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A 1,444 nm Nd:YAG lipolysis laser is being used for laser-assisted facial contouring in a multistep procedure that includes fat removal and placement of the laser tip in the subdermis to cause soft-tissue coagulation.



# Refining facial features

*Advancements in laser lipolysis offer new paradigm  
for rejuvenation of both jawline, midface*

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*A* 1,444 nm Nd:YAG lipolysis laser (AccuSculpt, Lutronic) represents a safe and effective treatment modality known as laser-assisted facial contouring (LAFC), said J. David Holcomb, M.D., at the 30th annual American Society for Laser Medicine and Surgery conference.

Dr. Holcomb, a facial plastic and cosmetic laser surgeon in private practice in Sarasota, Fla., presented the first clinical results from LAFC with the 1,444 nm Nd:YAG for rejuvenating the mid- and



Dr. Holcomb

lower face. Eligible patients were either younger adults (early 20s and older) with a round face from accumulated fat in the mid- or lower regions, or older adults with descended fat from facial aging that resulted in melolabial fold and/or jowl ptosis.

According to Dr. Holcomb, there was an initial learning curve, and the treatment protocol was

## ◆ Facial features *continued*

adjusted after the first six months based on findings from simultaneously performed laboratory and clinical studies in an effort to minimize prolonged inflammatory edema, which occurred in a few patients.

include the high selectivity of the 1,444 nm wavelength for both fat and water, as both of these chromophores have an absorption peak in the mid-1,400 range. In addition, the laser features a short pulse duration (less than 100 microseconds) and high peak power, so there is rapid tissue response time and excellent thermal confinement.



A 52-year-old female before (left) and eight months after laser-assisted facial contouring of jawline, with 2.0 cc removed from each jawline for correction of jowling and restoration of a youthful jawline.

(Photos credit: J. David Holcomb, M.D.)

However, considering a consecutive series of 20 patients representing those who were most recently treated and with sufficient outcome data available for analysis, the treatment was well-tolerated. It was associated with minimal post-treatment bruising and swelling, and resulted, on average, in a 50 percent improvement in the midface and 75 percent improvement in the jawline (based on quartile grading of standardized pre- and post-treatment photographs by independent physicians).

"L AFC using this particular wavelength holds promise for creating a new paradigm for facial sculpting and rejuvenation. The treatment allows for selective tissue removal to afford greater precision in three-dimensional facial contouring, while simultaneously enabling substantial skin tightening via a novel, direct subdermal approach to energy delivery," Dr. Holcomb says.

Dr. Holcomb says the 1,444 nm laser offers several characteristics that make it attractive for use in facial contouring and sculpting. These

**CURRENT PROTOCOL** The current protocol for L AFC with the 1,444 nm laser consists of five steps, beginning with a field block and infiltration of small volumes of anesthetic solution (2 cc in the midface and 3 cc in the jawline) using a 1.6 mm multiport infiltration cannula.

"Only small amounts of anesthetic solution are delivered, since introducing too much water might negate the fat absorption advantage of this wavelength," Dr. Holcomb says.

The next step is laser-induced lipolysis using a bare fiber introduced 2 mm to 4 mm below the skin surface. After the fat liquefaction is completed, about 3 cc of room-temperature normal saline is injected to flush the tissue.

"The normal saline provides both a cooling effect and optimizes the results achieved with the following microlipoaspiration step," Dr. Holcomb says.

Microlipoaspiration is performed using a 19 g cannula with three ports that are offset to minimize any possibility of tissue grooving. Typically, total volumes removed range from 0.5 cc to 3 cc in the midface and 1 cc to 4 cc in the lower face and jawline, although larger volumes are aspirated in select patients with heavier features.

Finally, deep-dermal soft-tissue coagulation is performed by angling the fiber optic tip so that it is engaged in the subdermis and then pulled along in a linear, fanlike motion.

"This step is a unique, direct approach to targeting dermal collagen because it does not rely on passive heat transfer through the fat into the dermis," Dr. Holcomb says.

"Immediately after this step is completed, there is noticeable decrease in tissue distensibility."

**TREATMENT PARAMETERS** Over a period of about one year, Dr. Holcomb and S-J Baek, M.D., plastic surgeon, Seoul, South Korea, accumulated data on the treatment of 276 patients with a mean age of 52 (range, 21 to 81), including data on more than 300 midface treatment sites, about 270 jowl treatments and about 160 jawline treatments (representing lower facial fullness in younger patients without any jowl formation).

Laser treatment parameters used represent a wide range with respect to power (2.0 W to 5.4 W), pulse energy (100 mJ to 200 mJ) and total energy (100 J to 600 J). Initially, treatments were performed using conservative settings, and upward adjustments were made over time.

In addition to some swelling and ecchymosis post-treatment, patients may experience some temporary hypoesthesia of the skin overlying the treatment area, along with tenderness and mild induration. There have been a few complications, including infection at one treatment site along with minor thermal injury, overcorrection and prolonged induration, which occurred at only a few treatment sites.

"Risk of the three latter complications has all been reduced with the currently used protocol," Dr. Holcomb says. ◆

### DISCLOSURES:

Dr. Holcomb holds equity in Lutronic and receives equipment discounts, honoraria and reimbursement for travel expenses. Dr. Baek reports no relevant financial interests.