

# Abdominoplasty Combined with Hip Expansion by Fat Grafting: An Evolution in Waistline Contouring

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**Background:** Recent sociocultural trends show numerous patients requesting more curvaceous profiles. Abdominoplasty techniques had evolved into a combination of fascial plication with liposuction of the lateral torso, but often left patients with “boxy” profiles. The senior author performs 360-degree liposuction of abdomen and back, hip expansion with structural fat grafting, excision of redundant soft tissue, and wide plication of abdominal fascia to create the desired profile.

**Methods:** Retrospective review of patient charts and CosmetAssure claims of female patients treated from January 2014 through May 2022 identified 1125 patients with a minimum 6-month follow-up who underwent abdominoplasty using 360-degree liposuction of waist, back, and flanks; wide plication of the rectus abdominis muscle; and hip expansion with fat grafting. Authors reviewed pre- and postoperative photographs to evaluate the technique’s effectiveness.

**Results:** Hip expansion with fat grafting combined with abdominoplasty was successfully achieved in 1125 cases. Average age was 38 years. Average body mass index was 29 kg per m<sup>2</sup>. Average amount of aspirated fat was 1896 mL. Average amount of fat injected into the bilateral hips was 493 mL. Complication rates were comparable to those observed in similar abdominoplasty series reported in the literature.

**Conclusions:** Abdominoplasty combining liposuction of the waist, back, abdomen, and flanks followed by wide fascial plication and expansion of the hips with fat grafting is a safe, reproducible technique for female patients. This technique prioritizes the hip anatomical area as an aesthetic consideration in abdominoplasty and facilitates creating a harmonious hip-to-waist ratio characteristic of a feminine figure. (*Plast Reconstr Surg Glob Open* 2024; 12:e6059; doi: 10.1097/GOX.0000000000006059; Published online 9 August 2024.)

## INTRODUCTION

Since the first abdominoplasty was described in 1880 as a “dermolipectomy,” North American literature has embraced and refined this excisional technique to improve the abdomen.<sup>1-5</sup> This technique aims to “tighten” the abdominal wall rather than contour the torso in harmony with its adjacent aesthetic units.<sup>6</sup> With better understanding of surgical anatomy and preservation of blood supply, integrating liposuction can address lipodystrophy

in adjacent aesthetic units beyond direct excision alone.<sup>4,7-10</sup> Lipoabdominoplasty allows for safe rejuvenation of the abdomen and torso from the effects of age, weight gain, and/or pregnancy.<sup>9,11</sup>

Current lipoabdominoplasty techniques achieve the common goal of restoring a flat appearance to the abdomen by removing excess fat and skin. Nonetheless, contemporary female lipoabdominoplasty techniques may result in an unnatural “boxy” appearance to the abdomen in the context of the torso and hips.<sup>7</sup> In some circumstances, the result is an androgynous appearance, in contrast to an “hourglass” profile typical of an adult woman. Although the surgeon’s objective of a flattened abdomen is achieved, the patient’s expectations are not necessarily met, as their profile is unnatural thanks to a procedure

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that disregards ideal proportions embraced in evolving sociocultural ideals.

Current literature supports a waist-to-hip ratio of less than 0.7, which contradicts historical beliefs that small hips in the female patient are de rigueur.<sup>12-14</sup> This paradigm shift also reflects acknowledgment that the ideal female habitus should not be limited to that of white women at or below ideal body weight, the default in the North American literature.<sup>15</sup> The authors describe their experience with a surgical technique combining lipoabdominoplasty with rejuvenation of the entire torso while expanding the hips with fat transfer to achieve these goals.

Hip expansion with fat grafting combined with abdominoplasty is a technique that the senior author (W.C.) has developed over 16 years. It includes three components:

1. 360-degree liposuction of waist, back, and abdomen (including the abdominoplasty flap both centrally and laterally).<sup>16,17</sup>
2. Direct excision of abdominal skin and subcutaneous fat with wide abdominal fascial plication from the lateral abdomen to the lateral border of the rectus abdominis muscle and into the external oblique aponeurosis if necessary.<sup>18,19</sup>
3. Fat transfer to the hips with a progressive expansion approach.

The main objective of combining abdominoplasty with hip expansion is to improve the waist-to-hip ratio. Hip expansion has become the senior author's standard practice in abdominoplasty.

## METHODS

A retrospective review was performed of the senior author's (WC, The Woodlands, Tex.) medical records, and CosmetAssure (Birmingham, Ala.) claims history of patients who underwent hip expansion combined with abdominoplasty between January 2014 and May 2022. During this period, 1125 patients were identified with a minimum 6-months follow-up. Patient demographics, operative details, and outcomes were recorded in an Excel spreadsheet (Redmond, Wash.) used to calculate descriptive statistics. Photographs were taken preoperatively and at 1 month, 3 months, 6 months, and one year postoperative.

