Endermologie® and Endermologie®-assisted Lipoplasty Update

In the early 1970s, Louis Paul Guitay, a French engineer, was receiving physiotherapy to soften scar contractures after a car accident. To standardize and facilitate the work of the therapist, he developed a mechanical device that powered a computer-driven, hand-held massaging head that delivered intermittent suction and rolling to the area being treated, as well as to the subjacent soft tissues. Thus Endermologie® (LPG Systems, Valence, France) was invented.

Although the equipment was initially used to treat burn skin contractures, it was observed that it had unexpectedly produced a noticeable improvement in the appearance of cellulite. Subsequently, over the past 10 years, the use of Endermologie® for aesthetic purposes has spread rapidly, with more than 4000 machines sold in France alone. The device has been available in the United States since early 1996, and approximately 1000 machines are now in use here.

Our experience with Endermologie® dates back to December 1996. When used as a noninvasive method, an initial series of 14 treatments is administered by a technician who has received at least 2 days of training from representatives of the company and is certified accordingly. Patients are encouraged in general terms to follow a healthy diet and lifestyle, but no specific dietary restrictions and exercise program are enforced. Results are evaluated by standardized photography and measurements. Patients may continue with treatment, go on the maintenance schedule, or discontinue treatment. We are aware of only one study published in the peer-reviewed plastic surgery literature[1] that has reported on the use of Endermologie® as a treatment for cellulite and as a method—used by itself—for noninvasive body sculpting. We have not been actively seeking patients for this use of Endermologie®, and therefore to date only 27 patients have received a full course of treatment. On the basis of preoperative and postoperative photographs and circumferential body measurements, we have seen a demonstrable, although perhaps not dramatic, difference in approximately 75% of our patients (Figure 1). Almost all of the patients have been pleased enough, however, to continue with additional treatments.

Our personal interest in Endermologie® has been focused on combining it during surgery, and in some patients after surgery, with lipoplasty (i.e., Endermologie®-assisted lipoplasty [EAL]). The rationale behind this approach has been detailed elsewhere.[2] The technique involves applying Endermologie® to a body region just suctioned while another area is being infused. The operating time therefore is not prolonged. A palpable difference in the subcutaneous fat can be appreciated because

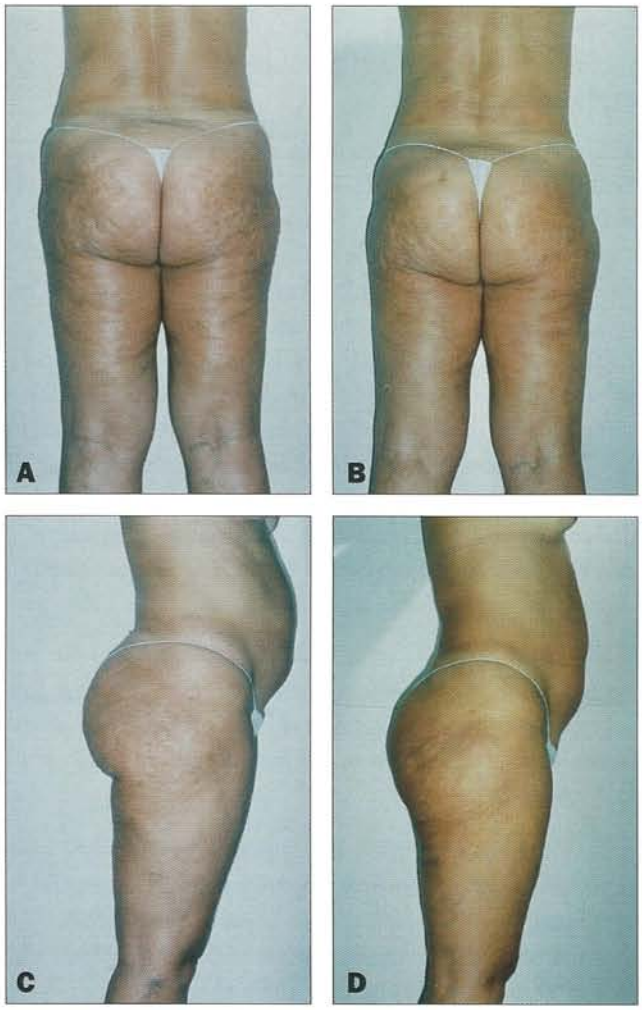

Figure 1. *A 48-year-old patient.* **A** *and* **C,** *Before treatment.* **B** *and* **D,** *After 11 Endermologie® (without lipoplasty) sessions. The patient's weight remained stable at 179 pounds. Abdominal girth was reduced by 6 inches, and the circumference of each thigh was reduced by 2 inches.*

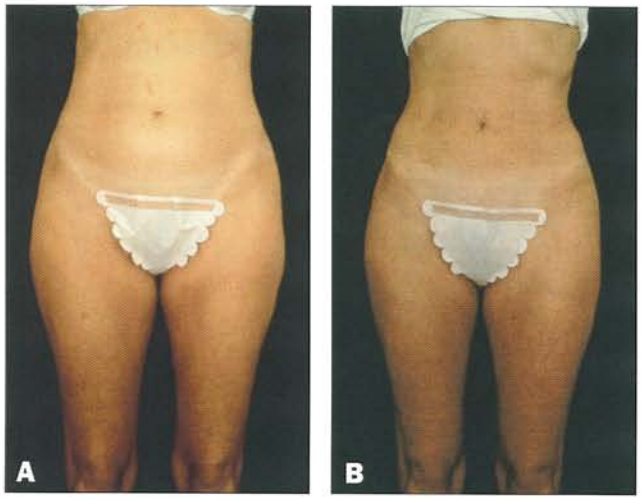

Figure 2. *A 51-year-old patient.* **A,** *Preoperative view.* **B,** *Postoperative view, 3 days after EAL on her abdomen.*

it becomes more even and pliable after the application of Endermologie®.

