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Endolaser soft lift: from theory to practice

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ABSTRACT

Patients' desire for beauty and their fear of undergoing surgery is something to deal with for all the specialists who work in this field. For this reason lasers, nowadays, seem to represent the future of cosmetic surgery in body contouring. Photothermal action on subdermal tissues, due to its effect on skin tightening and retraction, allows similar outcomes compared to classic procedures (e.g. thread lift), with greater comfort for the patient, less pain and fewer scars, fewer complications and shorter recovery time. In this study we used a 1470 nm diode laser, which is a nonablative laser that goes deep into the tissues due to its high affinity for fat and water.

Keywords

Endolaser, laserlift, diode laser

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Introduction

Despite the widespread use of cosmetic surgery and the increasing demand for lifting and body remodeling procedures, nowadays a considerable number of people are afraid to undergo classic surgery. For this reason new methods, less invasive and less traumatic, have been studied and proposed; in this regard, very encouraging results have been obtained with the use of lasers which seems to represent the future of cosmetic surgery in body contouring. Endolaser soft lift gives a photothermal injury on subdermal tissues; due to its effect on skin tightening and retraction, this new procedure allows similar outcomes compared to classic thread lift, with greater comfort for the patient, less pain and fewer scars, fewer complications and shorter recovery time. To perform this procedure we use a 1470 nm diode laser, which is a nonablative laser able to penetrate deeply into tissues due to its high affinity for fat and water.

Materials and Methods

In our study Endolift procedures were performed with a Diode laser, emitting at 1470 nm (Eufoton Lasemar 1500, Via Flavia 23/1, 34148 Trieste, Italy). The light is delivered to the skin by an optic fibre of 100, 200, 300, 400, 600 and 1000 nm. The laser is equipped with a fractional scanner which can be used with both 200 and 400 micron power cables. Using a cannula, inserted through a tab incision into the skin, reaching the junction between the deep dermis and superficial layer of subdermic fat, the surgeon can obtain several vectors of traction. A key point in this procedure is the right position of the cannula during the procedure. We checked it by ultrasonographic examination while performing the treatment, and 3 weeks later the same examination was performed to demonstrate the fibrosis obtained by laser and cannula¹. The tightening continues, according to the wound healing process, for the next three months approximately, with better results month after month.

To obtain the right photothermal injury the cannula should go forward and backward 3 times in each tunnel, emitting laser light while moving back. The tunnels must be oriented according to antigravitational lines and their numbers could vary from a minimum of 3 to a maximum of 10 depending on the treated area. In small areas (periumbilical area or the medial aspect of thigh and knees) or where the skin is very thin (cheek and neck), the endolaser softlift can be performed using a free fibre. To obtain the best result the procedure must be repeated three times at 4 or 5 month intervals. (Fig. 1-2)

The treatment can be performed under local anesthesia; there is no pain after treatment despite a burning sensation for at least 4-5 hours, which can be controlled by oral painkillers. The patient will have a compressive dressing to keep in place 24 hours a day for the first 4 days post-op, and only during the night for 4 more days. Edema and ecchymosis can occur in treated areas; both will resolve spontaneously. Antibiotic therapy is suggested. Results are visible three or four months after the last treatment, but to reach the best result we need to wait at least 8 months, due to the time that subcutaneous scars need to reshape the treated area.

Results

Good results and great patient satisfaction were obtained at 6 months follow-up. Naturally endolift is not a substitute for a major surgical procedure like traditional lifting, but it is a good solution for those patients who refuse traditional surgery.



Figures 1a-2a - pre-operative picture, submental region
Figures 1b-2b - 6 months follow up after 2 pass endolift, fibre 400 micron 4 W pm

Discussion

Out of the many different kinds of lifting described in the literature (subcutaneous face lift, deep subcutaneous lift, subcutaneous face lift with suture, manipulation of superficial fat and SMAS, subcutaneous face lift with SMASectomy, the Skoog procedure, subperiosteal approach and so on²), thread lift surely represents a less invasive approach that consists

of lifting sagging skin using surgical sutures, with small skin incisions^{2,3,4}. Side effects and complications in this procedure are ecchymosis, erythema, hematoma, swelling, discomfort, thread exposure and asymmetries⁴. The outcomes with an endolaser soft lift procedure using a diode laser are comparable in cosmetic outcomes to a standard thread lift (mini lifting) but imply considerable minor risk and discomfort for the patient^{4,5,6,7,8}. The combination of the mechanical action of the cannula used to obtain several tunnels through the subdermal tissues³ and the controlled photothermal injury obtained with the laser which gives us skin tightening, retraction and then lifting⁴ is the key point of this procedure. The 1470 nm wavelength interacts mostly with fat and water; the richer a tissue is in water and fat, the better will be the laser transmission, and the lower its dispersion. Moreover laser action preserves vessels' interstice; this result in less ecchymosis and hematoma in comparison with surgical procedures. Within the subdermal adipose tissue, photothermal injury induces an increase in collagen production resulting in greater skin elasticity and tightening. The amount of thick septae in the superficial fat layer seems to predict the degree of skin retraction⁴. The best indication for this technique is a medium degree of skin excess in the same areas that could be treated with a standard thread lift (face and neck, arms, abdomen and legs). To obtain the best results in skin tightening we can also combine endo-laser soft lift with fractional non-ablative skin rejuvenation. Results are visible three or four months after the last treatment, reaching a peak in the next six months³.

Conclusion

After this study we believe that with endo-laser soft lift we can achieve similar cosmetic outcomes compared to classic thread lift with minor discomfort, pain and scarring. However, more studies must be done, to be sure that this technique is really safe and effective.

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