

CASE REPORTS

HENNA: TEMPORARY TATTOO OR PERMANENT LESION?

Sandra Soares Cardoso, Sónia Andrade Santos, Sofia Reis, Maria José Cálix.
Pediatrics Department, Centro Hospitalar Tondela-Viseu, Viseu, Portugal.

ABSTRACT

The use of temporary Henna tattoos has increased in the last years, especially in children and teenagers, in various touristic destinations. In order to achieve a darker color and prolong the duration of the temporary tattoo, para-phenylenediamine is typically added to red Henna. Due to its characteristics, this substance can induce skin sensitization with several clinical manifestations, including contact dermatitis or even potentially fatal systemic reactions.

We describe a case of a 10-years-old female teenager, referred to the Pediatric Emergency Department due to erythematous skin lesions with blisters and areas of suppuration on the hand and right leg caused by Henna temporary tattoo ink, performed 10 days before. After treatment, she maintained hypopigmentation of the skin.

It's mandatory to discourage community from this practice that can lead to adverse consequences or even permanent

ARTICLE HISTORY

Received 31 October 2022
Accepted 9 November 2022

KEYWORDS

Henna, temporary tattoo, para-phenylenediamine, contact dermatitis

Case Report

A caucasian 10-year-old female was admitted to a pediatric emergency department of a level II hospital due to a pruritic skin rash on a temporary henna tattoo (THT), made by a street artist in Egypt 10 days before (Figure 1 A and B).

The patient presented erythematous skin lesions with blisters with areas of suppuration on both the posterior region and middle-distal area of the right arm and right leg (Figure 1 C and D). The lesions exhibited well-defined margins, reflecting the THT outline. The diagnosis of allergic contact dermatitis with bacterial infection was admitted and the treatment involved oral administration of amoxicillin and clavulanic acid, prednisolone and desloratadine, and topical application of betamethasone and fusidic acid. After 10 days of treatment, the patient showed THT-associated local lesions, with visible inflammatory signs and scar tissue improvement (Figure 1 E and F). Continuous application of healing cream for a month resulted in the hypopigmentation of THT (Figure 1 G and H).

Discussion

Is widely reported that the use of THT has increased in several touristic destinations, especially in children and teenagers.^{1,2} The THT is seen as a benign practice due to its appealing social attributes (e.g. easily performed, painless, cheap and with short durability). In fact, black henna does not exist in nature. To obtain a darker color and prolong the tattoo's life, para-phenylenediamine (PPD) is typically added to red henna, an orange pigment extracted from the *Lawsonia inermis* plants.¹ The red henna has a low potential for sensitization, as well as

Figure 1. Temporal evolution of the skin lesions (AB – temporary henna tattoo; CD – clinical presentation at the emergency room with areas of suppuration; EF – improvement of skin lesions after 10 days of treatment; GH – hypopigmented lesions reflecting the tattoo design after 1 month).



low concentrations of PPD oxidized form. However, PPD is often added in its non-oxidized form and in unknown concentrations, hence potentially inducing cases of skin sensitization.² Non-oxidized PPD ranks on top 5 Food and Drug Administration's list of potentially sensitizing allergens found in cosmetic products.³ The most common clinical manifestation is allergic contact dermatitis (diagnosis based on patch test), which in some cases can cause potentially fatal systemic reactions.^{2,3}

Address for Correspondance: Sandra Soares Cardoso, Avenida Rei D. Duarte 3504-509 Viseu, Portugal.

Email: sandraacardoso@gmail.com

©2024 Pediatric Oncall

Long-lasting or even permanent dermatologic changes have been described, even after the resolution of the allergic reaction, such as changes in pigmentation (i.e. in this case with hypopigmentation), scarring, or hypertrichosis.⁴

Likewise, a cross-sectional study performed to assess the prevalence of contact allergy to PPD and its risk factors in the general population of 5 European countries, including Portugal, found that THT is indeed a major risk factor for PPD contact allergy.⁵ European legislation imposes since 2009 limits to PPD maximum on head exposure in finished hair coloring products to be of 2%.^{2,5} Although, there are more than 100 reports in the literature on sensitization to PPD by THT, yet there is no legislation about the THT, in which the percentage of PPD is not controlled and it's very variable, with concentrations ranging as far as 64%.⁵ The Infarmed (Portuguese National Authority of Medicines and Health Products) published in 2012 a campaign with recommendations on THT, advising against this practice, a campaign that was reinforced in 2016.

Given the widespread use of the association of PPD in THT, it is important to improve education of the community and discourage children, adolescents and families from this practice, in order to prevent undesirable consequences, as described in this case.

Compliance with ethical standards

Funding: None

Conflict of Interest: None

References:

1. Panfili E, Esposito S, Di Cara G. Temporary Black Henna Tattoos and Sensitization to para-Phenylenediamine (PPD): Two Paediatric Case Reports and a Review of the Literature. *Int J Environ Res Public Health*. 2017; 14, 421. doi:10.3390/ijerph14040421.
2. Ortiz Salvador JM, Esteve Martínez A, Subiabre Ferrer D, Victoria Martínez AM, Cuadra Oyanguren J, Zaragoza Ninet V. Dermatitis alérgica de contacto a parafenilendiamina por tatuajes con henna. *An Pediatr (Barc)*. 2017;86(3):122-126. doi: 10.1016/j.anpedi.2016.02.010.
3. Diego S, Linda L. Paraphenylenediamine in black henna temporary tattoos: 12-year Food and Drug Administration data on incidence, symptoms, and outcomes. *J Am Dermatology*.2015;72:724-6. doi: 10.1016/j.jaad.2014.11.031.
4. Kind F, Hofmeier KS, Bircher AJ. Irritant Contact Dermatitis From a Black Henna Tattoo Without Sensibilization to Paraphenylenediamine. *Pediatris*. 2013; 131(6):e1974- 6. doi: 10.1542/peds.2012-2938.
5. Diepgen TL, Naldi L, Bruze M, Cazzaniga S, Schuttelaar ML, Elsner P et al. Prevalence of Contact Allergy to p-Phenylenediamine in the European General Population. *Journal of Investigative Dermatology*. 2016; 136, 409-415. doi:10.1016/j.jid.2015.10.064.