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Successful removal of hyperkeratotic-lichenoid reaction to red ink tattoo with preservation of the whole tattoo using a skin grafting knife

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Abstract

With the increasing popularity of tattoo body decorations, reports of medical complications with tattoos have increased in parallel. Although tattoo reactions can resolve spontaneously, they often last for months or even years, despite the various treatment methods. In our case, we present the successful removal of hyperkeratotic-lichenoid reaction to red ink using a simple and cheap skin grafting knife. The entire tattoo was preserved with a good aesthetic result with minimal scarring.

Keywords: tattoo reactions, red ink, skin grafting knife

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Introduction

Tattooing for cosmetic purposes has been increasing in recent times. With this trend, there is also an increased risk for adverse effects. Studies have reported various reactions to the salts and other components used in tattoos. When ink allergies occur, they manifest clinically with pruritus, localized edema, an eczematous eruption with serous drainage, exfoliative dermatitis, lichenoid lesions, or verrucous papules or plaques (1). Among the most common reactions, those resulting from red pigment are more frequent than from other colors (2). These may be associated with allergic contact dermatitis, lichenoid dermatitis, and pseudolymphoma (3). Treatment of cutaneous allergic reactions to tattoo ink depends on the severity of the signs and symptoms. Conservative treatment options include topical, oral, and/or intralesional steroids, oral anti-histamines, and protection from UV light. Destruction methods include cryotherapy, electrosurgery, surgical excision, dermabrasion, chemical destruction via acid, or ablation via non-Q-switched laser such as a carbon dioxide device (1). Substantial flattening and depigmentation of the red ink in the tattoos were also reported after six treatments using a Q-switched 532 nm Nd:YAG laser (4).

This case report presents a hyperkeratotic-lichenoid reaction to a red ink tattoo and successful surgical treatment with preservation of the tattoo.

Case report

A 38-year-old female patient complained of itching, followed by the appearance of raised scaly erythematous and hyperkeratotic-lichenoid lesions over the site of red ink on her lower leg. The black ink in the tattoo was not affected (Fig. 1). The tattoo had been placed 8 weeks prior to her presentation and the first symptoms occurred 3 weeks after the injection. The patient refused the suggested biopsies. Intralesional corticosteroids were administered twice in the period of 2 months and oral antihistamines were prescribed for this period. Only mild improvement of itching was achieved. The patient was referred to a laser specialist, who suggested continuous steroid therapy. We suggested experimental partial removal of the tattoo using a skin grafting knife. After another unsuccessful steroid therapy, the patient agreed with our proposal. Eight months after the tattoo was injected, only elevated regions of red pigment were removed, using a skin grafting knife in the same manner as thin layers of burned tissue are removed (Fig. 2). We decided on that procedure because the non-surgical therapy we could offer failed and the patient demanded a quick and inexpensive solution to the problem. She agreed with complete surgical excision of the tattoo if the proposed procedure using a skin grafting knife failed or if the aesthetic result after healing the wound was not acceptable. The procedure was performed using local tumescent anesthesia. Antibiotic petroleum jelly mesh was administered and changed daily for 14 days. Once the skin had reepithelialized, topical silicon jelly was used for 2 months. The 12-month follow-up shows a good aesthetic result with minimal scarring and without any symptoms of allergy. The entire tattoo was preserved (Fig. 3).

Figure 1 |Tattoo reaction before skin surgery.

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Figure 2 | Tattoo just after skin grafting procedure.

Figure 3 | Tattoo 12 months after skin grafting procedure.

Discussion

Steroids, laser therapy, and excision are the mainstay of treatment of allergic reactions to tattoos (5). However, removal generally requires multiple forms of treatment, most of which fail to remove the colors completely, and the cosmetic results are sometimes poor after treatment, or symptoms still persist. There have been reports of local and/or widespread allergic reactions as a result of using laser to remove a normal tattoo (6, 7). During laser treatment, the tattoo pigment is released from cells into extracellular space and may be released into the vascular supply and thus recognized as foreign by the immune system, causing a hypersensitivity response. Anaphylactic shock is thus also a rare possibility (1). We could not find data on whether the risk of a general allergic reaction is greater in cases in which some cutaneous allergic reactions to tattoo ink already exist. Despite that risk, laser removal seems to be the second treatment method if therapy with local corticosteroids fails. Skin grafting or other abrasive procedures are usually the last option because of the non-optimal cosmetic result with more or less scarring wounds. However, in our case we were successful in removing the hyperkeratotic-lichenoid reaction to red ink using a simple and cheap skin grafting knife. We could not find any similar case in the literature involving preserving the entire tattoo using the skin grafting knife technique.

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