CLINICAL BULLETIN

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Skin Tightening Using the GentleYAG® Laser at Low Fluence and Multiple Passes

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Introduction

Multiple published studies and white papers now exist pointing to the safety and efficacy of using 1064 nm energy to treat skin laxity. In fact, many of those studies indicate the additional advantages of using long wavelength laser energy versus radio frequency (RF) or infrared heating (IR) to tighten the skin, including treatment speed, safety and relative patient comfort.

However, all of these recognized skin-tightening technologies—RF, IR and laser—are constantly revising and updating their parameters in an effort to increase treatment speed, avoid side-effects, reduce patient discomfort and improve treatment efficacy. The theory behind tissue tightening is basically the same for all of these devices—collagen contracts as a result of heat deposition. Regardless of the heat source, bulk heating with sufficient depth has been shown to improve the appearance of the skin in terms of wrinkle reduction and skin tightening.

The challenge, as with any aesthetic procedure, is how to accomplish this wrinkle reduction/skin tightening in the fastest, safest and most efficacious means possible.

This paper evaluates the performance of the GentleYAG 1064 nm laser from Candela to tighten the skin using a low fluence, short pulse duration, high repetition rate and multiple pass technique.

Method

The subject of this study was a female patient. She was treated three times using a 1064 nm laser at the following treatment parameters: 12 J/cm^2, 0.25 ms pulse duration, 8 mm spot size and 7 Hz refresh rate. Three to four passes, in a painting fashion, over each area of the face and neck were performed. The hand-piece was kept in constant motion at a distance of about 1–2 inches from the skin. No Dynamic Cooling Device™ (DCD™) epidermal cooling was provided, and no contact with the skin was made. Topical anesthesia was also not employed; however, a cool compress was used for comfort as needed. The clinical endpoints to the treatment were that the patient perceived deep heat, visible redness and warmth of the skin to touch. Care must be given not to stay in one spot for too long, to avoid painful levels of heat generation. Following the treatment, sunblock was applied. Treatments were performed four weeks apart.

Results

The patient tolerated the procedure very well, describing it as “comfortable, pain-free and relaxing.” The attached photography demonstrates the safety and efficacy of the laser treatments. Visual improvements were noted after each treatment, and the treatments appeared to be additive in benefit. The “after” pictures were taken three months’ post final treatment. Notice the dramatic decrease in the depth of the patient’s nasal labial folds, due to the tightening and lifting effect of the laser. Improvements were also noted in the skin’s smoothness and pore size.

with DCD

GentleYAG®

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Discussion

Obviously, the first advantage of using the laser parameters indicated in this paper is the elimination of patient discomfort. This is consistently pointed out not only in other papers using 1064 nm laser energy at higher fluences and longer pulse durations, but also with any other technology used to tighten the skin, including RF and IR heating.

Patients describe the GentleYAG low-fluence "painting technique" as almost comforting and spa-like. The reasoning is simple enough. At these treatment parameters, GentleYAG heat is delivered gradually, slowly heating the patient's skin for improved patient comfort, but still at 1064 nm depths for efficacy. Remember, the goal of the treatment is sufficient bulk heating at adequate depths to contract collagen. How quickly one heats up the collagen does not appear to be a critical factor in determining treatment success.

While speed is somewhat compromised using this technique, as more passes are required to heat the collagen to the point of contraction, the GentleYAG skin-tightening technique is nevertheless relatively quick and overall easy to administer. Additionally, the speed of the GentleYAG treatment is minimized since one does not have to stop often to allow the patient to recover, as one would with the more painful approaches to skin tightening.

Certainly, avoiding the narcotics, topical anesthetics and other pain—avoidance measures often used with other approaches is another advantage of this treatment technique.

As with all skin-tightening approaches, treatment results will vary from patient to patient. Since the mechanism of action is still not well understood, predicting outcomes is difficult. Results will range from mild to moderate in most cases. In general, however, depositing sufficient energy is the key to success. This approach allows us to do just that, avoiding the premature ending of a treatment due to patient pain intolerance.

Although improvement was noted after one treatment, I recommend a series of three treatments to begin with; this should allow for visible clinical improvement. Continuation of therapy after three treatments is based on the response to treatment and overall improvement. Treatments appear to be additive, so patients can elect to continue treatments as desired for more effect or for maintenance.

Perhaps the biggest advantage of the GentleYAG laser is its treatment versatility. At Bay Point, we also use our GentleYAG to remove unwanted hair on all skin types as well as to remove leg and facial veins. I have been approached by many other companies offering single-treatment devices or upgraded handpieces for skin tightening. Why would anyone invest in another piece of equipment or an additional handpiece when the GentleYAG has skin-tightening treatment capabilities inherent in its standard product offering?

The GentleYAG is a workhorse laser for us at Bay Point Family Care & Laser Skin Clinic, and skin tightening is just one of the many optimal applications of this amazing wavelength and this device.

Figure 1. **Before treatment.**

Figure 2. **Three months' post final treatment.**

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