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GentleLASE® Treatment of Sun-Damaged Skin

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Editor's Note: Dr. Crane recently offered additional insight on using the GentleLASE to treat sun-damaged skin. Dr. Crane's comments are italicized in the copy below.

Introduction

"Sun-damaged skin" actually refers to a variety of pigmentary and textural changes in the skin. The term "photoaging" is often used to describe the process from which multiple dermatologic conditions develop from chronic exposure to solar UV, including solar lentigines, seborrheic keratoses, telangiectases, cherry angiomas, elastosis of the skin, and skin cancer. Despite numerous calls to use sun block and avoid direct sun exposure, and, to a certain degree, more compliant behavior from patients in this area, the effects of years of overexposure to the sun cannot be erased by simply avoiding the sun going forward.

The brown, patchy spots of skin—sun or age spots—and other benign pigmentary lesions as a result of sun overexposure are common dermatologic complaints. There are several treatment remedies for melanocytic hyperpigmentation, ranging from fade creams (usually containing hydroquinone in 2% to 4% concentration), and retinoids that lighten the epidermal lesion to facial peels, liquid nitrogen freezing, and laser therapy.

In particular, alexandrite lasers, long known for their hair removal capabilities, in part because of their high melanin absorption coefficient levels, are also excellent at treating a variety of pigmented lesions, including those resulting from excessive sun exposure.

This article reports on the use of the GentleLASE 755 nm alexandrite laser from Candela on treating photo-damaged skin.

Method

I treat solar melanocytic anomalies on the chest, neck, and face with the GentleLASE 755 nm alexandrite laser at 20 J/cm² with the 18 mm spot, 3 msec pulse duration, and no Dynamic Cooling Device™ (DCD™). No epidermal cooling is used, as it defeats the purpose of targeting the epidermal melanocytic lesion.

Generally, treatments are restricted to skin types I–III. For skin types I exhibiting very light pigmentation, I will modify my treatment parameters to 30 J/cm² using the GentleLASE 15 mm spot and 3 msec pulse duration, again turning off the laser's DCD spray.

The key to this treatment is titrating the laser energy into the skin. I accomplish this by varying the distance of the GentleLASE handpiece to the skin dependent upon the laser-tissue interaction observed, usually starting at 1–2 cm off of the skin. With this technique, the distance gauge of the GentleLASE handpiece is seldom in direct contact with the skin. The clinical endpoint I am attempting to achieve is a light "graying" of the lesion after the laser pulse. If the pigmented lesion immediately turns white and/or there is an audible "popping" sound, I pull the laser handpiece further away from the skin to de-focus the laser energy being delivered.

One could reasonably also reduce the fluence and keep the handpiece in constant contact with the skin—I just find my de-focusing approach much faster and that much more convenient as a laser recalibration is not required.

Topical anesthetics may be used but must be removed prior to the treatment. Treatments are typically repeated every three weeks for a total of three to four treatments.

with
DCD



Results

Epidermal lesions respond immediately and positively to GentleLASE 755 nm treatments. Typically, there is slight popping of the skin and slight white-to-gray discoloration immediately post-laser pulse. This is followed by slight erythema. Scabbing can occur with severe sun damaged skin, as in the case documented in this paper. In these instances, patients are instructed to keep the treatment area moist using polysporin® for two to three days following the laser treatment. The lesions will slough off naturally over time, with near-complete resolution typically occurring three to seven days after the procedure.

Additionally, some skin tightening/toning was observed throughout the treatment area. This symbiotic effect was especially noticeable in the cleavage and upper-chest areas of treatment.

I have never seen scarring as a result of this treatment protocol and I have performed over 1,000 such treatments on patients of skin types I–III.

Discussion

One of the most common complaints I hear from patients is dissatisfaction with their appearance from excessive sun exposure. While I'm sure the consistent, bronze coloration they achieved in their youth was at the time desirable, the reality is that the effects of photo-damaged skin increase with age, including an increased risk for skin cancer. What was once an attractive, consistent hue is now, more than likely, an accumulation of dermatologic concerns that few would consider cosmetically desirable.

While protection from the sun remains the best prevention from sun/age spots and related sun-damaged skin disorders

(I encourage patients to use sunscreen with an SPF–skin-protective factor–of at least 15 and containing zinc oxide and titanium dioxide for good UVA protection on sun exposed areas, to wear protective clothing, and, avoid tanning beds), there are treatments available for those already suffering from what we now refer to as “photoaging.”

I have developed a new treatment technique using my workhorse hair removal laser, the GentleLASE laser from Candela®, to treat photo-damaged skin. Because melanin is the targeted chromophore in both laser hair removal and the removal of pigmented lesions, it stands to reason that a laser as good as the GentleLASE at permanently reducing hair counts would also be beneficial in treating age spots, the GentleLASE, with its DCD cryogen spray, is actually the best laser at protecting the skin and minimizing epidermal melanin absorption during laser hair removal. Ironically, when the DCD is turned off, the laser becomes an extremely effective tool for treating a wide variety of melanocytic lesions.

The additional benefit of improving the texture/tone of the skin can probably be attributed to the collagen reformation capabilities of the 755 nm wavelength. The GentleLASE from Candela is also cleared to treat fine lines and wrinkles, and I often see improvements in skin elasticity even when using the GentleLASE for hair removal, its most common application.

While IPL's and q-switched lasers can also be used to address pigmented lesions, I prefer the GentleLASE for the additional treatment benefits realized using this device.

While my GentleLASE laser remains a very busy hair removal device in my office, I am actually deriving more revenue using my GentleLASE for non-hair removal procedures, including the treatment of pigmented lesions.

For those patients interested in having their sun-induced pigmentary lesions removed, the GentleLASE 755 nm laser from Candela provides a safe, effective, and convenient means of treatment.



Figure 1—Pretreatment



Figure 2—Post-treatment

