

EUFOTON MEDICAL LASER LIGHTLIFT

MEDICAL UPDATE

LIGHTLIFT
Advanced
facial
contouring
technique.



Laser assisted facial contouring : real indications and pitfalls

Prof. Daniel Cassuto

Interview by Francesco Marangoni of Eufoton Press

Introduction

For decades laser procedures have been aimed at improving skin quality. In the last decade different energy sources (lasers, pulsed lights and RF) have been used transcutaneously in order to “tighten” the skin noninvasively and contrast tissue sagging due to facial aging. In parallel morphodynamic analyses of facial aging has pointed out that volume loss (bone, fat and skin) is probably the

main change involved. Excessive attention to further reducing of facial volume by “shrinking” procedures has probably been paid by most operators often resulting in unnatural results. This is often due to poor understanding of the aging process and lack of consideration of the total facial balance combined with an excess of attention of localized aging signs with no regard to their causes. Over the last twenty years the use of optic laser fibers and RF probes has allowed energy delivery direct to subcutaneous

tissues and internal organs. These applications have been pioneered in surgery (ENT, laparoscopic and venous) and later introduced in body contouring. Laserlipolysis was developed in the ninety’s and it’s now widely diffused. Different infrared lasers have been employed with diodes and YAG’s wavelengths progressively getting further from the visible range. This expanding offer has broadened the indications and areas of use, especially in the cervico-facial area. However, some of these interventions

crash the principles of volumetry and morphodynamics by causing further volume loss in areas where volume should be preserved or restored.

The aim of this article is to review which of the indications respect morphodynamic principle.

Indications: treatment areas

Even though all facial fat compartments could technically be treated it is important to point out that facial contouring should counteract the negative vectors imposed by facial aging. Therefore we recommend that only areas of downward displaced fat should be reduced. Generally speaking the reduction should not be the only purpose of our treatment (otherwise a simple liposuction would suffice). The added value of laserlipolysis is the heat delivered to the skin and subsequent new collagen formation. This will assist the formerly sagging skin in readhering to the underlying fascia or periosteum. Such areas are the submental region and the jowls. In all other areas the procedure will cause a temporary improvement because of the volume enhancement by the inevitable oedema but stable long term results can not be achieved theoretically and practically without permanent volume enhancement. The lower lids are a third area of potential benefit of the procedure. In this case the utility of fat preservation has already been established for surgical procedures. The past tendencies of excising the lower lid fat compartment has been replaced by more conservative approach that aims to reposition the bulging fat. Thanks to the principle of laserlipolysis the highly selective absorption by fat and water uses the fat compartment to deliver heat to the overlying orbital septum, orbicularis muscle and skin. In the past this procedure has been attempted with a steel cannula introducing a 600 micron bare fiber connected to a Nd-Yag 1064 nm. This technique has been discouraged in the literature due its very high risk profile, that included severe scarring and distortions of the lower lid structure. We believe that the reason for this was the thermal

damage to the surrounding tissues by the overheated steel cannula. In fact metal is much better heat conductor than human tissues and water. The heat generated by the laser-water “chromophore” interaction is preferentially conducted by the metal cannula that can be easily become overheated. Since the procedure is performed in a closed way the tip of the cannula can not be seen nor palpated nor can the sign of the tissue damage be seen in time to be prevented. The use of a thinner bare fiber (200 micron) can completely avoid any serious side effects in the hands of experienced lids surgeons, especially when connected to a **1470 nm diode laser**. This allows a precise pin point energy delivery in a much more uniform way avoiding overheating of the tissues and achieving an uniform delivery of the heat to the fat compartment. The mechanical and thermal trauma caused by metallic cannula is eliminated and the result is

much more predictable thanks to the visible retraction of the lower lid wall in real time.

Which wavelength do you recommend?

Different N.I.R. laser lipolysis systems have been presented in the last years with various degrees of efficacy and speed for the removal of comparable amounts of fat. A diode laser has recently been introduced emitting a 1470 nm beam, with a higher absorption by fat and water than other nearer infrared wavelengths used until now. Being a diode laser its pulse profile can be adjusted to meet all possible needs, in more versatile way than a flash lamp pumped laser. Furthermore this wavelength is successfully used for fractional non ablative resurfacing (see paragraph “combined treatments”)



Before

Immediately After

2 h after

3 Months later

Courtesy: D. Cassuto M.D.