Ideally, inclusion criteria were a BMI above 25 but less than 32 and patients with a desired hip-to-waist ratio above 0.7. Patients were excluded who did not want fat transferred to the hips, who had significant intraabdominal fat, or who had muscular legs and hips with a tight skin envelope, showing poor fat graft capacity as measured with a skin pinch test of less than 1 cm. Massive weight loss patients were excluded.

### Preoperative Marking

Initial markings should be performed with the patient standing. Markings delineate the superior border of the buttocks, posterior iliac crest, and lateral buttock boundary. The lateral border of the gluteus is the posterior boundary of the hip aesthetic unit (Fig. 1).

## Takeaways

**Question:** Ordinary “tummy tuck” procedures flatten the abdomen but often create a boxy, somewhat androgynous figure because they do not address the hip-waist ratio.

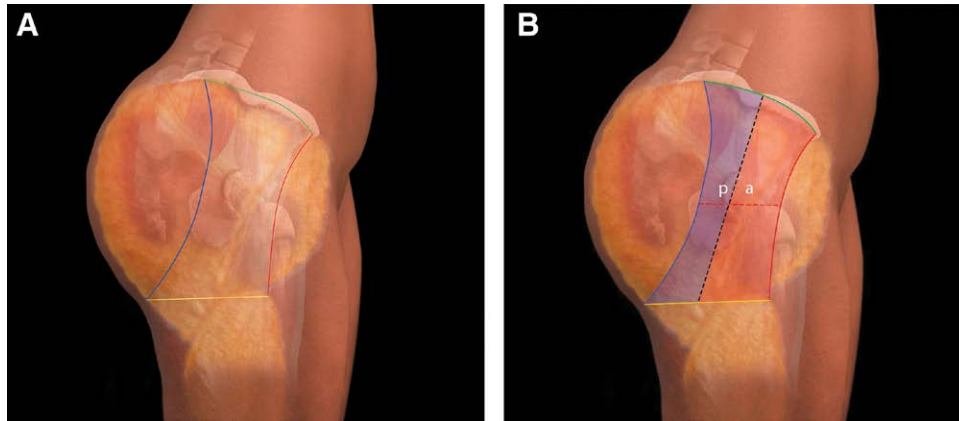
**Findings:** Using a surgical technique combining 360-degree liposuction, fat grafting, and abdominoplasty, we demonstrated the safety and efficacy of the technique over a 7.5-year period. Patients experienced few complications, expressed satisfaction with their results, and underwent photographic review including pre- and postoperative images to evaluate the effectiveness of the technique.

**Meaning:** Hip expansion by use of fat grafting may be safely combined with abdominoplasty to create a feminine figure more in line with modern tastes.

Next, draw the hip aesthetic units (Fig. 2). [See Video 1 (online), which demonstrates a review of the



**Fig. 1.** Preoperative marking, back view. The green line indicates the posterior iliac crest. The red line is the superior aspect of the gluteal fat pad prominence. The blue line is the lateral boundary of the buttocks fat pad.

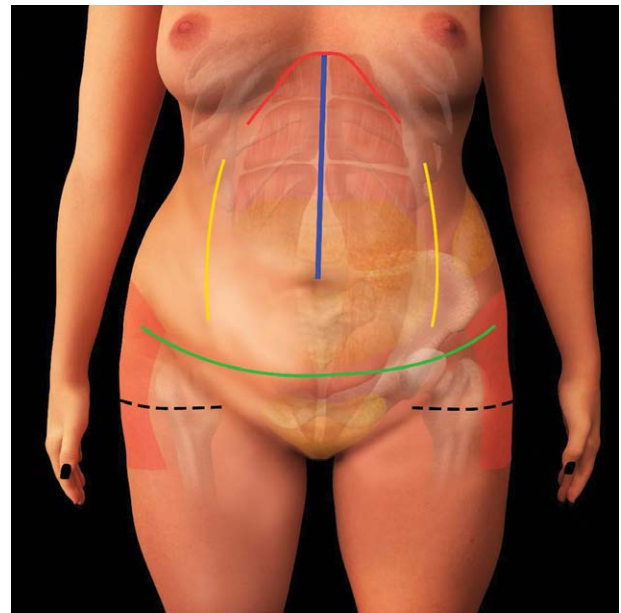


**Fig. 2.** A, The hip aesthetic unit boundaries are the lateral border of the buttock, forming the posterior border (blue solid line). The inferior border is formed by a horizontal line at the level of the inferior gluteal fold (yellow solid line). A semicircular line from the ASIS vertically at or anterior to the trochanter to the inferior boundary forms the anterior limit (red solid line). Finally, the superior boundary follows the iliac crest from the ASIS posteriorly (green solid line). B, The hip aesthetic unit has two subunits. A posterior (P) subunit (shaded blue area) is divided from the anterior subunit (A) area [red shaded area by a vertical line (black dash line)] from the center of the iliac crest (superior boundary) vertically down to the inferior boundary. The area of maximum expansion lies approximately at the location of a horizontal line at the level of the pubic symphysis (horizontal red dash line) intersecting the vertical line (black dash line).

preoperative markings.] Mark the inferior border by following the inferior gluteal fold and extending it anteriorly in a horizontal orientation. The superior boundary follows the iliac crest posteriorly from the anterior superior iliac spine (ASIS). Draw the anterior boundary from the ASIS to the inferior border horizontal marking. The posterior boundary is a curvilinear line from the posterior iliac crest to the lateral aspect of the inferior gluteal fold, corresponding to the lateral border of the gluteus maximus.

