A Combined Program of Small-volume Liposuction, Endermologie, and Nutrition: A Logical Alternative

Richard W. Dabb, MD

Background: Over the past year, both the media and the professional literature have given significant attention to the inherent risks of large-volume liposuction procedures.

Objective: A practice plan is presented that addresses the majority of concerns regarding the risks involved with large-volume liposuction procedures. An alternative approach that is safe and affordable and provides consistent results is described.

Methods: Patients are first screened for nutritional and exercise patterns. The concept of a dietary program combined with exercise and repeated small-volume liposuction, with Endermologie following each procedure, is presented. Budgetary issues are reviewed. Liposuction procedures are performed in a traditional office setting through use of superficial syringe suctioning, local anesthesia, and infiltration solution. The maximum volume of total aspirate removed per procedure is arbitrarily set at 1500 mL. Endermologie is provided by an aesthetician postoperatively at 3 weeks and for at least 3 visits.

Results: This alternative approach was used in 45 cases in 1997. There were no significant complications except for one small seroma, which required a single aspiration. All but two patients reported a high degree of satisfaction.

Conclusions: A program incorporating complete medical evaluation, nutrition, exercise, small-volume liposuction, and Endermologie can be a sound alternative to large-volume procedures.

Liposuction has become the most commonly performed aesthetic surgical procedure in the United States for patients between 35 and 50 years of age. This procedure has gone through a continuous process of refinement that has included changes in cannula design and various infiltration techniques, as well as deep to superficial procedures and conventional to ultrasonic procedures.

As with many other evolving treatments, liposuction has expanded to include more aggressive approaches. This is evident in the increasing volumes that have been successfully aspirated under tumescent, and now ultrasonic, techniques. Frederick Grazer, MD, recently described how "physicians have begun competitively pushing the envelope regarding the amount of fluid injected and dose of lidocaine." Along with the "pushed envelope," complications, including death, have occurred with an alarming frequency. The very factors that drive the surgeon to perform suctioning procedures in an office set-

Dr. Dabb is a Clinical Associate Professor of Surgery at the Milton S. Hershey School of Medicine in Hershey, PA.

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Reprint requests: Richard W. Dabb, MD, Apple Hill Medical Center, Suite 202, 25 Monument Road, York, PA 17403.

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ting—lower cost and greater convenience for the patient—may in some instances compromise overall safety and results. In 1995, I developed a program of small-volume liposuction, Endermologie (LPG Endermologie USA, Fort Lauderdale, FL), and nutritional counseling that addresses many of these issues.

Methods

The program consists of repetitive small-volume liposuction procedures that are performed in the office, Endermologie treatments carried out in conjunction with each procedure, and continual monitoring of the patient’s nutritional and exercise status. The patient agrees on entering this program to attempt to achieve the body-contouring goals over a period of time.

The initial consultation consists of a general medical evaluation with a significant focus on nutritional behavior, exercise patterns, and endocrine factors. The patient’s nutritional regimen is reviewed and evaluated for effectiveness. If the patient is in a well-established program, the evaluation continues; if not, the patient is referred to one of several nutritionists in the area. When appropriate, hormonal assays and Spectroaxes (SpectroCell Laboratories, Inc., Houston, TX) analyses are obtained. Weight and body composition analysis, performed through use of the Tanita body composition scale (Tanita Corporation of America, Inc., Arlington Heights, IL) and digital photographic analysis, are recorded at the time of consultation (Figure 1). After these data are obtained, careful prioritization of body-contouring goals is established with the use of computer imaging (Figure 2). Computerized photography allows the patient to designate treatment “zones” to be addressed according to the order of the patient’s priorities. The patient’s evaluation is reviewed and placed in a treatment algorithm, and a tentative treatment schedule and budget are set (Figure 3).

