Received: 7 August 2022 | Revised: 25 September 2022 | Accepted: 30 September 2022

DOI: 10.1002/ccr3.6470

CASE REPORT

Clinical Case Reports Open Access WILEY

Bifocal contact dermatitis following a temporary tattoo

Dahlia Noëlle Tounouga[1] | **Jobert Richie Nansseu**[2,3] | **Emmanuel Armand Kouotou**[4,5]

[1]National University Teaching Hospital of Cotonou, Cotonou, Benin

[2]Department of Public Health, Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaoundé, Cameroon

[3]Health Emergency Information and Risk Assessment, Department of Emergency Preparedness and Response, World Health Organization Regional Office for Africa, Brazzaville, Democratic Republic of the Congo

[4]Department of Internal Medicine and Specialties, Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaoundé, Cameroon

[5]Yaoundé University Teaching Hospital, Yaoundé, Cameroon

Correspondence
Dahlia Noëlle Tounouga, National University Teaching Hospital of Cotonou, 01 PO Box 386 Cotonou, Benin.
Email: ntounouga@gmail.com

Abstract

Allergic contact dermatitis from henna tattoos is often caused by PPD. This was a 35-year-old female patient with eczema lesions of the left forearm that occurred after henna's tattoo. The inner side of the left thigh, although not tattooed, was the site of eczema lesions, reproducing the design of the tattoo.

KEYWORDS

allergic contact dermatitis, Cameroon, henna, Yaoundé

1 | BACKGROUND

Allergic contact dermatitis is a frequent inflammatory skin diseases occurring at the site of contact with non-protein chemical molecules.[1] It can concern up to 20% of the world's population; with no age or gender predominance.[2] This is a delayed type IV hypersensitivity immune response induced by repeated contact of individuals with non-protein chemicals (haptens). These haptens are present in our daily environment: domestic, professional, and medical.[1–3] In women, cosmetics are one of the main causes of allergic contact dermatitis. These products are contained in hair dyes, varnishes, perfumes, shampoo, tattoo products.[2,3] Accordingly in Cameroon, henna appears to be one of the predilected local products used for tattoo purposes. When used without additives, it rarely causes an allergic reaction.[4,5] But often, it is associated with paraphenylenediamine (PPD) which is contained in hair dyes. This latter product serves to increase the darkness and duration of the tattoo.[5,6] We report here the case of a woman presenting with allergic contact dermatitis following a henna tattoo, which had the particularity of having occurred on areas that have been tattooed, but also on areas that have had indirect contact with the product.

2 | CASE PRESENTATION

This is the case of a 3 4-years-old female patient with no particular medical history, especially pertaining to her immuno-allergic background, who came to consult for itchy skin lesions on the back of the left hand and left forearm. These lesions have been evolving for 2 days, starting after a tattoo with henna had been performed on these sites of her body. The onset was marked by a burning sensation alongside itching at the tattoo site, approximately 12 h after being tattooed. Twelve hours later, appeared an itchy patchy erythematous lesion on the inner side of the thighs. The results of the physical examination revealed a patient in a good general condition with normal hemodynamic parameters for her age. The dermatological examination showed multiple vesicular and bullous lesions with crumbled edges resting on an erythematous inflammatory base, reproducing the lines and designs of the tattoo, all located within the sites of the tattoo: back of the left hand and left forearm (Figure 1). The inner surface of the left thigh (lower 2/3) not tattooed was the site of a circumscribed erythematosus placard with fuzzy edges (Figure 2). The rest of the examination was without any concern. Despite being unable to undertake skin tests, diagnosis of an allergic contact dermatitis induced by henna was formulated.

Paraclinically, FBC showed moderate normochromic normocytic anemia (Hb: 10 g/dl), ESR was high (31 and 64 mm) and the total Ig E was high with a value of 665 KIU/ml. Therapeutically, the treatment consisted of an oral antihistaminic drug, a drying agent (2% aqueous eosin) and a class 3 topical corticosteroid. An aspiration of large bullous lesions was also performed.