Extend a horizontal line at the pubic symphysis laterally across the hips. The intersection of the horizontal line at the pubis and a vertical line at the center of the hip aesthetic unit identifies the region of maximal fat grafting to optimize lateral hip expansion. This vertical line distinguishes anterior and posterior subunits important in prioritizing graft placement. Although the patient is still standing, mark harvest sites for liposuction in the upper back, lower back, and flanks to accentuate a defined transition from waist to hips and buttocks.

Next, place the patient supine in bed and have an assistant place traction on the lower abdomen, pulling the mons pubis superiorly. Draw the lower abdominal incision by marking a horizontal line centrally from the thigh-pubic junction (Fig. 3) in a curved direction laterally below the ASIS. The length of the abdominoplasty incision lateral to the ASIS will depend on the amount of excess skin that needs to be removed in the flanks. Make two vertical lines 2 cm lateral to the linea semilunaris bilaterally to designate the central region where liposuction or direct excision will be carried out deep to the Scarpa fascia. The abdominal plication will move these landmarks medially. The costal margin and lower chest wall and midline are also defined.



**Fig. 3.** Preoperative marking front view. The red zone is the hip aesthetic unit. The horizontal black dash line is the location of the area of maximum expansion. The red line is the inferior border of the chest wall. The blue line is the midline. The green line is the location of the abdominoplasty scar. Finally, there are two lines 2 cm lateral to the linea semilunaris (yellow lines).

### Liposuction

After induction of general anesthesia, position the patient prone with elbows extended to 90 degrees and shoulders to 90 degrees. Make access incisions in areas that allow optimal contouring and fat extraction,



considering surgeon's handedness and patient habitus, including above the intergluteal fold. Place another incision central mid back and, finally, two incisions on the lateral upper back on each side. Infuse standard super-wet tumescent solution at least 10 minutes before liposuction commences.

Suction the upper and lower back, as well as flanks following pretreatment with an ultrasound-assisted device (Vaser Technology, Solta Medical – Baush Companies, Inc., Bothel Wash.) with 3.7 groove probes at the mode of 60% Vaser mode. Follow with power-assisted liposuction (MicroAire Surgical Instruments LLC, Charlottesville, Va.) using 4-mm Mercedes cannulas at 80% power and 18 inches suction pressure. Perform deep and superficial extraction in a radial fashion using visualization and pinch test as end points to achieve optimal contour. Close all lipectomy access sites with interrupted 4-0 nylon sutures (Ethicon, Inc., Johnson & Johnson, Warsaw, Ind.)

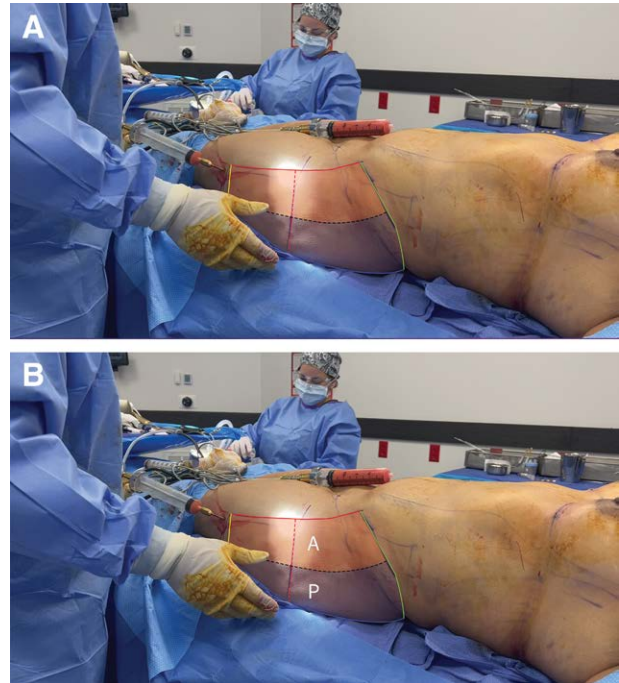
Next, position the patient supine with arms abducted at less than 80 degrees, prepared from upper breast to knees. Inject tumescent solution superficially and deep in the area lateral to the lateral border of the rectus abdominis muscle. Inject tumescent solution in the central aspect of the abdomen, but only in the deep plane. As described for the back, perform ultrasound-assisted liposuction at the level of the superficial and deep layers of the abdomen lateral to the linea semilunaris. Avoid liposuction medial to the linea semilunaris in the central flap at this point until abdominoplasty is performed.