The patient then undergoes the first session of small-volume liposuction performed in the office. The patient is given routine preoperative instructions. Diazepam 5 mg, cefuroxime 250 mg, and arnica montana are given 30 minutes before the procedure. The skin is prepped with povidone-iodine 10% solution, and entry incisions are injected with a solution of 0.25% bupivacaine with epinephrine. The subcutaneous area is then infiltrated with a standard solution consisting of 1 L of Ringer’s lactate and 50 mL of lidocaine with 1:200,000 epinephrine in anticipation of the use of a superwet technique.6 The maximum amount of infiltrate is 1500 mL. Superficial syringe suctioning is usually performed with a 2- or 3-mm Mercedes tip cannula (Byron, Tucson, AZ). A maximum of 1500 mL of total aspirate is removed.

Patients find the level of discomfort during this procedure to be tolerable. Small amounts of local anesthetic are injected directly, if necessary, and the patient is reassured.
that the procedure will be of short duration. At the completion of the procedure, a compression garment is routinely applied. The patient is allowed to change the garment in 24 hours and can return to work within 48 hours and to full activity in 1 week. The patient is seen weekly and must wear compression for 3 weeks. At 3 weeks, the patient begins a series of at least 3 Endermologie treatments, which are limited to the area involved in the liposuction. The first 3 treatments are included with the lpectomy fee.

This sequence of nutritional surveillance, small-volume liposuction, and Endermologie is repeated at 3- to 4-month intervals until the patient meets the goal that was
set. Interim evaluations of compliance with exercise and diet, including body composition analysis, are encouraged and are provided at no additional charge.

**Results**

From March 1995 through December 1997, a total of 51 procedures in 24 patients were completed with this approach. Five patients had 3 procedures each, 17 patients had 2 procedures each, and 2 patients had 1 procedure each. Patients ranged from 20 to 57 years of age (Figures 4 and 5). Patients reported that concerns about safety and cost motivated them to elect this approach.

Patients were interviewed 2 months after the completion of the program and were questioned about the success or failure of their treatment. All but 2 patients reported satisfaction with the program, based on fulfillment of their initial treatment goals. When questioned, patients reported that the safety of the approach, the ability to participate in the prioritization process with computer imaging, and the attentiveness of the staff to their progress—as demonstrated by repeated body composition analyses—were significant factors in their success. Both of the patients who considered themselves “treatment failures” had gained weight and were noncompliant with the original dietary and exercise programs; this was clearly documented by the repeated body composition analyses. The objective demonstration of these parameters seemed to deter patient dissatisfaction with the practice. Postoperative complications included 1 small seroma, which responded to a single aspiration, and 2 minor contour deformities of the abdomen.

**Discussion**

This approach provides a total body-contouring program that is both safe and affordable and provides consistent results, without the necessity of “pushing the envelope” to achieve the patient’s body-contouring goals.

On January 26, 1998, plastic surgeons were urged by the American Society of Plastic and Reconstructive Surgeons to “exercise caution in lipoplasty procedures.” Blood loss, hypovolemia, infection, thrombosis, fat emboli, intra-abdominal injury, skin necrosis, and pulmonary edema are all well-known potential complications of suction lipectomy. The potential for lidocaine toxicity was clearly described by Grazer in 1997. He described the problem as “multifactorial”; obesity, endocrine abnormalities, smoking, drug interactions, and lidocaine doses above 55 mg/kg all are factors. It is obvious that limiting the volumes of infiltrate and aspirate minimizes the risks related to local anesthetic level, volume shifts, and hypothermia.

It has been established that lidocaine doses greater than 7 mg/kg are safe; however, doses greater than this were
unnecessary in this series of patients. Trott and others
have shown that intravenous crystalloid is unnecessary
when small-volume (<4 L) liposuction is performed
through use of the superwet technique. In addition, both
short-term and long-term analgesia requirements are
reduced in small-volume liposuction patients. Adding fur-
ther to patient safety is the initial evaluation that ensures
the patient will be treated in a comprehensive and med-
ically sound manner.

