

# Temporary henna tattoos and hypertrichosis: a case report and review of the literature

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## Key words:

adverse event, contact dermatitis, hair, hair follicle, henna, hypertrichosis, paraphenylenediamine, temporary tattoo

## Abstract

**Background:** Temporary black henna tattooing is highly popular among children and young adults in some regions. The unmonitored addition of different products to darken the color of pure henna has been the cause of many tattoo-associated dermatoses.

**Observation:** Hypertrichosis secondary to henna pseudotattoo is a rare, newly recognized cutaneous manifestation. Only 4 case reports of henna tattooing causing localized hypertrichosis have been reported in the literature. We report a case of hypertrichosis and eczematous reaction to temporary henna tattoo.

**Conclusion:** Hypertrichosis secondary to black henna is independent of the presence of contact dermatitis. The mechanism by which black henna induces hair growth remains unclear. (*J Dermatol Case Rep.* 2015; 9(2): 36-38)

## Introduction

Temporary black henna tattooing is highly popular among children and young adults.<sup>1</sup> As compared to permanent henna tattoo, temporary tattooing is painless, cheap, can be applied anywhere, lasts for days, is fun to decorate, easy to remove, and carries no risk of HIV or hepatitis infections.<sup>2</sup> It has been mainly used by Arabic and Indian cultures for thousands of years for dyeing the skin, hair, and nails.<sup>3</sup>

Only 4 case reports of henna tattooing causing localized hypertrichosis have been reported. We report a case of localized hypertrichosis with an associated contact dermatitis caused by temporary paint-on henna tattooing.

## Case Report

A 16-year-old female patient, with no past medical history, did a star shaped temporary henna tattoo on her neck 4 weeks prior to presentation to our clinic. Two days after the application of the henna tattoo, she developed an eczematous reaction restricted to the tattoo site (Fig. 1). Localized hypertrichosis, limited to the area of the tattoo, started



**Figure 1**

*Eczematous reaction and hypertrichosis secondary to a star shaped temporary henna tattoo over the lateral aspect of neck.*

showing 3 weeks after the henna tattoo has faded (Fig. 1). No treatment was initiated since the eczematous reaction was resolving spontaneously and because we expected the complete resolution of the hypertrichosis within few months. Patch testing to Para-Phenylenediamine (PPD) was planned, but the patient was lost to follow up.

**Table 1.** Summary of reported cases of hypertrichosis secondary to temporary henna tattoo.

<b>Resolution at (months)</b>	5	3-4	3-4	3-4	3-4	3-4	-
<b>Treatment</b>	None	None	None	None	None	None	None
<b>Histopathology</b>	Increase in vellus hair follicles, slight peripheral fibrosis	—	—	—	—	—	—
<b>Contact dermatitis</b>	—	—	—	—	—	+	+
<b>Hypertrichosis at (days)</b>	18 days	5 days	7 days	7 days	Few days	20 days	21 days
<b>Age/Sex</b>	5Y/M	12Y/M	14Y/F	28Y/F	24Y/F	8Y/M	16Y/F
<b>Authors</b>	Del Boz J <i>et al.</i> (7)	Durmazlar SP <i>et al.</i> (8)	Durmazlar SP <i>et al.</i> (8)	Durmazlar SP <i>et al.</i> (8)	Durmazlar SP <i>et al.</i> (9)	Kluger N <i>et al.</i> (10)	El Habr <i>et al.</i>
<b>Patient</b>	1	2	3	4	5	6	7

## Discussion

Henna, is a vegetable dye derived from a plant called *Lawsonia alba*. It is being widely used for temporary body decoration, hair dyeing, and as a component of some shampoo and cosmetic products.<sup>1-4</sup> It is referred to as pure henna when used alone, and as black henna when combined with other coloring agents such as PPD, to speed up dyeing, darken its brownish-orange pigment, and make the henna tattoo last longer.<sup>3-6</sup> The addition of these additives has been the cause of many tattoo-associated dermatoses.

The appearance of hypertrichosis secondary to henna tattoo is rarely reported in the literature (Table 1).<sup>7-10</sup> The exact pathophysiology is still unknown; however, it is suspected to be caused by one of the additive substances used in henna.<sup>7</sup> The culprit agent causing the transient localized hypertrichosis couldn't be ascertained in all reported cases because henna tattooing was done by street vendors.<sup>7-10</sup> Hypertrichosis was noticed 5 to 20 days after the initial application of the black henna, and was more prominent after the tattoo had faded. Skin biopsy was done in one of the 6 reported patients and showed an increase in vellus hair follicles with slight peripheral fibrosis.<sup>7</sup> In all reported cases, hypertrichosis resolved spontaneously after 3 to 5 months (Table 1). Only one case was associated with an eczematous reaction as in the case of our patient (Table 1).

Hypersensitivity reactions to pure henna is very rare with only few reports of allergic reactions.<sup>4</sup> The addition of different additives, such as PPD, has been the main cause of allergic contact dermatitis to temporary black henna tattoo. The concentration of PPD in henna can be up to 15% to 30%.<sup>11</sup> It is a known skin and respiratory tract sensitizer.<sup>5,6</sup> Patch testing patients with PPD shows a reaction consistent with a type IV delayed hypersensitivity reaction.<sup>6</sup> Clinically, these eruptions occur 3 to 10 days after the initial application of the PPD-henna preparation. The reaction can be seen sooner if the patient has been previously sensitized to PPD.<sup>12</sup> PPD also is a potent T-cell stimulator.<sup>6</sup> The oxidation of prohapten (PPD) to hapten (quinone diamine) is the

main key in sensitization. Hapten will directly react with a protein, causing irritation of the skin and mucous membranes. Cross-sensitization may also occur with compounds that have an amino group in the para-position of the benzene ring.<sup>6</sup> People with known reactions to PPD or cross-reacting allergens such as sulfonamides, para-amino benzoic acid, sulfonylureas, dapson, azo dyes, or benzocaine should be especially cautious of temporary black henna tattoo application.<sup>5,11</sup>

Many other temporary henna tattoo associated dermatosis and severe complications have been reported such as severe inflammatory and keloidal reactions,<sup>13</sup> lichenoid reactions,<sup>13</sup> acquired and persistent leukoderma,<sup>13</sup> disseminated granulomatous type IV reaction,<sup>13</sup> bullous contact dermatitis,<sup>13</sup> erythema multiform and Erythema multiform like lesions,<sup>6</sup> hyperpigmentation,<sup>8</sup> hypopigmentation,<sup>10</sup> scarring,<sup>10</sup> superinfection,<sup>13</sup> and type I hypersensitivity reactions manifesting as urticaria, angioedema, or angioneurotic edema.<sup>6</sup>

Rupp P. *et al.* reported 4 cases of haemolytic crisis in children with glucose-6-phosphate dehydrogenase deficiency following topical application of henna.<sup>14</sup> Another report by Perinet I. *et al.* reported a case of severe hemolytic anemia after voluntary ingestion of Henna decoction to induce abortion in a 17-year-old female patient with glucose-6-phosphate dehydrogenase deficiency.<sup>15</sup>

## Conclusion

Hypertrichosis secondary to black henna is rarely reported in the literature. Its occurrence is of benign nature, and is independent of the presence of contact dermatitis. Since temporary henna tattoos are becoming more popular, physicians and users should be aware of the many reported side effects, especially those that can be lethal, such in the case of patients with G-6-PD deficiency. As a separate note, it would be interesting to identify the additive in black henna causing the localized hypertrichosis.

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