#### Fat Injection

It is imperative to perform hip expansion before performing the abdominoplasty. [See Video 2 (online), which demonstrates the surgical technique of progressive hip expansion with fat grafting.] The rationale is to optimize the excess soft tissues required to expand the hips before setting tension along the abdominoplasty incision upon closure. Removing the excess skin before expansion reduces graft capacity at the intended recipient site, which jeopardizes the transition of the waist to the hip and the curvature required for an “hourglass” contour.

Collect lipoaspirate in sterile 3000-mL canisters (Medela Healthcare, Ill.). Mix approximately 500 mL of lipoaspirate with 10 mL of antibiotic solution (3 g of ampicillin/sulbactam, 80 mg gentamycin and 1 g of ancef in 1000 mL saline). Prepare fat by separating it from the tumescent fluid using gravity and a stainless-steel strainer. Transfer the strained fat to 60-mL syringes.

Through one stab incision along the lower lateral thigh, begin fat grafting. (Fig. 4) Perform structural fat grafting deep to superficial using a manual infusion gun and a 60-mL syringe with a 3-mm blunt cannula, starting at the area of the intended maximum lateral expansion of the hip aesthetic unit. Subsequently, inject fat into subcutaneous tissues in all deficient areas of the hips anteriorly, superiorly, inferiorly, and posteriorly from the point of maximal projection. Avoid intramuscular injection with a tangential vector in the subcutaneous plane. Although the hip grafting can be done through the abdominal incision superiorly, fat will inevitably be spilled through the



**Fig. 4.** Intraoperative photographs. A, Fat is injected in the subcutaneous plane starting at the level of maximum expansion (red dash line). B, Depending on the amount of fat graft available, the anterior subunit is prioritized, followed by the posterior subunit.

abdominal incision before approaching graft capacity. Depending on the amount of fat harvested, prioritize the anterior hip subunit (Fig. 4). Pursue overcorrection of 25%–30%, as fat reabsorption is inevitable after surgery.

#### Dissection and Plication

After making the lower abdominal incision, continue suprafascial dissection initially up to the lateral border of the rectus abdominis muscle as a landmark for the lateral dissection of the upper abdomen. [See Video 3 (online), which demonstrates the surgical technique of wide abdominal plication and thinning the central abdomen under the Scarpa fascia.] Dissection should preserve the fat pad in the superior aspect of the hip aesthetic unit that has just been grafted. Dissection of the umbilicus involves circumferential detachment from the abdominal flap to transpose it with a small cuff of fat. Above the umbilicus, continue dissection up to the xiphoid process over the rectus abdominis musculature.

Perform wide plication of the abdominal fascia on both sides of the abdomen at the lateral border of the rectus abdominis fascia from xiphoid to pubic symphysis in a supraumbilical and infraumbilical approach using 0-loop polydioxanone in a discontinuous fashion. If anatomically possible, add an 0-loop suture beyond the lateral border of the rectus and into the oblique muscle. At this point, pull the abdominal flap down and secure it with towel clips. Under direct vision, liposuction or excise the central aspect of the flap deep to the Scarpa fascia, leaving a flap with approximately 3 cm of subcutaneous fat (Fig. 5). If skin is deformed by medial migration of



**Fig. 5.** In the central abdomen, fat is removed either by direct excision or by liposuction under the Scarpa fascia (blue arrow).

the skin flap, do additional lateral release of the flap with blunt dissection.

#### Umbilicoplasty and Resection

Place the patient with hips flexed at 45 degrees. Trim the abdominal flap with minimal traction to approximate the caudal skin. Mark the location of the transposition on the abdominal flap typically 2–3 cm above the location of the native umbilicus. Making a shield design on the abdominal flap, remove the epithelium. Cut the dermis vertically and horizontally, creating four dermal flaps. Ultimately, each flap is secured to the abdominal wall with 2-0 polypropylene and tagged to be tied later. These four sutures are necessary to counteract the distortion of the transposed umbilicus from the vertical tension of the flap closure and the horizontal migration of the skin due to the wide plication.

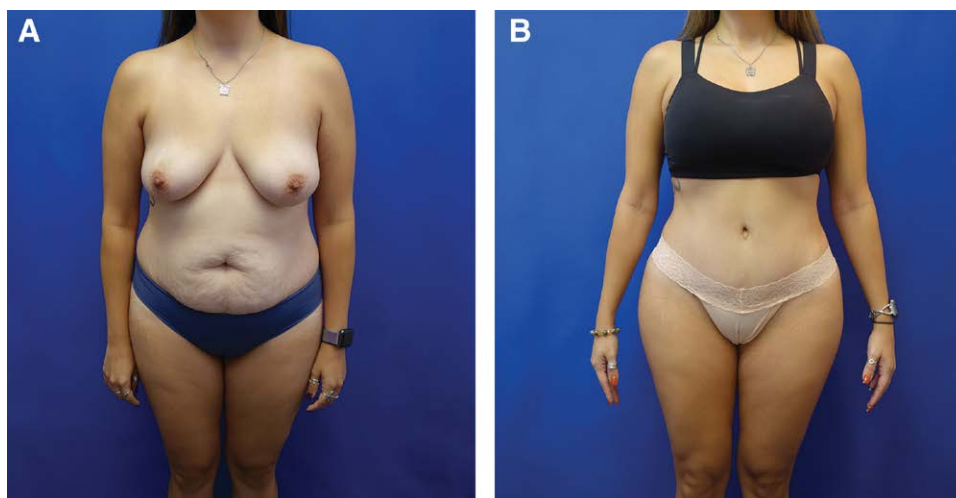
Place closed suction drains and close the abdominal incision with permanent braided suture approximating the Scarpa fascia, followed by deep dermal and subcuticular

