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Treatment of Solar Lentigines with GentleLASE® Long-Pulsed Alexandrite Laser

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Introduction

Solar lentigines, also known as age spots or liver spots, have long been targeted for removal. These hyperpigmented patches are sun-induced lesions that do not have a pre-malignant potential. Removal or destruction has strictly been a cosmetic problem. The face, the backs of the hands, the forearms, and the lower legs are most often involved.

Liquid nitrogen cryotherapy has been the standard therapy for years. Prolonged healing, scabbing, and the risk of hyperpigmentation or more likely hypopigmentation have somewhat limited the use of this modality. Topical retinoids, topical glycolic acid preparations, topical hydroquinone, topical mequinol, and combinations of these products have been used extensively. These products have met with some success in the lightening but seldom the total removal of solar lentigines. Microdermabrasion has very slightly improved these lesions after multiple treatments. Mild chemical peels using glycolic acid or salicylic acid have also shown minimal improvement.

Lasers and intense pulsed light treatment have moved to the forefront of lentigines treatment. The first "pigment laser" was the 510 nm pulsed dye pigment lesion laser. Although effective, this is seldom used today. A variety of intense pulsed light (IPL) non-laser-machines has been reported to be effective in treating some lentigines. These are somewhat time-consuming procedures that have moderate

clinical responses. The Q-switched lasers for pigment include the 532 nm frequency-doubled Nd:YAG laser and the Q-switched 755 nm alexandrite laser. Both of these are effective in removing pigment but scabbing, long healing times, and moderate risks for scarring limit their use.

A new approach to the removal of solar lentigines involves the use of the GentleLASE long-pulsed alexandrite laser.

Method

After signing an informed consent, the patient is treated with the GentleLASE laser. Any light-to-moderate brown spot is amenable to treatment (see Figure 1). The 8 mm round spot is used at a fluence of 25 J/cm² and with the Dynamic Cooling Device™ (DCD™) off. If the first pulse appears to have little response, the fluence may be increased by 5 J/cm². If there is too loud of a pop or the area looks gray, decrease the fluence by 5 J/cm². The darker the spot, the louder the pop will be during the treatment with the laser. The area is completely covered with minimal overlap. A single pass is used. There is no need for topical anesthetic at these fluences, even on the face.

After the treatment, the area is slightly pink but without bleeding or gray discoloration (see Figure 2).



Results

Almost every lesion treated resolves completely with a single treatment with the GentleLASE laser. Figure 3 demonstrates the excellent results without any residual discoloration, either hyper- or hypopigmentation.

As discussed above, there is an occasional need for a second treatment to remove some residual pigmentation.

Discussion

The safe and effective use of the GentleLASE laser for the removal of hair has been well established. The mechanism of action is that of selective photothermolysis preferentially damaging the pigmentation within the hair bulb and shaft, while using the DCD to protect the epidermis. This protection of the epidermis has been essential in order to deliver enough energy to the deeper levels of the hair structure.

In this paper, the concept of preferential damage to the epidermal layer by turning off the protective DCD has been explored. The idea is that when treating superficial solar lentigines, it is helpful to deliver the energy to the most superficial level.

In this manner, the solar lentigo is destroyed preferentially over any deeper structure. The hair and any deeper vessels that might possibly be affected do not receive the energy that has been absorbed in the superficial layer.



Figure 1—Pretreatment

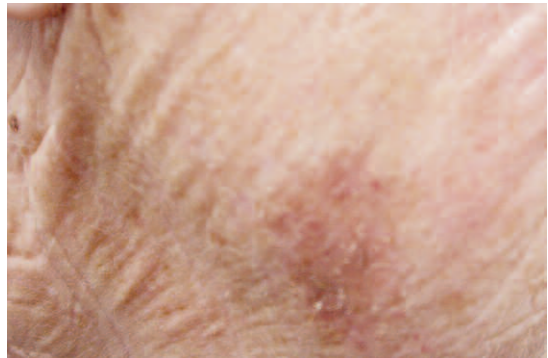


Figure 2—Immediate post-treatment

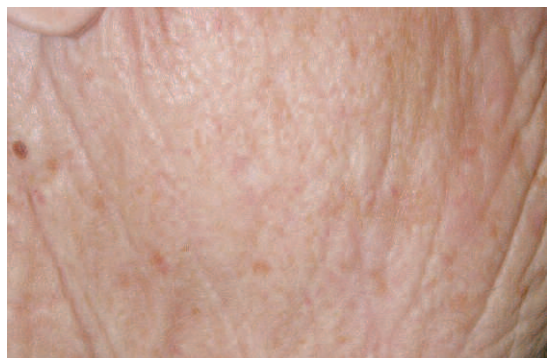


Figure 3—Post-treatment

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