Recently, we added to our intraoperative regimen of Endermologie® its application immediately after the infusion of wetting solutions. We are routinely using the "super wet technique,"[3] infusing approximately 1 ml of wetting solution for each 1 ml of estimated aspirate. This is followed by Endermologie® used for the first 2 to 3 minutes of the approximately 10-minute waiting period allowed for the vasoconstrictive effect of the adrenaline to take place. This does not prolong the operating time. We believe that Endermologie® applied in this manner helps with the even dispersion of the wetting solution. This effect may well be similar in action to the effect of external ultrasound applied to the area to be suctioned when external ultrasound-assisted lipoplasty is being performed.

To maintain sterility when Endermologie® is applied during surgery, a sterilizable Endermologie® head was developed. The connecting hose is covered with a sterile endoscopy sleeve.

Since December 1996, we have performed EAL on 143 patients. We have routinely found that ecchymosis and swelling dissipated quite rapidly (Figures 2 and 3) in these patients and as early as the first dressing change (2 to 4 days after surgery).

During the long-term follow-up of these same patients, it seems that postlipoplasty surface irregularities have been lessened. Because we have not conducted a contralateral

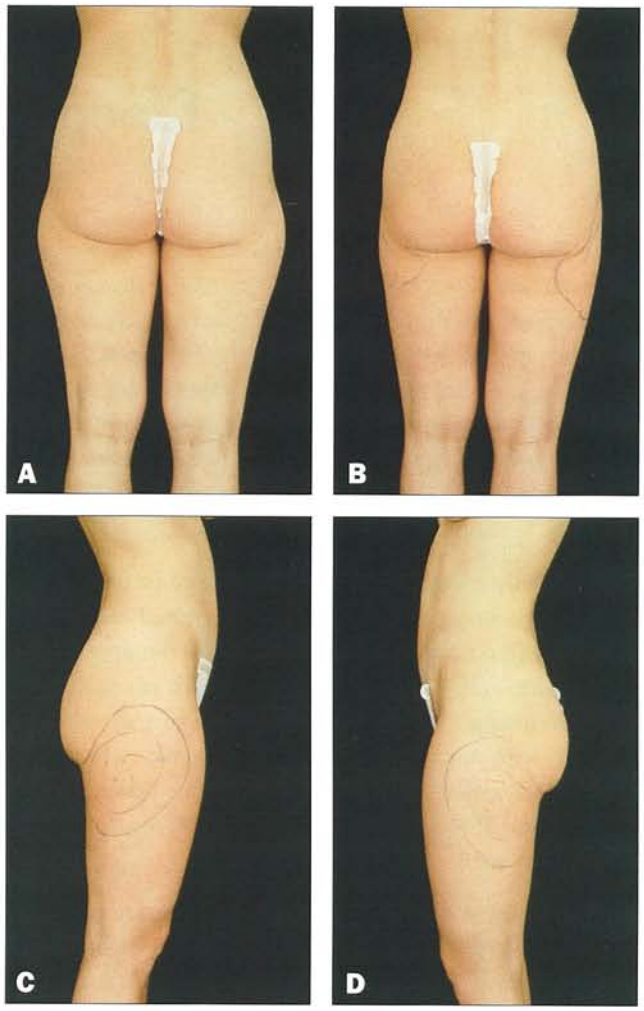

Figure 3. *A 28-year-old patient.* **A** *and* **C,** *Preoperative views, front and side, respectively.* **B** *and* **D,** *Postoperative views, front and side, 2 days after EAL on the patient's lateral thighs.*

comparative study, these observations are only subjective in nature.

In this regard, we recently initiated at the University of California at Los Angeles a laboratory project with a pig model. In this pig model, we will observe the anatomic and physiologic changes that occur with Endermologie® as a noninvasive body sculpting method and compare the effects of EAL with those of external ultrasound-assisted lipoplasty. Very preliminary results show a dramatic increase in lymphatic and venous flow during the application of Endermologie®. More importantly, this effect seems to persist for at least 3 hours beyond the termination of treatment. The complete study will be presented after the rest of the data are compiled. ■

This article was contributed by Peter Bela Fodor, MD, Los Angeles, CA, a board-certified plastic surgeon and ASAPS member, and James Watson, MD, Los Angeles, CA, from the plastic surgery faculty of UCLA.

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3. Fodor PB. Wetting solutions in aspirative lipoplasty: a plea for safety in liposuction [editorial]. Aesthet Plast Surg 1995;19:379-80.

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