closure with absorbable suture. Once the abdominal incision is approximated and liposuction touch-ups are performed, deliver the umbilicus through the new site. Tie the knots in the dermal flaps. Complete the inset of the umbilicus with half-buried 4-0 nylon horizontal mattress sutures

#### RESULT

Hip expansion with fat grafting combined with abdominoplasty was successfully achieved in 1125 cases. Postoperative photographs were taken in the standing position at 3, 6, and 12 months (Figs. 6–10). Average age was 38 years (SD: 8 years, maximum: 68 years, minimum: 20 years). Average BMI was 29 kg/m<sup>2</sup> (SD: 4 kg/m<sup>2</sup>, maximum: 42 kg/m<sup>2</sup>, minimum: 18 kg/m<sup>2</sup>). Average amount of aspirated fat was 1896 mL (SD: 760 mL, maximum: 3000 mL, minimum 400 mL.) Average amount of fat injected into the bilateral hips was 493 mL (SD: 220 mL, maximum: 1700 mL, minimum: 50 mL).

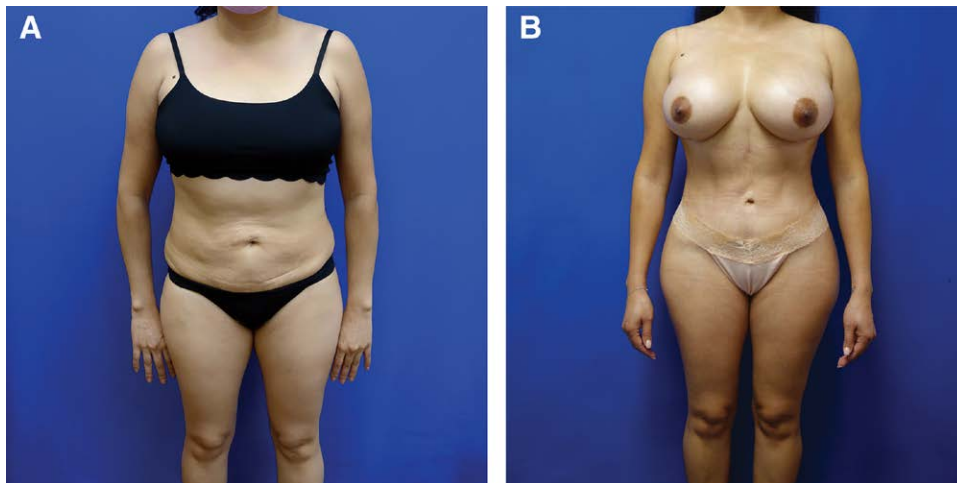
Demographics and intraoperative data are listed in Table 1. Complications (Table 2) included bleeding requiring transfusion (N = 6; 0.5%), infection requiring oral antibiotics (N = 19; 1.7%), and hematoma at the abdominoplasty site requiring operative evacuation (N = 3; 0.3%). Fat necrosis (N = 10; 0.9%) was identified infrequently and no patients required surgical intervention. Pulmonary embolism was low (N = 3; 0.3%) but in one case resulted in mortality. This occurred before routine prophylaxis with low molecular weight heparin for 7 days postoperative was initiated. Rate of deep vein thrombosis (N = 4; 0.4%) was otherwise low. Incisional dehiscence treated with secondary intention healing was low (N = 25; 2.2%). Distal abdominoplasty skin necrosis requiring excision and readvancement of the flap was also infrequent (N = 3, 0.2%).



**Fig. 6.** Pre- and postoperative patient photographs. A, This is a 35-year-old woman with a BMI of 29 and square-shaped hips. The patient requested a more feminine look with a flatter abdomen, wider hips, and a smaller waist. She underwent one round of progressive hip expansion (360 mL on each side) with wide abdominal plication and 360-degree liposuction. B, The patient 13 months after surgery.



**Fig. 7.** Pre- and postoperative patient photographs. A, This is a 25-year-old woman with a BMI of 29 and square-shaped hips. The patient requested a more feminine look with a flatter abdomen, wider hips, and a smaller waist. She underwent serial progressive hip expansion (three rounds with a total of 700 mL on each side) with wide abdominal plication and 360-degree liposuction. B, The patient 30 months after surgery.



