

Enhancing the Lipoabdominoplasty Results by Preserving Epigastric Perforators

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ABSTRACT

Objectives: Abdominoplasty is one of the most common aesthetic operations. Using selective undermining, it is possible to preserve at least 80 percent of the blood supply in the abdominal wall, preserving the great majority of the lymphatic vessels, and resulting in few complications compared with traditional abdominoplasty.

Material and Methods: In this study, lipoabdominoplasty was performed on 10 patients from January 2015 to December 2015.

Results: The results are good and excellent, especially regarding patient evaluation, better body contour, shorter scars, the form of the umbilicus, and a decrease in the abdominal measures. With a progressive adaptation of this technique, it is possible to achieve a harmonious body contour using a safe liposuction method on the abdominal and costal areas, with fast recovery and good to excellent results.

INTRODUCTION

The abdomen plays a leading role in the aesthetic image of the upright human body, and is of prime importance in defining the overall contour of the individual [1].

Despite the good results obtained with a full abdominoplasty, significant local complication such as: seroma, infection, hematoma, skin slough, scar formation, dog ears, umbilical malposition, umbilical necrosis and systemic complications such as: Deep vein thrombosis and pulmonary embolism [2-5].

Lipoabdominoplasty combines two traditional techniques, abdominoplasty and liposuction. The new and conservative concept is based on the preservation of the abdominal perforating vessels (subcutaneous pedicle), which are branches of the deep epigastric vessels [6,7].

The undermining in the upper abdomen is performed exactly between the medial borders of the rectus muscles, corresponding to the diastasis area, preserving around 80% of perforating arteries,

veins, lymphatics, and nerves, as shown by Munhoz and colleagues [8,9].

PATIENTS AND METHODS

10 Patients suffering from excess abdominal skin and adipose tissue with muscle diastasis (Matarasso type III and IV) were included in the study.

Exclusion criteria:

- Unrealistic expectations, body dysmorphic disorders, eating disorders.
- Uncontrolled chronic medical comorbidities especially respiratory as (COPD).
- Increased intra-abdominal pressure as ascites or organomegally.
- Abdominal wall hernias.
- Morbid obesity with BMI more than 35.
- Previous liposuction or other abdominal surgeries rather than cesarean sections.

Operative work up:

1- Marking and photographing:

- Marking was done in standing position with relaxed skin tension.
- In this position, retraction of the skin demonstrated the amount of skin to be removed.
- The midline from the xiphoid process to the Mons pubis will be marked on the patient.
- Marking is done by drawing a 12-cm horizontal suprapubic line that is 6 to 7cm from the vulvar commissure, Two oblique lines of 8cm each are drawn in the direction of the iliac crest, completing the inferior incision line, or as a standard abdominoplasty according to amount of skin redundancy and to avoid post operative dog ears, We try to incorporate the removal of any old scars, such as cesarean sections, in our excision. The upward pull helps to avoid a scar that is too

high by accounting for eventual upward scar contraction or migration, the abdominal flap and the liposuction areas are marked, including the dorsal region, when necessary. For better orientation at the beginning of tunnel undermining, the diastasis area is previously marked.

- Finally, photographing of the marking for complete evaluation of the technique.

Operative technique:

The abdomen up to the mid-chest and down to the groins was prepared and draped.

Infiltration:

Following disinfection and sterile draping, stab incisions were made in the infraumbilical skin for tumescent solution injection and subsequent liposuction.

The tumescent technique is used by infiltrating the abdominal region with a 50ml of 1% lidocaine and 1ml of 1:1000 epinephrine per liter of saline or lactated ringer, were infused to attain adequate skin turgor (super-wet technique).

Upper abdomen liposuction:

Liposuction was performed in all areas of the abdomen and flanks "including the epigastric area" until adequate contouring is achieved.

The patient is placed in a hyperextended position on the surgical table so that liposuction can be performed safely. Liposuction begins on the supraumbilical region with 4-mm cannulas, removing the fat of the deep and superficial layers, extending to the flank as far as the submammary fold. As in classical liposuction, the fat thickness is maintained to about 2.5cm to avoid vascular impairment and contour deformities.

Lower abdomen liposuction:

The superficial fat layer and part of the deep layer need to be aspirated in the lower abdomen using a 4-mm cannula. After evaluation of the flap mobility and descent. If necessary, complementary open liposuction is performed to remove fat above and below Scarpa fascia and to create a homogeneous surface to accommodate the superior flap, which becomes thinner in its descent.

The volume of tumescent fluid injected and the volume of the aspirate were recorded for each case.

Abdominoplasty:

Following the individually marked incision line, a sharp incision was done as far as the Scarpa's fascia.

The scalpel was introduced at an angle of 30° to bring the resection edges together later without the formation of cavities below and depressions above.

After identification of the abdominal fascia, the flap was dissected cranially along the selected fascia.

The abdominal flap was dissected in two different planes; pre-superficial fascia (pre-Scarpa's fascia) in infra-umbilical region except central area needed for plication of muscle sheath and pre-aponeurotic (pre-muscular) in the supra-umbilical region.

Umbilical incision and complete mobilization of the umbilical stalk:

A circular incision was done around the umbilicus. The dermo-fat flap was then mobilized away from the umbilicus with ensuring that the umbilical stalk would be sufficiently thick and that a wide base would be created during the dissection to prevent later perfusion disorders of the umbilicus.

Supra-umbilical dissection:

The dermo-fat flap will be then incised longitudinally in the median line from the edge of the wound to the umbilicus to facilitate further cranial dissection as far as the xiphoid process.