Endermologie has been used in my practice for 4 years,
initially for body contouring, treatment of cellulite, and
postoperative liposuction care in my skin-care center.
During the first year, it became clear that the results of
“nonsurgical” body contouring were quite limited and
did not meet the expectations of either the patient or the
physician. My staff and I believed, however, that
Endermologie might be somewhat effective in the treat-
ment of cellulite and that it improved the postoperative
result of liposuction and diminished the need for revision.
These observations are consistent with reports showing
redistribution of fat in autologous grafting procedures
and localized changes in perfusion and lymphatic flow
but no obvious relocation of fat. The limited results
from Endermologie alone led many of the patients to
request surgery. It therefore made more sense to offer
them small-volume liposuction and Endermologie in a
structured “package” that would be more likely to
achieve predictable results. In my opinion, postoperative
Endermologie treatments maximized the result and
offered the additional advantage of keeping the patient in
communication with the practice and focused on long-
term goals.

The program is affordable. Small-volume procedures can
be easily carried out with oral sedation and local anes-
thesia in a simple office setting, eliminating the general anes-
thesia and facility fees. The average total fee savings to
the patient is $1200, which compares favorably with the
cost of one procedure performed with anesthesia in a
surgicenter. One approach is to divide the total fee for a
“complete” large-volume procedure by the number of
anticipated small-volume procedures. The repetitive
nature of the program allows the patient to budget the
number and frequency of the procedures according to his
or her economic limitations. I charge a per-session fee that
includes the procedure and 3 Endermologie treatments.

A significant benefit for the patient is the absence of
downtime from work. Patients are usually scheduled for
liposuction on a Thursday or Friday and are able to return
to work (wearing a compression garment) on Monday. In
my opinion, larger-volume liposuction requires signifi-
cantly more total recovery time than that required for
multiple small-volume procedures.

This approach, which involves procedures done in an
office setting, has benefits for the surgeon as well. It may
be scheduled to accommodate a busy schedule. Small-vol-
ume procedures are not time-consuming; working on a
single area with the patient under local anesthesia elimi-
nates general anesthesia, multiple preps, and position
changes. Because the procedure uses both syringe infu-
sion and aspiration, the costs in equipment and supplies
are significantly reduced. In his lectures to residents
entering practice, Gustavo Colon, MD, makes the point
that technology alone does not bring patients (written
communication, 1997). There is no benefit to investing in
high-cost, high-tech machines if patient demand does not
justify the expenditure. The small-volume approach to
liposuction allows the surgeon to establish a practice in
body contouring with minimal economic and clinical risk
and then to proceed with more aggressive approaches
when they are appropriate.

As with all procedure plans, the goal should be to max-
imize results. Planned repetitive treatments allow minor
revisions to be performed at a later procedure sitting and
are easy to accomplish. This advantage may be especially
valuable for the surgeon who is still in the learning curve.
In my experience, postoperative Endermologie helps to
improve the final outcome. Finally, long-term contact
with the practice and continual monitoring help patients
to be more attentive to lifestyle issues. The staff is able to
provide a positive, supportive atmosphere.

In a highly competitive practice environment, one must
design treatment plans that meet patient needs and bud-
gets. In addition, patient response to media coverage
must be addressed, especially when it comes to safety
issues. An effective treatment plan that answers all these
concerns is beneficial to the aesthetic surgical practice.

Conclusion

Patient interest in body contouring is steadily expanding.
Procedures—and the technology needed to perform
them—are constantly being refined. It seems obvious that
the reported increase in complications of lipoplasty, with
associated morbidity and death, may be a direct result of
“pushing the envelope.” The program suggested here,
which includes a complete medical evaluation, a support-
ive environment for maintenance of a nutritional and exercise regimen, and small-volume liposuction procedures, avoids nearly all the risks of large-volume procedures. I do not suggest that large-volume procedures are not indicated for some patients in properly controlled environments. However, the program of repetitive, small-volume procedures with Endermologie and lifestyle counseling meets many of the goals for safe, affordable, and consistently effective body contouring treatment that can be performed in the office.

The author would like to recognize Dr Terry Seidel, a previous resident and friend, who suggested this concept 3 years before his untimely death.

References