**Fig. 8.** Pre- and postoperative patient photographs. A, This is a 39-year-old woman with a BMI of 26 and square-shaped hips. The patient requested a more feminine look with a flatter abdomen, wider hips, and a smaller waist. She underwent one round of progressive hip expansion (300 mL on each side) with wide abdominal plication and 360-degree liposuction. B, The patient 31 months after surgery.

## DISCUSSION

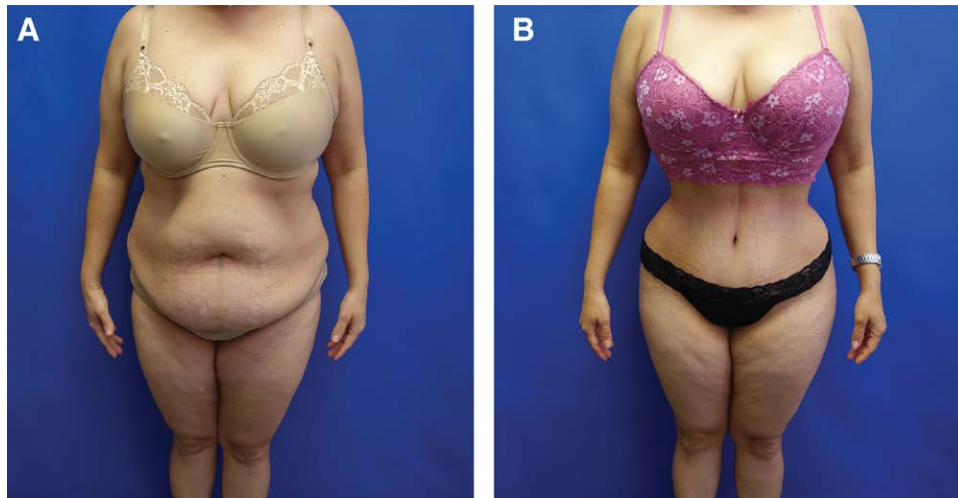
The main goal of hip expansion with fat grafting in combination with abdominoplasty is improvement in the waist-to-hip ratio. Few articles in the literature discuss optimizing the waist-to-hip ratio as an adjunct to abdominoplasty.<sup>19–25</sup> The advent of lipoabdominoplasty has improved waistline aesthetics. Regardless, the paradigm of abdominoplasty techniques has valued optimizing the profile of the abdomen in judging efficacy without the context of the relationship of the hips. Unfortunately, ignoring the waist-to-hip ratio leads to an abdominoplasty result in disharmony with the goals of many patients, resulting in an androgynous appearance.

The authors acknowledge that there is no universal ideal with regard to the relationship between waistline

and hip. The waistline is typically located at the height of the elbows with the patient in the standing position, roughly one-third the distance from the xyphoid to the pudendal cleft.<sup>26,27</sup>

Although liposuction can influence the horizontal dimensions of the waist,<sup>28</sup> it has no influence on anatomical landmarks such as the abdominal wall musculature or fixed structures such as the pelvis and floating ribs. Wide abdominal plication can make substantive changes to decrease the waistline, as previously described.<sup>18,19</sup> This technique is defined as a vertical plication from the lateral border of the rectus muscle or into the external oblique.<sup>29,30</sup> Certain factors influence the efficacy of plication in decreasing the waistline. These include significant visceral fat, rectus abdominis hypertrophy, a short torso,





**Fig. 9.** Pre- and postoperative patient photographs. A, This is a 40-year-old woman with a BMI of 29 and round-shaped hips. The patient requested a more feminine look with a flatter abdomen, wider hips, and a smaller waist. She underwent one round of progressive hip expansion (180 mL on each side) with wide abdominal plication and 360-degree liposuction. B, The patient 8 months after surgery.



**Fig. 10.** Pre- and postoperative patient photographs. A, This is a 29-year-old woman with a BMI of 25 and indented-shaped hips. The patient requested a more feminine look with a flatter abdomen, wider hips, and a smaller waist. She underwent one round of serial hip expansion (450 mL on each side) with wide abdominal plication and 360-degree liposuction. B, The patient 13 months after surgery.

**Table 1. Demographic Characteristics and Intraoperative Data for Patients Included in Study (n = 1125)**

Characteristic	Mean	Range
Age (y)	38	20–68
BMI (kg/m <sup>2</sup> )	29	18–42
Aspirated fat (mL)	1896	760–3000
Fat injected per hip (mL)	493	50–1700

excessive width of the pelvis, and a wide (barrel) chest anatomy.<sup>21</sup>

Hip expansion improves the waist-to-hip ratio while enhancing the overall perception of a feminine look. The literature typically describes hip fat grafting as an adjunct

