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Skin Tightening Using the GentleYAG® Laser

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Introduction

Nonablative skin tightening lasers span the electromagnetic spectrum from 532 nm to 1450 nm. Relatively long known for its hair removal and vascular treatment capabilities, the Nd:YAG laser at 1064 nm would seem a theoretical certainty to deliver some level of cosmetic rejuvenating effect, while still providing a patient with the main advantage of nonablative treatments—little-to-no downtime.

This paper reports on the treatment safety and efficacy using a 1064 nm laser (the GentleYAG from Candela) to treat for skin tightening in terms of wrinkle reduction.

Method

The subject of this study was a 64-year-old female with Fitzpatrick skin type III. She was treated using a variable-pulsed, Nd:YAG laser at the following treatment parameters—10 mm spot size, 50 J/cm² fluence (40 J/cm² on the forehead only), 40/20 Dynamic Cooling Device™ (DCD™), and a 50 ms pulse duration. Treatments were completed quickly using a 2 Hz repetition rate. Pulses were delivered full face in an “Olympic symbol” pattern with no overlap. This represents a single treatment with three overlapping passes and approximately six months (4/15/2004 to 10/8/2004) follow-up (left cheek).

Results

The pretreatment and post-treatment pictures show a remarkable improvement in overall wrinkle reduction. Patient discomfort required that the fluence be reduced on the forehead (applicable to all thin-skin areas overlying bone), yet with no noticeable reduction in efficacy.

Discussion

The 1064 nm laser is an excellent wavelength to deliver a thermal stimulus within the dermis, and thus initiate new collagen formation, both because of the depth of penetration of the 1064 nm wavelength itself and the low melanin absorption coefficient at 1064 nm. Because epidermal melanin absorbs the 1064 nm energy so poorly, the potential for treatment complications at higher fluences is minimized.

The GentleYAG's ability to treat skin tightening is also due in part to its patented epidermal cooling system, the DCD. Relatively high fluences can be delivered using the GentleYAG because of consistent and reproducible cryogen spray protection provided with each and every laser pulse.

Treatment speed is also enhanced because of this form of convection cooling protection, large spot size, and rapid 2.0 repetition rate.



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While no one laser can “do it all,” it has been suggested that a 1064 nm Nd:YAG laser comes pretty close. Because of the GentleYAG’s high-peak power specifications, the GentleYAG is extremely versatile for hair- and leg-vein removal treatments as well as for its ability to deliver skin tightening improvement.

While lasers of various wavelengths and other heat-delivering technologies have been marketed specifically for wrinkle reduction, the versatility of the GentleYAG, including its efficacy for skin tightening, was to me an expected result from my long experience with this wavelength. The difference is that the new high-powered GentleYAG delivers fast performance, and versatility for a wide variety of applications, now including skin tightening and wrinkle reduction.

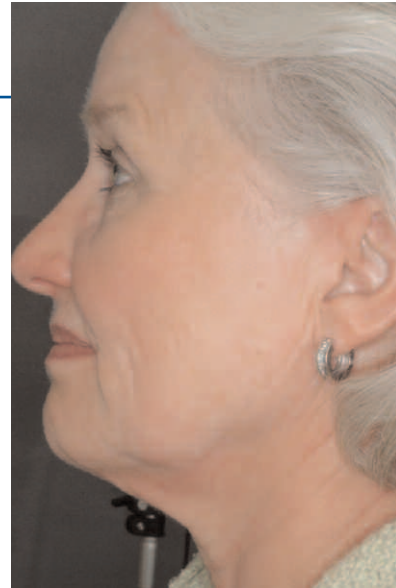


Figure 1: Pretreatment



Figure 2: Post-treatment

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Treatment parameters are subject to change—please consult your sales representative, clinical consultant or visit www.mycandela.com to obtain current information regarding the use of your Candela device.

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