Raising an eyebrow: a delayed hypersensitivity reaction to ‘black henna’ cosmetic tattooing

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Presentation
A 56-year-old Caribbean woman was referred to the medical team with an erythematous, pruritic rash affecting both eyebrows. This had developed one week after cosmetic eyebrow tattooing with ‘black henna’ whilst in Thailand. The patient had no past medical history of note, was on no regular medications and had no known allergies.

Examination
A papulovesicular, crusting eruption in the distribution of both eyebrows with early keloid scarring was seen (Figure 1). This was associated with tender cervical lymphadenopathy. The patient was otherwise systemically well.

Investigations
The patient’s inflammatory markers were within normal limits. Serology for HIV and hepatitis B and C were later found to be negative.

Management
Initially the patient was treated for infection with intravenous co-amoxiclav and managed for potential exposure to blood-borne viruses. On the post-take ward round the appearance was noted to be consistent with a type IV hypersensitivity reaction as previously described by our department. The patient was commenced on oral corticosteroids, and underwent debridement under local anaesthesia by the plastic surgery team. The appearance was improved but long-term scarring was likely to result.

Discussion
‘Black henna’ is a blend of henna and paraphenylenediamine (PPD), a substance which confers a darker and more permanent result than natural henna alone. It is also used in printing inks, photographic plates, black rubber and petrol. Initially colourless, it becomes black upon oxidisation. In its incompletely oxidised state, PPD is a powerful contact allergen, known to cause greater harm in individuals with pre-existing contact dermatitis. The extent of the reaction correlates with both the concentration of PPD applied and the duration of exposure.

The potential for delayed reactions implies that patch testing is required at least one week prior to full application, rather than common recommendations of 48 to 72 hours. The public should be made aware of this before any cosmetic procedures they undergo. These findings are also of relevance to communities in which henna tattooing is of cultural importance.

References

Figure 1. Patient’s left eyebrow after partial debridement. Written patient consent obtained.