

## IF IT STAINS BLACK IT IS NOT HENNA ! A RARE CASE OF ALLERGIC CONTACT DERMATITIS TO PURE HENNA (Lawsonia inermis, alba ).

Syed M. Pirzada\*

### ABSTRACT:

**BACKGROUND:** We know that Allergic Contact Dermatitis is extremely rare to pure Henna application all over the world, but incidence of allergy to temporary tattoo is increasing in North America secondary to presence of *p*-phenylenediamine (PPD) in Temporary Black Tattoo.

**OBJECTIVE:** This case report documents a rare case of Allergic Contact Dermatitis to Pure Henna in Canada.

**METHOD AND RESULT:** We present a case of Allergic Contact Dermatitis (ACD) to pure henna in an Asian girl in Canada who had her first possible exposure to pure henna six years ago in India.

Her second exposure occurred in Alberta when she used a Henna paste contained in a plastic cone bought locally from a store.

She developed vesiculo-bullous eruption at the site of application. A diagnosis of ACD was made. She was treated with potent topical steroid for two weeks.

Patch testing was done with PPD and Henna paste after six weeks of cooling period.

**CONCLUSION:** This is one first case of ACD to Pure Henna ( Lawsonia Inermis, alba ) in Canada.

**Figure 1;** Vesiculo-bullous reaction corresponding to the application of Pure Henna Paste.



**Figure 2;** Patch test, Henna paste 2 (+) in all three concentrations of, 10, 20, 30 % and (-) for PPD # 4 and # 17.



• *Syed M. Pirzada, Staff Dermatologist at Eastern Health Board, St. John's, NL, Canada.*

• *Visiting Consultant Dermatologist at Grenfell Health Board, Labrador, NL, Canada.*

\*=corresponding author: *Syed M. Pirzada*  
E.mail; [apirzada@POL.NET](mailto:apirzada@POL.NET)

### Introduction:

Allergic reaction to Pure henna, an extract of the plant *Lawsonia Inermis*, is extremely rare. Almost all reactions are due to sensitization to *p*-phenylenediamine (PPD) used as a dye to to darken the stain and also to hasten the time required to achieve the perfect stain. Pure henna has been used for thousands of years in more than 60 countries in all the continents by Christians, Muslims, Jews, Hindus and Buddhists for religious

or other reasons.

Henna use in Muslims is to decorate the Bride at a ceremony, "Mehndi" or "Night of Hinna" before the marriage. This is a very colourful ceremony which starts at sunset and last lasts whole night and in the early morning hours of next day.

It is the most enjoyable part of the marriage ceremonies and the preparations for this Mehndi night start weeks before the event.

Old ladies in Hindu, Muslims and Bengali culture use Henna paste to color their hair.

Henna gives orange/reddish-brown stain.

The longer the henna stays on the skin the darker the color.

Pure Henna leaves are dried, powdered and mixed with water, oil or less frequently lemon to make a paste and is applied to the skin or hair to be dyed.

The henna paste release a dye (hennotannic acid), which has a high affinity for keratin layer.

Henna is applied to the skin by brushes, syringe and plastic cones (2).

Henna stain lasts for week until the outer layer of skin exfoliates.

A rough estimate is that at least half the population of India has been exposed to henna at some point in their life, so it can be assumed that the sensitizing potential of henna must be very low (1).

Henna use in the western world is increasing in the form of "Temporary Tattoos".

Temporary tattoos are applied non-invasively on the skin reducing the chance of introducing any infection. The tattoo paste is applied with fine brushes, syringes and foil or plastic cone shaped container.

Street vendors and small shops are the most common places which are mushrooming every day are the cheapest source of these temporary tattoos attracting innocent ill informed population.

#### CASE REPORT:

A 21- year old female was referred to our dermatology clinic with a pruritic eruption on her left hand for four days.

She gave the history of using ready made pure Henna paste in a plastic cone bought from a small corner shop in Winnipeg, Alberta, Canada.

She developed redness after 24 hours of application of henna and there after she developed vesiculo-bullous eruption at the site of application perfectly corresponding the the area of application on her palm and dorsal aspect of left hand and fourth finger.

She also gave history of applying henna paste made from pure henna powder six years ago to her left ankle and later she developed redness and itching for which no treatment was sought.

She was healthy otherwise with past history of Atopic Dermatitis as a child with no known allergies in the past.

Patient was prescribed Bursol solution 1:15 compresses and Clobetasol Propionate 0.05% ointment b.i.d. for 2 weeks and taper off in next one week.

On her follow up visit one week later, she had considerable improvement in her skin condition with few areas of crusting. No new lesions noted. Complete clearance was noted with some post inflammatory hyper pigmentation in five weeks.

**Patch Testing** was done after 11 weeks of her initial visit. Patient was tested with Allergens of PPD from North American Contact Dermatitis standard list. Also Henna sample which patient provided, was tested in dilutions of 10%, 20% and 30% prepared in our hospital pharmacy. First reading was done at 48 hours which revealed (-) result for all PPDs and strong (+) reading for all Henna concentrations.

Second reading at 72 hours again revealed (-) result for PPD and strong (+) result for all concentrations i.e. 10%, 20% and 30% of Henna tested.

#### RESULT:

It is clear from the patch test readings at 48 and 72 hours that this patient had allergic reaction to pure Henna paste and not to PPD dye.

#### DISCUSSION:

Where ever and in which ever country hair dyes and temporary henna tattoos are being used PPD is notoriously known to cause allergic contact dermatitis.

It is very rare to see Type I or Type IV reactions after application to pure Henna.

Our patient who had her first exposure to pure henna six years ago after application of pure henna paste on her left ankle at a domestic ceremony. This exposure produced mild erythema and pruritis at the site of henna application and it was disregarded with no treatment.

Her second exposure six years later in Canada once again to pure henna paste to her left hand resulted in a much severe vesiculo-bullous eruption requiring potent topical steroids for considerable duration.

Patch testing revealed a rare result of strong positive patch test to all concentrations of pure henna.

#### CONCLUSION:

Allergic contact dermatitis to PPD is well known in Dermatology and is being diagnosed more frequently in North America as the use of temporary henna tattoo is increasing. But there are only handful of cases with ACD to pure henna seen in Indian subcontinent and none have been diagnosed in North America.

We report first case of allergic contact dermatitis to pure henna.

We believe that this is just the beginning of this type of reaction to henna. As the trend to use temporary henna tattoos is increasing in North America among teens, adolescents and young adults we are bound to encounter and diagnose more of ACD reactions to pure henna.

It would be wise to patch test any suspected case of PPD with North American Standard Battery along with the tattoo or dye in question in several dilutions.

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