Which settings do you use?

Settings must obviously be adjusted for the treated area and tailored for the single patients. Theoretically the ideal setting depends very much on the hand to eye coordination of the operator. Since the beam is guided manually the pulses repetition rate (or the intensity of the CW emission) can not be imposed with preset parameters exactly as with any other surgical instrument (electrocautery, scalpel, etc.) Typical power setting for the experienced users were 2 watts for the lower lids, 4 watts for the jowls and 6 watts for the submental area, with pulse durations of 50 to 100 msec. The off time (that determines pulse repetition rate can easily be set as long as the On time) CW operations should be reserved to the most experienced users. The energy setting were very variable according to the fat volume and shape ranged between a minimum of less than 100 Joules (lower lids) till 1200 Joules for submental area. The clinical endpoint was determined by different factors as tactile surface skin warmth, lack of resistance to the fiber tip movement, visual and palpable achievement of desired shape and ease of advancement in the subcutaneous tissue. Skin temperature never exceeded 40°C (measured by external infrared thermometer application).



Prof. Daniel Cassuto

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Which anaesthesia do you use?

Local anesthesia should be used in a very conservative way in order to control pain alone. Over infiltration of tissues as in tumescent technique should be discouraged since it would alter the content of chromophores (water) in tissues and diminish treatment efficacy. Avoiding tissue overinfiltration with fluids preserves the original shape and anatomy of the treatment area. This is a “must” when contouring and remodelling such fine areas. Since this wavelength is highly haemostatic due to its coagulation properties it is unnecessary to infiltrate with adrenaline. Since its treatment area typically takes no more than 10 minutes there is no need to prolong the effect of the anesthesia with adrenaline.

What are the complications?

Only operator dependent.

Is it painful?

If local anesthesia is properly administered pain is totally absent

How many sessions are required?

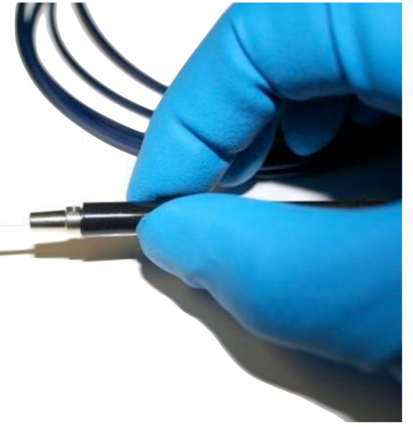
Normally one only session is required; it is advised that the inexperienced operators, when in doubt, tend to undertreat than to overtreat with a possible touch up.

How long is the post operative period?

Typically no after cure is needed. It is advised not to close the entry holes in order to allow for drainage of eventual fluids collection. Compressive garments or bandages are advised for a few days in cases of particularly lax tissues. Patients should elevate the head of their beds.

What about the result duration?

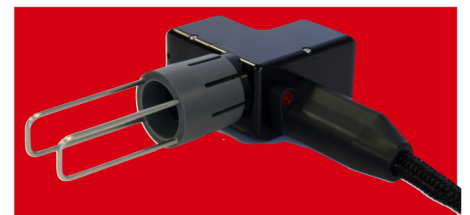
The real result is seen after 6 months after treatment as the edema is



finished and the tissue remodeling took place. The remodelling continues up to one year while the stability of the result depends on the biology of the treated subject (age and lifestyle).

Can this treatment be combined with other procedures?

Sun damaged skins can be resurfaced using the fractional scanner applicable to the same device. This wavelength is capable of achieving an ablative or not ablative effect depending on the setting.



Fractional Handpiece

the fractional scanner spreads the beam over wider areas on the skin in a non sequential but random path. With this methodology each spot is sufficiently distanced from the previous and the thermal heating is limited and consequently not painful.

The result is an extremely safe and painless operation with a limited (few hours) ierithema.



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