erythema on the tattoo site (**Fig.1**). The patient had no previous medical history of atopy or known PPD exposure. The cutaneous examination showed a well-demarcated, indurated, erythematous papulovesicular eruption within the borders of the tattoo on the flexural site of the left arm. Topical treatment with methylprednisolone aseponat 0.1% cream and oral hydroxyzine 100 mg/day were administered. Parenteral methylprednisolone 20 mg/day was also added since the symptoms persisted. The systemic steroid was discontinued on the third day of the treatment due to the adverse gastrointestinal effects. The lesions cleared without residual pigmentation after three weeks of therapy. The patient was patch tested with European standard series after the lesions were healed completely. The results of the patch test were evaluated after 48, 72 and 96 hours. A strongly positive reaction to para-phenylenediamine (PPD) (+++) and negative reaction to pure henna were observed.

Case 2: A 14-year old boy was referred to our hospital for an itchy erythematous and edematous lesion, strictly located at the side of a temporary tattoo on his left forearm. The tattoo had been stained with a black henna powder which had PPD in its contents and within 48 hours, he developed an acute allergic contact dermatitis reaction with erythema,



FIG.1 Acute allergic contact dermatitis on the tattoo site.



FIG.2 Erythema, edema and vesiculation on the tattoo site.

edema and vesiculation on the tattoo site (**Fig.2**). He reported the appearance of slight eczema within one week after he had had a temporary tattoo four years before. After the application of topical steroids (methylprednisolone aceponate) and oral certirizine for 10 days, the lesion resolved completely. Patch test was recommended but refused by the patient.

DISCUSSION

Decorating the skin with henna tattoos has become popular in recent years because the tattoos are temporary and the process is painless and cheap. However, the addition of coloring chemical agents such as PPD and p-toluidenediamine to the traditional mixture may lead to a risk of developing allergic contact dermatitis(6). Allergic contact dermatitis, which is a type IV delayed-type hypersensitivity reaction, develops in at least 7-10 days when a new antigen is introduced(7). One possible explanation for the short incubation period in the first patient is that the patient had been sensitized to PPD. Considering this was the subject's first known exposure to henna, we think that the dermatitis was caused due to active sensitization. Very short sensitization period is possibly due to the potency of PPD, as reported by some authors(8,9) and also due to the enhanced penetration of the substance by brushing. In the second case, allergic contact dermatitis was probably due to PPD but we could not confirm it with patch test.

We recommend that the use of temporary henna tattoos should be discouraged, especially in children. Physicians and general public should urgently be informed about the risks of temporary tattooing with henna and PPD.

Contributors: All authors contributed to diagnosis, literature review and drafting the paper.

Funding: None.

Competing interests: None stated.

REFERENCES

1. Nigam PK, Saxena AK. Allergic contact dermatitis from henna. *Contact Derm* 1988; 18: 55-56.
2. Abdulla KA, Davidson NM. A woman who collapsed after painting her soles. *Lancet* 1996; 348: 658.
3. Sidbury R, Storrs FJ. Pruritic eruption at the site of a temporary tattoo. *Am J Contact Derm* 2000; 11:182-183.
4. Etienne A, Piletta P, Hauser C, Pasche-Koo F. Ectopic contact dermatitis from henna. *Contact Derm* 1997; 37:183.
5. Lestringant GG, Bener A, Frossard PM. Cutaneous reactions to henna and associated additives. *Br J Dermatol* 1999; 141: 598-600.
6. Chung WH, Wang CM, Hong HS. Allergic contact dermatitis to temporary tattoos with positive paraphenylenediamine reactions: report of four cases. *Int J Dermatol* 2001; 40: 754-756.
7. Rietschel R, Fowler J Jr. The pathogenesis of allergic contact hypersensitivity. In: Rietschel R, Fowler J Jr, eds. *Fisher's Contact Dermatitis*. Baltimore: Williams & Wilkins; 1995. p.1-10.
8. DeVos S, Van der Valk P. The risk of active sensitization to PPD. *Contact Derm* 2001; 44: 273-275.
9. Wolf R, Wolf D, Matz G, Orion E. Cutaneous reactions to temporary tattoos. *Dermatol Online* 2003; 9: 3.