Contact Dermatitis to Temporary Tattoo

Mirna Tomljanović-Veselski, Cecilija Žilih-Ostojić

Department of Dermatology and Venereology, Dr. Josip Benčević General Hospital, Slavonski Brod

Corresponding author:
Mirna Tomljanović-Veselski, MD, MS
Department of Dermatology and Venereology
Dr. Josip Benčević General Hospital
Ul. Andrije Štampara 42
HR-35000 Slavonski Brod
Croatia
mirna.tomljanovic-veselski@sb.htnet.hr

Received: May 15, 2006
Accepted: July 10, 2006

SUMMARY The development of contact hypersensitivity to temporary tattoos has been on an increase all over the world. Skin painting with henna is a traditional practice in the Moslems and Hindu, and has recently been increasingly used in western countries. Black henna is obtained by adding paraphenylenediamine to the natural occurring henna. The risk of sensitization increases with the length of contact and increase of the concentration. A case is presented of an 11-year-old boy who developed a severe reaction in the form of redness and edema accompanied by pruritus on the day following the application of a temporary tattoo. A year before, the patient had also developed a skin reaction following temporary tattooing, which had not been recognized as a contact dermatitis. Patch testing was positive for paraphenylenediamine and thiuram compounds. The patient was treated with medium-strength corticosteroids.

KEY WORDS: temporary tattoo; contact hypersensitivity; allergic contact dermatitis; paraphenylenediamine; thiuram derivatives

INTRODUCTION

Body painting with temporary tattoos is an increasingly popular alternative to traditional tattoos. In contrast to classic tattooing, the procedure is less painful, as there is no skin penetration as in a classic tattoo or piercing, and there is no risk of infective agent introduction (being one of the major advantages of temporary tattoos) such as hepatitis B and C, and theoretically HIV (1). Classic tattoos may be associated with a number of side effects, such as morphea-like reactions as described by Mahalingam et al. (2). Since the beginning of the 1990s, there have been several literature reports on contact dermatitis at the site of temporary tattoos (3-17).

CASE REPORT

During summer holidays, an 11-year-old boy had a temporary tattoo performed on his right brachium. The very next day, he experienced a burning sensation and marked redness at the site of tattoo application (Fig. 1). The site was treated by cold dressings and neutral creams. On day 10, the patient presented to a dermatologist because of persistent lesions, with pronounced redness and scaling at the site of contact. Mycologic testing was performed to rule out a possible fungal infection, and therapy with a local corticosteroid preparation of medium strength was initiated. Four weeks after tattooing, there was visible residual hypopigmentation. Patch testing was positive for
paraphenylenediamine (PPD) and thiuram (Fig. 2). Thereupon, the patient’s mother reported that a year before, the boy had also had a temporary tattoo that had resulted in a “nodule” at the site of application a few days later, and had regressed spontaneously.

**DISCUSSION**

Henna has been used for more than 9000 years in some 60 countries in the world. The name has been derived from the Arabic term hinna for the plant *Lawsonia inermis* (alba), naturally found in Asia, west Mediterranean and North Africa. The plant is ground into powder which is then mixed with oil and some other ingredients, and applied onto the skin to perform a tattoo. In spite of its wide usage, reports on contact hypersensitivity to henna are extremely rare. There are several reports on dermatitis with positive patch test upon contact with hair dye, hair spray, nail polish, and tan lotion (10). The longer the skin contact, the darker is the tattoo (7). The use of black henna is considered to be the reason for the ever increasing prevalence of contact dermatitis to temporary tattoos, particularly among adolescents and schoolchildren (11,12). Black henna is obtained by adding artificial dyes, particularly PPD found in many dark hair dyes, to the natural substance.

The induced allergic reaction should be expected to occur on day 7-10 (13,14). However, our patient developed a severe reaction on the day following tattooing, which could be explained by sensitization to a PPD-containing tattoo a year before. The patch test concentration of PPD is 0.5%, which is ten times lower than the PPD concentration in the tattoo paste.

Allergic reactions to azo dyes in textiles as well as to hair dyes other than PPD, but which do now react with it, may follow temporary tattooing as the primary source of sensitization (15,16). Moreover, residual hypopigmentation persisting for a long period of time at the site of tattoo is frequently encountered (17).

**References**