



Severe contact dermatitis induced by an unusual blend of pure henna

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ABSTRACT

Henna is a natural dye extracted from *Lawsonia inermis* leaves and is commonly used all over the world to dye skin, hair and leather. Pure henna is rarely reported as a cause of contact dermatitis. However, in many reports, additives of henna, especially paraphenylenediamine, have been accused of irritant and allergic contact dermatitis. This report is not only exhibiting a rare form of contact dermatitis resembling a chemical burn, but is also providing an insight into henna, which is widely used and commonly seen as safe.

Key words: Pure henna, contact dermatitis, chemical burn, unusual blend

Introduction

Temporary tattoos are widely used and are popular all over the world. Henna, extracted from *Lawsonia inermis*, is the most favored material for temporary tattoos [1,2]. Since the antiquity period, henna has been almost indispensable in Asia and North Africa for dyeing the hair, hands, and feet on special days (like a marriage ceremony) as a ritual. Contact dermatitis with pure henna is a rare condition [3-5]. For strengthening the dyeing properties of henna tattoos, henna is generally mixed with other substances, such as ground coffee, tannins, tealeaves, lemon juice, vinegar, and eucalyptus oil [6]. Paraphenylenediamine (PPD), a synthetic dye that accelerates the drying process of henna tattoos on the skin, is com-

monly used as an additive [1]. Henna blend with a PPD additive is known as “black henna”, while pure henna is identified as “red henna” [7].

Herein, a severe contact dermatitis, caused by an unusual blend of pure henna resembling a chemical burn, is reported.

Case Report

A 30-year-old female patient was referred to the Plastic Surgery Department, presenting erythema, edema and bullae on the right wrist, dorsum and palm of her right hand, resembling a second-degree burn (Figures 1,2). Bullae were extensively covered with a reddish brown powder. She told of an application of henna 8 hours previous at a wedding night ceremony. After putting on the henna on her right wrist, dorsum

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and palm of her right hand, it was occluded by pieces of pochettes for getting a darker color. 1-2 hours later, she began to complain about burning, pain, stinging and swelling on her hand, wrist and forearm.

Our patient as well as her relatives described a traditional blend of henna. The blend of henna was prepared with a reddish brown powder - pure henna. They insisted that the powder of henna was pure and without any chemicals. The powder was mixed with fluid of tealeaves, powdered sugar as well as common salt.

Treatment of the patient began with clearing residual henna from the lesions by using serum saline. An orange-colored skin was observed all over the lesions. Under sterile conditions, bullae were aspirated. Thereafter, the patient was managed by daily dressing with Bactigras® and analgesics as and when required. The patient was successfully treated in 2 weeks. Despite lesions corresponding to second-degree chemical burns, the patient did not require any intensive treatment or surgical intervention during the follow-up. Minimal erythema resisted for one month, and lesions healed only with transient postinflammatory hyperpigmentation. Six weeks after complete resolution of the le-



Figure 1. Right hand and forearm volar region, 8 hours after the application of henna.



Figure 2. Right hand and forearm dorsal region, 8 hours after the application of henna.

sions, patch tests were performed with the European standard series. Reactions were evaluated at the 48th and 72nd hour following application. The patch test showed a negative reaction for PPD at the 48th and 72nd hour. We were unable to perform a patch test with the “blend of pure henna” or “pure henna”, which the patient reported.

Discussion

In Turkey, especially in the middle region of Anatolia, henna is commonly used as a simple and harmless custom. Generally, miscellaneous kinds of henna for various kinds of applications exist. “Black henna” and “Green henna” are not pure forms, with additives like PPD. “Red or reddish brown henna” is known as pure henna [7,8]. Several case reports indicate irritant and allergic contact dermatitis with PPD and henna mixtures [1-6]. However, rare cases have been stated with irritant and allergic contact dermatitis caused by pure henna [3-5]. In two papers, allergic contact dermatitis was confirmed with patch tests. However, it should not be overlooked that, in the report of Onder et al. [4], the patient previously reported reacting to both natural henna and PPD. Belhadjali et al. exhibited a positive patch test reaction only for henna without a reaction to PDD [5]. In our case, we observed a negative patch test reaction for PPD. However, we did not perform a patch test with “blend of pure henna” or “pure henna”, which the patient mentioned. The “pure henna” had been bought abroad. Therefore, we suggest and proved that our case was not an allergic contact dermatitis caused by PPD, but rather that a probable allergic reaction to pure henna could not be excluded. The patient denied a previous exposure to blend of pure henna or pure henna. Early symptoms including pain and stinging without itching suggest irritant dermatitis. Lesions of the patient resembled a second-degree chemical burn. There was a good response to the treatment consisting only of wound dressings and not of topical or systemic steroids, or any other drug. History and symptoms of the patient, features of the lesions, and the positive response to the therapy without steroids led us to identify this case as a severe contact dermatitis caused by pure henna. On the other hand, with the additives (fluid of tealeaves, powdered sugar and common salt), a blend of henna might be more irritant. Those pochettes that

were used for occluding henna might cause allergic contact dermatitis, but a negative patch test for the European standard series excludes this probability.

In this case, mainly, the irritant effects of pure henna and the other probable chemicals established a severe contact dermatitis resembling a second-degree burn. Also, the vesicant effect of pure henna may be accused for a chemical burn.

In conclusion, pure henna is a rare cause of allergic and irritant dermatitis. This report is not only exhibiting a rare form of contact dermatitis resembling a chemical burn, but is also providing an insight into henna, which is widely used and commonly seen as safe [2,3,5]. It is therefore important to inform people about using pure henna, especially with the presence of atopic diathesis. Patch tests of henna or additives may be preventive.

Conflict of interest statement

The authors have no conflicts of interest to declare.

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