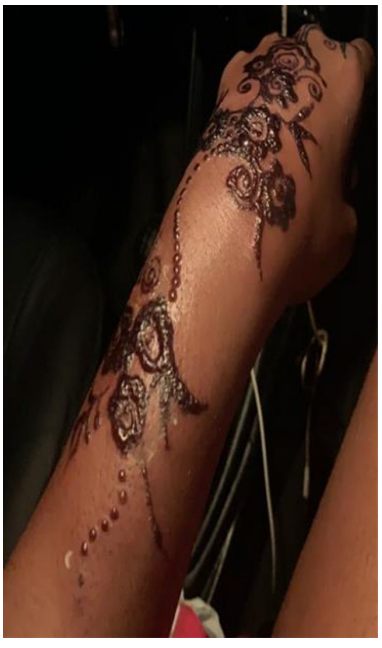

FIGURE 1 Vesiculo-bullous lesions on the henna tattoo

FIGURE 2 Erythematosus placard with fuzzy edges

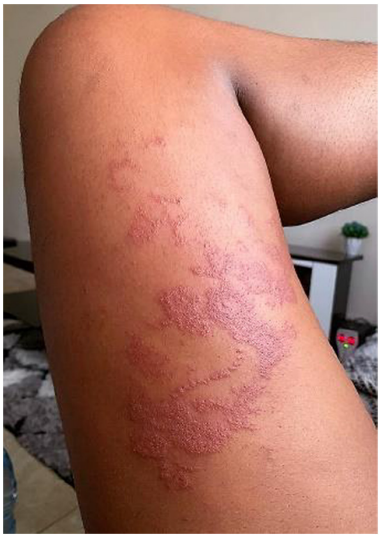

FIGURE 3 Erythematous patch with multiple micro-vesicles reproducing the tattoo design

The patient was seen again on the 5th day after the tattoo for worsening lesions of the inner side of the left thigh with intensification of the pruritus. On examination, the erythematous patch in the thigh had spread and increased in size. This erythematous patch was strewn with multiple micro-vesicles and the whole generally reproduced the tattoo design of the forearm and back of the left hand (Figure 3). Therapeutically, no change was brought to her current treatment. After all, the evolution was favorable at 2 weeks (Figures 4 and 5) and a complete remission without sequelae was observed at the end of the 6th weeks.

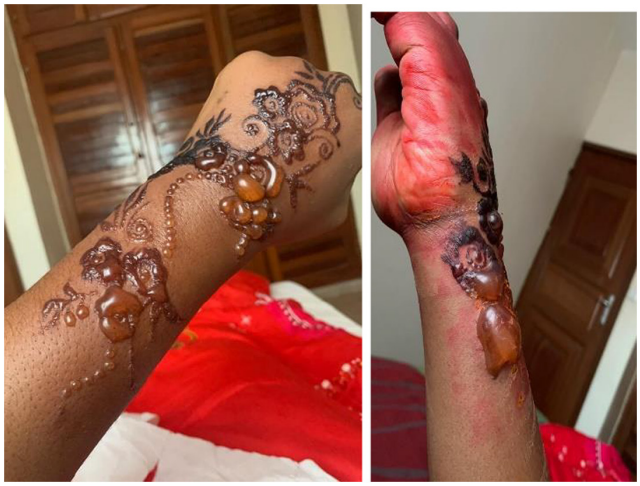

FIGURE 4 Multiple bullous lesions after 5 days of treatment

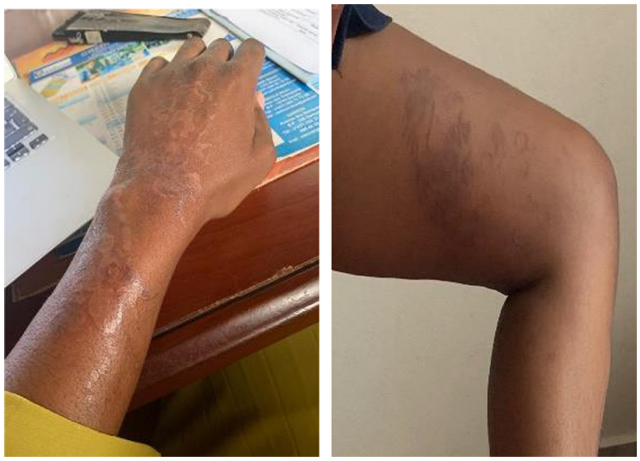

FIGURE 5 Good evolution with remission after 2 weeks

3 | PATIENT AND PUBLIC INVOLVEMENT

Not applicable.

4 | DISCUSSION

Allergic contact dermatitis is one of the major causes of eczema, this is an inflammatory dermatosis whose prevalence is constantly increasing.[2] It is a delayed hypersensitivity immune reaction caused by chemicals (potential allergens) after prolonged or repeated contact with the skin.[1,2]

Henna or Lawsonia inermis has been used since antiquity for hair coloring, to design temporary tattoos on hands and feet.[4–6] Allergic contact reactions occur in the majority of cases a few hours or even a few days after the staining has been carried out.[6,7] Rare with pure henna, allergic contact dermatitis is most often due to additives such as perfume oils or PPD to obtain a darker and longer lasting color.[4–6] PPD can, moreover, in highly sensitized patients trigger "acute" conditions, occurring within hours of hair coloring or cervico-facial pseudo-inflammatory accidents.[4,6–8] In our patient, the reactions were very inflammatory and bullous on the tattooed sites as well as on the non-tattooed sites. The occurrence of lesions on the homolateral thigh, although not tattooed, could be explained by the fact that the patient fell asleep with her hands between her thighs, thus bringing the tattooed side of the hand (back of the left hand) into contact with the inner side of the left thigh. This atypical fact makes the particularity of our case and can be considered as reported eczema which, in fact, is less described in literature.

