

Ultrasound-Assisted Abdominoplasty: Combining Modalities in a Safe and Effective Technique

Discussion by Rod J. Rohrich, M.D., and Jeffrey E. Janis, M.D.

With this article, Dr. Abramson adds his experience with ultrasound-assisted liposuction to the growing body of literature that describes the use of a single-stage, combined-modality approach to treating abdominal lipodystrophy. Although the results that Dr. Abramson presents are encouraging, we believe it is important to emphasize a few salient points.

First, Dr. Abramson uses the tumescent technique before performing lipoplasty. By definition, this technique infiltrates 2 to 3 cc of wetting solution for every 1 cc of aspirate.¹ We have recently reported an update on the use of subcutaneous wetting solution in lipoplasty,² and have found that there are no literature-supported, proven advantages in safety and efficacy using ratios greater than 1:1 (the “superwet” technique).³ Therefore, we personally use, and would recommend, the superwet technique over the tumescent technique on the basis of its ability to achieve a similar reduction in blood loss (approximately 1 percent of the volume aspirated) but without the potential for complications such as fluid overload and congestive heart failure. Furthermore, we agree with Matarasso⁴ that excessive infiltration with wetting solution can lead to more difficult electrocoagulation during flap dissection. Dr. Abramson reports infiltrations of up to 3000 cc, with lipoaspirations averaging 1000 cc. We believe the additional volume does not contribute to the ultimate aesthetic outcome but could potentially be a source of morbidity in some patients.

Second, the author uses the Mentor Contour Genesis machine “at 85 percent power” to perform the ultrasound-assisted liposuction for 2 minutes above the rectus sheath and for 1.5 to 2 minutes to each flank area. He subsequently uses traditional suction to evacuate the lipoaspirate

“both above and below Scarpa’s fascia but not directly under the dermis.” There are several points to be made here. Our experience is similar to the author’s, in that shorter treatment times decrease morbidity.⁵ However, it is difficult to apply a “standard” treatment time to each patient (i.e., 2 minutes). The author does not describe using ultrasound-assisted liposuction to achieve certain well-defined endpoints, such as loss of tissue resistance or blood-tinged aspirate.⁵ Some patients may, indeed, require *less* treatment time, and therefore this should be taken into consideration. Furthermore, we would recommend power settings of 50 to 60 percent, rather than 85 percent, to decrease potential unwanted thermal damage to surrounding tissues, including the fascia. One must also remember that there are numerous reports of fascial penetration and subsequent morbidity (and even mortality) from liposuction,^{6–10} and therefore extreme caution should be used when purposefully performing liposuction at a level just above the fascia. Finally, performing suction evacuation *above* the level of Scarpa’s fascia in the central abdomen, in the face of the flap undermining from a formal abdominoplasty, must be performed with extreme caution. This is the watershed area most susceptible to vascular compromise after an abdominoplasty (“the terrible abdominoplasty triangle”).¹¹ Therefore, concomitant treatment to this area (in this plane) is, in our opinion, inviting potential disaster.

One very important aspect of Abramson’s article that must not be overlooked is the areas of treatment versus no treatment. One must juxtapose the areas in Figure 1 with the Huger zones,¹² describing the blood flow to the abdominal skin and subcutaneous tissue. Abramson chooses to treat the central abdomen and

flanks (areas A and C) but avoids the area lateral to the rectus sheath and superior to the abdominoplasty incisions (area B). Although we agree with the underlying philosophy of preserving the lateral intercostal perforators (as they will be the primary blood supply to the abdominal flap after removing the main contribution from the deep inferior epigastric system), we would be wary of treating the superior aspect of area C as well. There are vascular contributions to the abdominal flap from this area; therefore, if the patient's body habitus dictates treatment in this area, we would recommend either less central flap liposuction or a two-stage approach to minimize potential morbidity and maximize the aesthetic result.

Another important point that must be emphasized is that additional procedures take extra time. Dr. Abramson notes that the operative times range from 1.5 hours for abdominoplasty alone to 5 hours for combined facial rejuvenation and body contouring. All but one patient was discharged home the same day (all patients discharged home had operative times less than 4 hours). Although Dr. Abramson should be congratulated on his results with no morbidity, it is well-documented that morbidity increases with operating times and with concomitant procedures.¹³ The risk of an additional procedure, including the need for a separate general anesthetic, must be weighed against the possible catastrophic morbidities (including deep venous thrombosis, pulmonary embolus, volume shifts with hemodynamic instability, and even death) by having the patient undergo a single prolonged combined procedure. This must be discussed with the patient preoperatively. In some patients with either significant comorbidities or the need for large-volume liposuction, it could be medically unsafe to perform multiple procedures at one setting. In those cases, a staged procedure is obviously the correct choice, no matter what the patient's desires may be. Furthermore, many complications after liposuction occur in the first 24 hours, because there can be significant fluid shifts.¹⁴ We do not routinely discharge our abdominoplasty patients the same day, even if the procedure is performed without liposuction. The patient's safety always comes first.

Overall, this is a well-written article by Dr. Abramson that adds an important experience to the literature on combined treatments in body contouring with ultrasound-assisted liposuction. The overall theme of patient safety, however,

cannot be overemphasized. There is no substitute for proper patient preoperative evaluation and appropriate procedure selection. Sometimes the safest, most effective treatment that results in the highest patient satisfaction is the serial single-modality treatment. However, there is no doubt that, in certain patient subpopulations, combined-modality treatments are justified. The use of ultrasound adds another useful tool the surgeon can use for body contouring; however, it still must be performed with caution.

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