Keloid Occurring in a Tattoo after Laser Hair Removal

Nicolas Kluger[1], Sophie Hakimi[1,2] and Pascal Del Giudice[2]
[1]Department of Dermatology, University of Montpellier I, Hôpital Saint-Eloi, CHU de Montpellier, 80, Avenue Augustin Fliche, FR-34295 Montpellier, and [2]Service Infectiologie-Dermatologie, Hôpital Bonnet, Fréjus, France. E-mail: nicolaskluger@yahoo.fr
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Sir,

Photoepilation by laser-assisted hair removal is a safe procedure provided laser parameters are selected correctly according to patient characteristics such as skin type, anatomical location, or sun-exposed/tanned skin. However, when two different chromophores are in competition for light absorption at the same location, the consequences can be deleterious. We report here the case of a man who developed keloid within a tattoo after a laser hair removal session. Laser hair removal should be avoided on a tattooed skin.

CASE REPORT

An otherwise healthy 41-year-old Caucasian male patient with Fitzpatrick skin type IIIB presented with a keloid restricted to a tattoo. His medical history was unremarkable. Upon physical examination, a hypertrophic scar consistent with keloid was restricted to some parts of a tattoo located on the left side of the chest (Fig. 1). The tattoo depicted a multicoloured (red, orange, blue and green) butterfly design that had been applied in a professional tattoo parlour 8 years previously without any complications during the healing phase. The rest of the examination was normal, and no other hypertrophic scar/keloid was noticed. The patient explained that keloid appeared 2 years previously after a laser-assisted hair removal session. During the session, he asked the practitioner to perform hair removal also on the tattoo site. The laser session was painful at that location and was followed immediately by a transitory episode of local swelling. The keloid developed after that session and had remained stable ever since. Interestingly, the session was otherwise well tolerated and no cutaneous reaction occurred elsewhere on the skin where laser hair removal was performed. In addition, the patient acknowledged that the tattoo colours had faded since the laser treatment, making the butterfly less recognizable. The patient also recalled a prior history of hypertrophic scarring on stitches several years ago. The keloid was treated with two intralesional injections of triamcinolone acetonide with a marked reduction in size.

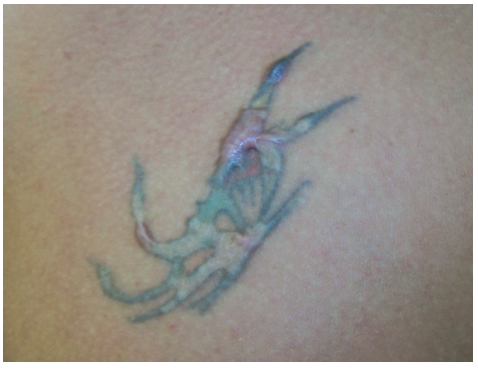

Fig. 1. Keloid restricted to the tattooed area.

DISCUSSION

Photoepilation by laser-assisted hair removal is a safe procedure provided the laser parameters are selected correctly according to patient characteristics such as skin type, anatomical location, or sun-exposed/tanned skin (1, 2). The principle of laser-assisted hair removal relies on the concept of selective photothermolysis: a selective thermal injury is restricted to a given target that absorbs light (or chromophore – here melanin in the hair shaft) of a specific wavelength within an amount of time that is equal to or less than the thermal relaxation time of the target. The energy generated is sufficient to heat and destroy the hair follicle, while preserving the surrounding tissue. Patients with Fitzpatrick skin types IV–VI are at higher risk of adverse events (e.g. dyspigmentation, blistering, crusting, scarring), which prompt the use of longer wavelengths. Exogenous tattoo pigments are chromophores that have specific wavelength peaks of absorption according to ink composition and subsequent visible colour. These properties have made laser a successful tool for tattoo removal (3, 4). With these in mind, a tattooed skin behaves like a skin type IV–VI when it comes to laser hair removal. As at least two chromophores are in competition for light absorption at the same location, the consequences can be disastrous. Wolf et al. (5) reported two cases of skin burn on tattoos after alexandrite (755 nm) laser-assisted hair removal. Similarly, in the case described here light was absorbed by the tattoo pigment, resulting in thermal burns. In addition, keloids developed afterwards. Our patient had a prior history of hypertrophic scar/keloid on stitches, indicating a higher risk of development of such scarring. Of note, keloids arising after tattooing are very rare (6). Moreover, the role of laser in the occurrence of the keloid can be raised, as cases of hypertrophic scars and keloids have been reported after pulsed dye laser therapy (7). Unfortunately, we could not contact the practitioner who performed the laser therapy. Therefore, the type of laser and the parameters used are unknown.

This case illustrates the risk of performing a laser-assisted hair removal on a tattoo site. Laser hair removal should be avoided on tattooed skin.

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