**Table 2. Complications**

Complication	Incidence (%)
Bleeding requiring transfusion	6 (0.5%)
Infection	19 (1.7%)
Seroma	6 (0.5%)
Fat necrosis	10 (0.9%)
Incisional dehiscence	25 (2.2%)
Spitting sutures	4 (0.4%)
Hematoma	3 (0.3%)
Pulmonary embolism (one fatality)	3 (0.3%)
Deep vein thrombosis	4 (0.4%)
Distal flap necrosis	3 (0.2%)
Medical complications*	26 (2.3%)

\*Hypertension, urinary retention, urinary tract infection.

to buttocks augmentation, which is in essence the posterior subunit of the hip aesthetic unit.<sup>14,31,32</sup> Although it is important to address the posterior subunit, if the anterior subunit is not improved the results can be suboptimal, particularly in the frontal view. It is also important to maintain the proportions of the thighs, particularly augmenting the lateral thigh adjacent to the gluteal fold to create a smooth transition of the hip with the leg.<sup>32</sup>

Hip expansion requires an assessment of the soft tissue envelope because it can significantly impact graft capacity. This is particularly problematic in the patient with tight skin, scant subcutaneous fat, or muscle hypertrophy of the proximal anterior and lateral thigh. Patients with a tight skin envelope should know that serial expansion is necessary to achieve acceptable results. Skin tone, regardless of the preoperative shape of the hip, is the main limiting factor regarding how much the hip can be enhanced.

Safety in fat grafting to the gluteal region has been scrutinized in the recent plastic surgery literature. The authors avoid injecting in muscular planes when performing hip expansion, just as they do in the buttocks. Tangential injection parallel to the extensor compartment musculature is performed as a rule. As applied for gluteal augmentation, ultrasound-assisted fat grafting can be used in the hip and might be particularly beneficial in a patient requiring substantial enhancement of the hips with limited graft capacity.<sup>33</sup> We have not encountered a single case of fat embolism while subscribing to tangential injection in a subcutaneous plane.

The authors emphasize the need for an optimal relationship between the umbilicus and the surgically defined waist by employing dermal flaps to minimize migration of the umbilicus. There is debate on the ideal location of the umbilicus with most studies recommending a range of 1.0–1.3 xiphoid to umbilicus/umbilicus to pubis.<sup>34–38</sup> We prefer to use the 1.5 ratio of the xiphoid umbilicus/umbilicus to abdominal crease ratio to determine the final location of the neoumbilicus.<sup>27</sup> The abdominal crease is located 6–7 cm above the pudendal cleft and reflects the region that ultimately determines where the underwear will rest and the scar hides. Most of the time the distance between the xiphoid and the lower abdominal crease decreases in length during closure of the abdomen. This is the reason that we elevated the umbilicus 2–3 cm depending on the length of the umbilical stalk.

Complications using this technique are comparable to other published studies of lipoabdominoplasty<sup>26,39–46</sup> (Tables 2 and 3). The literature reports rates of 1.6% for seroma, 0.5% for hematomas, 0.6% for DVT, and 0.3% for pulmonary embolism. Our collective complication rate of 10% is a reflection of all major and minor events not inconsistent with multimodality surgery. One death in 1125 patients in our series is consistent with comparative data published.<sup>47,48</sup> Nevertheless, this is a set of major procedures that only ASA 1 or ASA 2 patients should undergo.

Given the duration of the procedure that averages 4.5 hours with a combination of multiple techniques, we recommend using prophylaxis with enoxaparin 40 mg SQ 7 days beginning the morning after the surgery

**Table 3. Comparison of Complications with Other Series**

Series	N	Thrombotic Event (DVT/PE)		Bleeding Event		Fat Necrosis		Spitting Sutures		Medical (UTI, etc.)		Hematoma		Infection		Dehiscence		Wound Necrosis		Seroma	
		IV-V	0-6%	II	0-5%	I-III	0-9%	I	0-4%	I	2-3%	II-III	0-3%	I	1-7%	I-III	2-2%	I-III	0-2%	I-III	0-5%
Clavien Dindo class	1122	0.6%	0.5%	I-III	0.9%	I	0.4%	I	2.3%	II-III	0.3%	I	1.7%	I-III	2.2%	I-III	0.2%	I-III	0.2%	I-III	0.5%
Cortes et al	3871	0.4%	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
Patronella et al <sup>39</sup>	663	0%	3.3%	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	0.4%	NL	NL	NL	0.1%	NL	NL	0.4%
Cardenas-Camarena et al <sup>35</sup>	93	0%	NL	NL	NL	NL	NL	NL	NL	NL	NL	0%	2.2%	2.2%	2.2%	0%	0%	0%	0%	0%	0%
Samra et al <sup>40</sup>	326	0%	NL	NL	NL	NL	NL	NL	NL	NL	NL	0%	0.6%	0.6%	0.6%	0%	0%	0%	0%	0%	0.9%
Uebel et al <sup>41</sup>	445	0.2%	NL	NL	NL	NL	NL	NL	NL	NL	NL	0.2%	0%	0%	0.4%	0.2%	0.2%	0.2%	0.2%	0.4%	0.4%
Saldanha et al <sup>42</sup>	60	0%	0%	0%	0%	NL	NL	NL	NL	NL	NL	0%	3.0%	10.0%	5.0%	5.0%	5.0%	5.0%	3.3%	3.3%	3.3%
Espinosa de-las-Monteras et al <sup>43</sup>	276	1.1%	NL	NL	NL	NL	NL	NL	NL	NL	NL	0%	0%	1.5%	0%	0%	1.5%	0%	0%	1.8%	1.8%
Vera Cuchario et al <sup>44</sup>	103	3.0%	NL	NL	NL	NL	NL	NL	NL	NL	NL	0%	8.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	4.0%	4.0%
Gravante et al <sup>45</sup>	624	2.6%	NL	NL	NL	NL	NL	NL	NL	NL	NL	0.6%	5.3%	5.1%	1.9%	1.9%	1.9%	1.9%	1.9%	8.8%	8.8%



