

RADIO frequency

Pilot Evaluation of Radio-Frequency Assisted Liposuction (RFALTM)

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ABSTRACT: This pilot study was conducted to evaluate the thermal effect and immediate response of human adipose tissue to RF energy applied during minimally invasive liposuction. The preliminary investigation showed efficiency of RF energy in creating the desired thermal effect, specifically effective pre-aspiration thermal coagulation of adipose and vascular tissue with uniform heating of the skin during a liposuction procedure.

INTRODUCTION

Recently, LAL (Laser assisted lipolysis), specifically Smartlipo™ has received a lot of media attention and gained strong physician popularity in cosmetic surgery. The main reported limitation of the LAL is relatively long treatment time (5) and focal burns. In this current report, we summarize our preliminary data on the use of RF energy for simultaneous lipolysis, vascular coagulation and skin heating. The underlying concept of the treatment is based upon accurate, monitored and controlled pre-aspiration thermal destruction and coagulation of the adipose and vascular tissue with sub-necrotic heating of the dermis using RF energy.

MATERIALS AND METHODS

The RFALTM procedure was performed on 4 patients during the BodyTite™ system (Invasix Ltd.) The internal electrode was inserted into the adipose tissue at the desired depth.

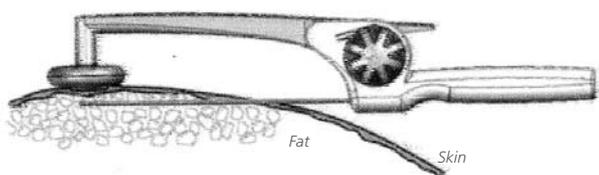


Figure 1 Bipolar RF hand piece inserted into the body.

CONCLUSION

In this study we witnessed some significant advantages using RFAL technology including its ability to heat uniformly both small and larger thermal areas. RFAL demonstrated a very rapid adipose heating speed with excellent uniformity. Our early clinical experience suggests significant skin contraction, but more quantitative and objective measurements of the effect of tissue heating on skin tightening and the healing process will be reported in further investigations. Skin contraction aside, we believe that a more uniform thermal adipose tissue and blood vessel coagulation allows for a less traumatic fat aspiration with less bleeding and less post operative bruising, edema and pain. The RFAL technology demonstrated a tremendous ability to heat skin and sub-dermal fat to the desired temperature and then, with a feedback control loop, maintain that temperature for prolonged periods of time. It is both the absolute temperature and the duration of exposure that will determine skin contraction after heating based liposuction procedures.

We believe that the safe, affective and rapid RF thermal component incorporated in RFALTM, minimally invasive body contour procedures represents a significant advance in less morbid liposuction procedures and affords optimal skin contraction for those patients with questionable skin laxity.

1. Goldman A. Submental Nd:YAG Laser-assisted Liposuction. *Lasers in Surg and Medicine*. 38:181, 2006.
2. Ichikawa, K., et al. Histological Evaluation of Pulsed Nd:YAG Laser for Lipolysis. *Lasers in Surg and Medicine*. 36:43, 2005.
3. Zulmira, A, Badin D. Laser Lipolysis: Flaccidity under control. *Aesthetic Plast Surg* 6:335, 2002.
4. Prado A, Andrades P, Danilla S, Leniz P, Castillo P, Geate F. A prospective, randomized, double-blind, controlled clinical trial comparing laser-assisted lipoplasty with suction-assisted lipoplasty. *Plast Reconstr Surg*. 2006 Sep 15;118(4):1032-45.
5. Laser assisted lipolysis evolves Body Contouring Arena, By Bob Kronemyer, *Aesthetic Guide Primary Care Edition*, Volume 4, number 2, p.61.