Allergy & Therapy

Tammaro et al., J Allergy Ther 2013, 4:6
http://dx.doi.org/10.4172/2155-6121.1000159

Letter Open Access

Allergic Contact Dermatitis from Aminoazobenzene in Tattoo

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Abstract

The tattoo phenomena is expanding rapidly among young people, all around the world: the process of tattooing involves the repetitive piercing of the skin with ink-filled needles, with the use of different types of pigment, like Azo ones. These azo-pigments are used for printing, painting of cars and staining of various consumer products. These pigments may contain titanium dioxide for lightening the shade, precursors and by-products of pigment synthesis, as well as diluents that are used for pigment suspension.

We presented a clinical case of a 35 years old woman with 2 week history of itching allergic dermatitis presenting with heat, erythema and scaling appeared in the area of a colored tattoo on her shoulder 2 months after tattooing. Lesions where localized in the orange pigmented areas.

We did a Patch test of SIDAPA series that resulted negative. Special series F.I.R.M.A. for tattoo was positive for aminoazobenzene-p 0.25% (++2) and phenylenediamine base-p 1%. Aminoazobenzene cause orange pigment.

We performed local infiltration of triamcinolone acetonide, with temporary resolution of clinical manifestation.

Keywords: Tattoo; Aminoazobenzene; Allergy; Contact dermatitis

Dear Editor

It is estimated that more than 24% of American adults have one or more tattoos, and the practice is gaining social acceptability and is becoming more popular also in Italy. In the past, tattooing was common among male military personnel; however, today, the practice is equally common in lay men and women. In Italy this phenomenon is less extensive than America, but definitely on the rise compared to the past, especially among adolescents.

The process of tattooing involves the repetitive piercing of the skin with ink-filled needles, which results in a permanent imprint of a design. Azo-pigments are frequently used for tattooing because of their color intensity and longevity. These azo-pigments are primarily manufactured for other purposes such as printing, painting of cars and staining of various consumer products. These pigments usually contain titanium dioxide for lightening the shade, precursors and by-products of pigment synthesis, as well as diluents that are used for pigment suspension.

Figure 1: (a) Erythematous lesions on orange pigment.
(b) Positive patch test.

We presented a clinical case of a 35 years old woman presented to our department with 2 week history of itching, allergic dermatitis presenting with heat, erythema and scaling in the area of a colored tattoo on her shoulder (Figure 1A). These lesions developed 2 months after tattooing.

General physical examination was normal. Cutaneous examination revealed erythematous lesions localized to the orange pigmented areas.

The patch test was performed using the standard series SIDAPA. It result negative. So, we decide to execute special series F.I.R.M.A. for tattoo (copper sulphate 1% water, dimetilaminoazobenzene-p 1%, aminoazotoluene-o 1%, blue scattered 3 1%, blue scattered 124 1%, yellow scattered 3 1%, orange scattered 3 1%, red scattered 1 1%, gentian violet 2%, cadmium chloride 1% in water, nichel sulphate 5%, iron chloride 2% in water, potassium dichromate 0.5%, chromium trichloride 2%, aminoazobenzene-p 0.25%, cobalt chloride 1%, aluminum chloride 2%, titanium dioxide 0.1%, zinc 2.5%, mercury chloride 0.05% in water, kathon cg 0.01% in water, phenol 0.5%, ethylenediamine hydrochloride1%, phenylenediamine base-p 1%, formaldehyde 1% in water, phthalic anhydride 1%, rosin 20%, dibutyl phthalate 5%, hexamethylenetetramine 1%, benzophenone 5%).

Our patient showed positive patch test reaction to aminoazobenzene-p 0.25% (++2) and phenylenediamine base-p 1% (Figure 1B). Aminoazobenzene cause orange pigment.

We propose to our patient to remove tattoo with laser therapy, but she refuses it. So, we performed local infiltration of Triamcinolone

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Received November 27, 2013; **Accepted** December 26, 2013; **Published** December 30, 2013

Citation: Tammaro A, Cortesi G, Abruzzese C, Narcisi A, Orsini D, et al. (2013) Allergic Contact Dermatitis from Aminoazobenzene in Tattoo. J Allergy Ther 4: 159. doi:10.4172/2155-6121.1000159

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Acetonide bi-monthly, with resolution of clinical manifestation and, until now, without signs of recurrence [1-6].

The tattoo phenomena are expanding rapidly and involve mainly young people between 16 and 25 years. Great attention must be put to the pigments used. There are new substances, often little known and allergic reactions to these pigments are increasing rapidly. Complications of tattooing are being increasingly recognized, and these include also inflammatory skin reactions, transmissible infections, and rarely neoplasia [7]. A wide range of inflammatory reaction patterns have been described and these are most frequently associated with the use of red ink [8]. Lichenoid reactions are believed to be the commonest, although spongiotic, psoriasiform, granulomatous, pseudolymphomatous, and pseudoepitheliomatous patterns have also been reported [9].

Decide to inject a pigment on your skin deserves great attention, even more so choose the pigments to be used. We recommend that you always perform a patch test before making a tattoo.

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