Although the diagnosis is essentially clinical, performing patch tests would have helped in the etiological diagnosis, in particular to identify the allergen in cause.[7,9,10] Several varieties of patch tests with delayed or immediate reading could be offered depending on the clinical skin symptomatology observed or described by patient.[2,3,11] In the present case study, these tests where not performed, although this reaction was de novo. Carrying out these tests would have allowed us to say with certainty whether our patient had an allergy to PPD or to pure henna or to any other substance contained in the product used for this tattoo.

The treatment of allergic contact dermatitis mainly combines the avoidance of the causative allergen and the application of a strong to very strong class corticosteroid.[1–3,11] For this case, in addition to the above treatment, we undertook an aspiration of the bullous lesions with a sterile syringe and added a local drying agent, namely aqueous eosin in order to accelerate the healing process.

The outcome with this treatment when well conducted is generally favorable after 10-15 days.[2,11] In our patient, after 2 weeks, there was a considerable improvement and the complete recovery occurred after 6 weeks.

5 | CONCLUSION

The pursuit of beauty can lead to unfortunate and unsightly consequences. This is what happened to our patient who, after undertaking a henna's tattoo, developed an allergic contact dermatitis of her left forearm, back of her left hand and left thigh. Due to the rarity of cases of pure henna contact eczema, it is possible that the henna used for our patient was mixed with PDD or another substance.

AUTHOR CONTRIBUTIONS

DNT conceived the study. EAK, DNT, and JRN drafted the manuscript. All the authors proofread and corrected

the manuscript. All authors agreed with the final manuscript to be submitted for publication.

ACKNOWLEDGMENTS

None.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest with regard to this article.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

ETHICAL APPROVAL

The patient gave the consent to participate to the study.

CONSENT

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

ORCID

Dahlia Noëlle Tounouga https://orcid.org/0000-0003-3126-7181
Emmanuel Armand Kouotou https://orcid.org/0000-0003-3879-2659

REFERENCES

1. Fihmi N, Elmrahi A, Dikhaye S, Zizi N. Eczéma de contact allergique au gel d'échographie: à propos d'un cas. *Pan Afr Med J*. 2014;19:129.
2. Tennstedt D, Jacobs MC, Baeck M, Lachapelle JM. Dermatite allergique de contact. *EMC-Dermatologie*. 2012;98:98-145-A-10.
3. Crépy NM. Dermatite de contact aux protéines. *Allergologie-Dermatologie Professionnelle*. 2017;152:131-142.
4. Sivam A, Tankersley M. Allergic contact dermatitis not due to p-phenylenediamine (ppd) in a henna tattoo. *J Allergy Clin Immunol Pract*. 2019;7:288-289.
5. Polat M, Dikilitas M, Oztas P, Alli N. Allergic contact dermatitis to pure henna. *Dermatol Online J*. 2009;15(1):15.
6. Grozdev I, Kazandjieva J, Tsankoy N. Temporary henna tattoos. *Jana Clinics in Dermatology*. 2007;25:383-387.
7. Aburabie H, Omahsan L, Daflaoui H, Dikhaye S, Zizi N. Eczéma de contact secondaire à une teinture des sourcils: à propos d'un cas. *Ann Afr Med*. 2020;13(4):e3873-e3877.
8. Chakir K, Hassam B. Eczéma de contact bulleux suite à un tatouage au henné noir. *Pan Afr Med J*. 2013;15:148. doi:10.11604/pamj.2013.15.148.3261
9. Tennstedt D, Herman A, Lachapelle JM. Effets indésirables des soins capillaires chez les utilisateurs. *Ann Dermatol Venereol*. 2018;145(8–9):521-531.
10. Benomar S, Ismaili N, Rmili M, Benzekri L. Hassam Tatouage au henné noir: au-delà de l'eczéma de contact. *Rev Fr Allergol*. 2009;49:376-378.
11. CEDEF. Item 114 -Allergies cutanéo-muqueuses chez l'enfant et l'adulte: eczéma de contact. *Ann Dermatol Venereol*. 2012;139(3, 11S):78-84.

How to cite this article: Tounouga DN, Nansseu JR, Kouotou EA. Bifocal contact dermatitis following a temporary tattoo. *Clin Case Rep*. 2022;10:e06470. doi:10.1002/ccr3.6470