**Table 4. Protocol to Prevent Complications**

	Recommendations
General	<ol style="list-style-type: none"> <li>1. BMI less than 32</li> <li>2. Stop weight loss medication before surgery <ol style="list-style-type: none"> <li>a. If phentermine 2 wk before surgery</li> <li>b. If GLP1 2 wk before surgery</li> </ol> </li> <li>3. Only ASA 1 or ASA 2 patients</li> <li>4. Stop contraceptives at least 2 wk, preferably 4 wk, before surgery</li> <li>5. Hemoglobin &gt; 13.0 g/dL</li> </ol>
Seromas	<ol style="list-style-type: none"> <li>1. Remove liposuction sutures next day to encourage drainage</li> <li>2. Remove abdominal drains on day 7 with drainage less than 35 mL per d/drain</li> <li>3. Manual lymphatic massage starting the same wk</li> <li>4. Pressure therapy with full body garment for 6 mo</li> </ol>
Thrombotic events	<ol style="list-style-type: none"> <li>1. SCD during surgery</li> <li>2. Early ambulation same day as surgery</li> <li>3. Lovenox 40 mg IM the morning after surgery for 7 d. If patient traveling, 10 d</li> </ol>
Infection	<ol style="list-style-type: none"> <li>1. Bactrim 800/160 mg PO q 12h for 7 d</li> <li>2. Ancef 2 g IV before surgery</li> <li>3. Clean belly button with Q-tip before surgery</li> <li>4. Shave pubic area 2 d before surgery</li> <li>5. Shower with chlorhexidine soap before surgery</li> </ol>
Nausea and vomiting	<ol style="list-style-type: none"> <li>1. Scopolamine patch before surgery</li> <li>2. Zofran 4m IV at the end of the procedure</li> <li>3. Phenergan 6.25 mg IV at the end of the procedure</li> <li>4. Droperidol 0.625 mg IV at the end of the procedure</li> </ol>
Pain	<p>Before surgery:</p> <ol style="list-style-type: none"> <li>1. Lyrica 75 mg one tab q 12h the day before surgery and one tab before surgery</li> <li>2. Tylenol 500 mg two tabs 8h before surgery and two tabs before surgery</li> </ol> <p>During surgery:</p> <ol style="list-style-type: none"> <li>1. Regional block of the incision and abdominal fascia with 15 mL bupivacaine 0.5% mix with 0.3 mL of epi (1 mg/mL) diluted with 85 mL of Ringers lactate</li> </ol> <p>After surgery:</p> <ol style="list-style-type: none"> <li>1. Tylenol #3 one or two tabs PO q 6h PRN for severe pain</li> <li>2. Ibuprofen 800 mg PO q 6h around the clock for 4 d</li> </ol>
Atelectasis, pneumonia, and breathing problems	<ol style="list-style-type: none"> <li>1. Encourage deep breathing</li> <li>2. Early ambulation</li> <li>3. Incentive spirometer</li> </ol>
Bleeding	<ol style="list-style-type: none"> <li>1. Tranexamic acid 1g at the start of the procedure and 1g at the end of the procedure</li> <li>2. Stop all herbal 2 wk before surgery</li> </ol>

(Table 4). Before using chemical prophylaxis, our thrombosis incidence was 0.7% with postoperative bleeding of 0.4%, and after adding prophylaxis, our incidence was 0.0% with 1.1% incidence of postoperative bleeding. Chemoprophylaxis did not significantly increase the risk of postoperative bleeding (Table 3). These findings are consistent with previous publications.<sup>49</sup>

## CONCLUSIONS

Abdominoplasty with hip expansion is an evolution of a procedure driven by the current trend of patients desiring a more feminine figure. The authors propose a reproducible procedure to optimize the hip-to-waist ratio. Adding volume to the anterior hips can produce an abdominoplasty result that is harmonious with adjacent aesthetic units while producing a natural appearance. This anterior hip aesthetic unit should be prioritized when performing surgical enhancement of the abdomen.

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## DISCLOSURE

*The authors have no financial interest to declare in relation to the content of this article.*

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