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Recurring mistakes, risks, and devices for tattoo removal by non-physicians

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Abstract

Surgery and laser are the gold standards for tattoo removal. Surgery is better used for small tattoos and may leave a scar, while laser removal is a long and painful procedure, with no guarantee of a complete efficacy. Both are expensive procedures. Consequently, some individuals try to find faster and cheaper procedures that can be performed. The market of internet is favorable ground to offer alternative tattoo removal methods and devices.

Introduction

The tattoo removal industry has known an expansion in last years as a consequence of the increased popularity of tattooing among the young in the Western Countries.

Currently, the most efficient treatment, insuring a complete pigment removal, is the surgical excision of the tattooed area [1]. The other gold standard technique remains laser removal using either ablative CO_2, Q-switched or picoseconds lasers [2]. However, the procedure is long, painful and the number of session is unpredictable and a complete removal is never guaranteed. Moreover, this procedure is expensive. Some individuals may therefore seek for faster and cheaper means of tattoo removal. Various devices and local treatments for tattoo removal are available.

Cream removing tattos

The nature of tattooing, the permanent localization of tattoo pigments in the dermis, makes impossible to believe that a cream applied on the skin can remove a tattoo without any side effect. Indeed, it would entail that any putative "active" component contained in such cream would be absorbed by the epidermis, reach the dermis and then either destroy or stimulate the local elimination of the pigments. A look on the Internet reveals the existence of an unregulated market of products that can be purchased on line. The ingredients are claimed to be natural and none of them do contain hydroquinone, trichloroacetic acid or "Chinese" ingredients. However, the composition of those creams reveals the presence of brightening skin agents such as kojic acid, alpha arbutin (a hydroquinone derivative) or Dimethyl methoxy Chromanyl Palmitate. Besides, some creams contained parabens, salicylic acid and other flower and plants extracts. Overall, there is to date no efficient cream for tattoo removal. By purchasing such products on internet, the risk for the patient is to lose money and time at best. At worse, an individual may develop contact eczema to one of the component of the cream. The effect is obtained because of depigmenting agents that give to the customer the impression that the tattoo is fading due to the local inhibition of melanocytes and melanin production. In the absence of real control of this market, tattooists and customers should know that there is to date no cream that can remove tattoos to avoid disappointment and unwarranted side effects [3].

Heat burns

The use of heat by heated metals such as iron, embers or simply a cigarette or a cigar is with no doubt one of the most easily accessible mean for tattoo removal. Removal is obtained by destruction of the epidermis and the tattooed dermis. However, fire is not a good treatment. Iron branding can be responsible for scarring if the generated heat goes too deep into the skin layers, while conversely a superficial burn will not be efficient for removal purpose. Surprisingly, some individuals have obtained some good results. However, the pain makes it impossible to the recipient to endure such procedure several times. Furthermore, besides scarring, burn scar exposes to a long term the risk of development of squamous cell carcinoma [4].

Electrocautery

Electrocautery has been used as a tattoo removal method during the XIXth century. However, it was associated with a risk of scarring.

An Italian device called 'electrodermograph' intended for tattooists has appeared recently on the market. According to the manufacturer's datasheet, this generator of high frequency current is indicated for both tattoo removal before a cover-up (e.g. a new tattoo over the previous old one) and to whiten the skin (scarification). Nevertheless, it is also clearly stated that the treated skin will remain "unavoidably whiter". The manufacturer recommends testing different frequencies on the tattoos before use. Due to the risks of obvious misuse (e.g. tattoo removal) but also those of scarring, and the unclear risks of transmission of blood borne diseases, we discourage the use of this device among tattooists [5].

Tricholoroacetic acid

Tricholoracetic acid (TCA) has been used as a genuine method of tattoo removal. Nowadays, it is not really performed because of the

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risks of scars. Chemical burns prompted to perform tangential excision and split skin grafting.

The Variot's method revisited

During the XIXth century, Gustave Variot published a method of tattoo removal. The "Variot's method" consisted in inducing an escharrotic necrosis of the epidermis and the dermis by puncturing the skin with needles, "tattooing" a solution of tannic acid and applying silver nitrate. Since Variot, different physicians have changed the chemical ingredients, while maintaining the same procedure. In the beginning of the 2000s, a new variant was published and commercialized. Its composition includes zinc oxide, magnesium oxide, calcium oxide, isopropanol, triethanolamine and benzoic acid. Skin puncture is performed in the tattooed area to treat, over which the removal paste has been applied. The paste is then re-applied over the tattoo and left in place for 6-8 days. A scab forms and peels off in 10-20 days. It has been claimed to have a great chemical affinity to most tattoo pigments by mobilizing tattoo pigments from the skin and blending well with them. Besides, it is recommended to be performed on a tattooed area not greater than 15-20 cm^2. Several cases of severe complications such as chemical burs, secondary infection and scarring, necrosis, hypopigmentations have been reported with this method. We discourage the use of this method for tattoo removal [6].

Laser removal by tattooists

The practice of tattoo removal with laser by non-physician has become an increasing problem in Europe. The use of a laser by an inexperienced layperson may lead to potential complications. The practice of laser removal by tattooists remains controversial among tattoo artists themselves. It is important to restrict its performance to the medical professionals only. However, current Q-Switched laser devices are rather expensive and "serious" companies may be reluctant to sell to laymen their devices. However, for the past years, cheaper models manufactured in China have been available on the Internet. Such highly competitive price, raises the question of their efficacy and safety. These lasers can be easily bought on the Internet. Some franchise companies attempt to make contact directly with tattoo artists to sell them laser devices. There is an urgent need of establishing among the European community a clear legislation on the practice of laser procedure by layperson [7,8].

Conclusion

To date, the best techniques for tattoo removal remain surgery and laser removal, when they are performed by experienced physicians. Tattooed individuals and tattooists should be discouraged to try other over the counter procedures because they are inefficient and sometimes at risks of cutaneous and systemic side effects.

References

1. Kluger N, Koljonen V, Blatière V (2012) Tattoos and dermatological, plastic and visceral surgery. *Ann Dermatol Venereol* 139: 369-374. [Crossref]

2. Bernstein EF (2006) Laser treatment of tattoos. *Clin Dermatol* 24: 43-55. [Crossref]

3. http://www.belle-nette.net/Creme-Anti-Tatouage.399+M52087573ab0.0.html

4. Variot G (1888) Nouveau procédé de destruction des tatouages. *Bulletins de la Sociétéd'anthropologie de Paris* 11: 480-483. [Crossref]

5. http://www.tattoosupplies.eu/en/elettrodermografo

6. Cheng W (2004) Chemical extraction technique for tattoo removal. *Br J Dermatol* 151: 1282-1283. [Crossref]

7. Wenzel S, Landthaler M, Baumler W (2009) Recurring mistakes in tattoo removal. A case series. *Dermatology* 218: 164-167. [Crossref]

8. Grenouille, Kluger N (2009) Le détatouage laser: un actemédical. *Tatouage magazine* 67: 74-77.