

Laser Improvement of Permanent-makeup Eyebrows: A Case Report

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Abstract

With the growing use of permanent cosmetics, dermatologists are increasingly seeing patients who want to fix or remove their treatments. Many permanent-cosmetics tattoos can be treated with laser. When selecting a laser, wavelength and pulse duration are important considerations. It is also important to inform the patient that permanent-cosmetics tattoo removal typically requires multiple treatments, that the tattoo may not completely resolve and that treatment may cause color alterations. This case demonstrates laser treatment of a black permanent-cosmetics eyebrow tattoo that ultimately resulted in a brownish color.



Figure 1



Figure 2

Case Report

A 31-year-old Caucasian female presented to the office stating she was unhappy with the appearance of her permanent-makeup eyebrows. She felt they were too black. Prior to presenting to our office she had returned to the permanent-makeup artist to have brown added to lighten them, but she felt they were still too dark and wanted them lightened further. We decided to treat her with a 1064-nm Q-switched Nd:YAG laser, a laser often used for tattoo removal. We treated the eyebrows for a total of three treatments, with treatments spaced at three-month intervals. Settings were: 1064-nm wavelength, 2-mm spot, 8 J/cm², 5 Hz, and 5-ns pulse. By the end of the third treatment, the patient felt she was 60% to 70% improved and was very happy with the results.

Discussion

Many permanent-eyebrow procedures are attempting to fill gaps or address thinning of the eyebrows. They can be done by tattoo artists or permanent-makeup artists and are primarily administered by two related techniques. One method currently used by permanent-makeup artists is a derivative of traditional Japanese tattooing. The procedure, called “dermatography,” was developed by Dutch dermatologist Eddy van der Velden and involves applying varying colors in a small number of administration periods. The apparatus used is the Van der Velden Derma-injector, which has a needle holder that moves up and down within a stainless-steel tube.⁴ Speed

of the needle varies between 500 rpm and 3500 rpm. The needles of choice are entomological needles, which are 36 nm long and 0.36 mm or 0.41 mm in diameter.⁴ Some permanent-makeup artists use an alternate procedure that entails using a tattoo pen to insert pigment drops into the superficial dermis.¹

The inks and pigments are considered “cosmetics and color additives” and are not regulated by the FDA. Some are “not approved for skin contact.”¹ The ink colors in permanent eyebrows are usually of a darker hue.⁴ One issue is fading of the dark brown tint to a color more similar to red. A chemical change in these inks may alter the compound from ferrous oxide (FeO) to ferric oxide (Fe₂O₃), which results in a color change to brownish-red.⁴

Various lasers may be employed to remove permanent makeup, including lasers with wavelengths between 500 nm and 570 nm, which are easily absorbed by red and pink colors.³ This 500-nm range works well for reds and pinks but may actually darken some pigments, including those often used in permanent-eyebrow procedures. The longer-wavelength (1064-nm) Q-Switched Nd:YAG laser has been demonstrated as more effective than the frequency-doubled Q-Switched Nd:YAG laser in lightening permanent eyebrows.³ The 1064-nm wavelength is both useful for removing darker hues and less absorbed by melanin when compared to its 532-nm counterpart, making

it ideal for darker permanent makeup and for patients with darker skin.²

Conclusion

When selecting a laser to use for permanent-makeup removal, it is important to consider the ink color and select the laser wavelength that will be most effective with that pigment. The patient needs to be well informed that the color could change. Since we are seeing an increase in permanent makeup and tattooing as a beauty trend, we as dermatologists should be prepared for patients seeking alterations or removal.

References

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