Selective undermining:

Selective undermining is performed in the midline of the upper abdomen, between the medial edges of the rectus abdominal muscles. Tunnel undermining may reach the xiphoid, depending on the need for rectus muscle plication. The tunnel width may vary with the distance of diastasis, Discontinuous undermining performed using the liposuction cannula facilitates the descent of the flap.

Rectus sheath plication:

Once the dissection is complete and after meticulous hemostasis, plication of the aponeurosis longitudinally was carried out with continuous non-absorbable thread (Polypropylene® 0).

Defining the resection boundaries with upper body flexed to 30°:

The entire dermo-fat flap was then pulled down under traction with the upper body flexed 30° to define the boundaries for later resection.

Umbilical transposition:

The umbilicus was then positioned outwardly and fits into the correct new position in the external cutaneous incision without tension.

Resection of the skin was performed with regular checks on the tension of the remaining skin.

Skin closure in layers:

The wound was then closed in three planes, the first being Scarpa's fascia with absorbable thread (vicryl® 2-0) in separate stitches, the second being the subdermal plane with absorbable thread (vicryl®3-0) in continuous stitches, and the third being the intradermal plane with continuous absorbable thread (prolene® 4-0).

The wound was then covered by placing a simple sterile dressing over the scar. Compressive garment (Elastoplast® or abdominal wall binder) was then used.

The duration of the whole procedure and of its various steps was recorded.

Photographing the abdomen post operatively.



Fig. (1): Infiltration of tumescent fluid.

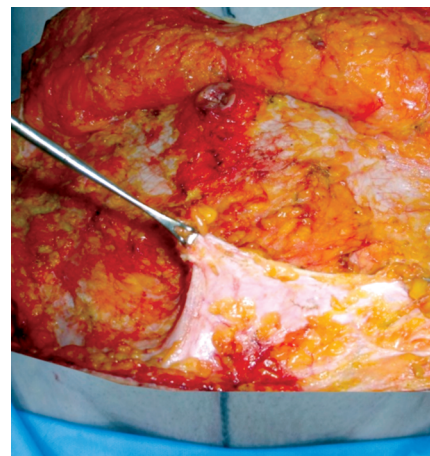


Fig. (2): The abdominal flap dissection preserving scarpa fascia.

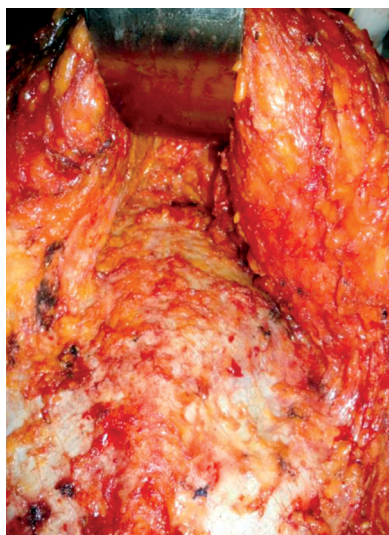


Fig. (3): Tunnel undermining for perforating vessels preservation.



Fig. (4): Early post operative.

RESULTS

Assessment of aesthetic results:

A scoring system in which outcomes were rated as excellent (0-2 points), good (3-5 points), fair (6-8 points), or bad (9-11 points) using a cumulative score of 0 to 11 points for nine variables, five variables for abdominal contour and four factors for umbilical contour. Each rated from 0 to 1 point except two of them rated from 0 to 2 points.

The results of the present study demonstrated that there were highly significant increase in aesthetic results (which mean decrease in total score) by increase Liposuction amount and decrease BMI and Flap thickness. Also, there were significant improvement of patients' waist (represented by increased waist circumference reduction after lipo-abdominoplasty) and this correlate significantly with aesthetic results (which mean decrease in total score).



Fig. (5): The patient has significant flank and anterior abdominal adiposity, redundant lower abdominal wall and upper abdominal rectus diastasis she had a lipoabdominoplasty (a) Preoperative. (b) Three Months postoperative showing improvement of waist definition, a well-positioned umbilicus, the abdominal contour is improved, epigastric bulging was corrected.



Fig. (6): The patient has significant flank and anterior abdominal adiposity and upper abdominal rectus diastasis she had a lipoabdominoplasty (a) Preoperative. (b) seven Months postoperative showing improvement of waist definition, and a well-positioned umbilicus, the abdominal contour is improved, epigastric bulging was corrected.

Table (1): Abdominal contour results.

I- The abdominal contour			
Parameter	Score	Number of cases	Percentage %
1- <i>The overall abdominal contour:</i>			
Flat	0	5	50
Bulge	1	5	50
2- <i>Flanks:</i>			
Well defined	0	4	40
Ill defined	1	6	60
3- <i>A midline depression from the xiphoid to the umbilicus:</i>			
Well defined	0	1	10
Ill defined	1	9	90
4- <i>Periumbilical contour:</i>			
Gentle concavity	0	1	10
Flat	1	9	90
Mild bulge	2	None	0
5- <i>Thickness of subcutaneous fat above and below the scar:</i>			
Gentle transition (no step deformity)	0	9	90
Step deformity	1	1	10
Total	0-6		

Table (2): Umbilicus results.

II- Umbilicus			
Parameter	Score	Number of patients	Percentage %
<i>Site:</i>			
Midline	0	10	100
Lateral to midline	1	0	0
At level of superior iliac crests	0	10	100
Below or above	1	0	0
<i>Shape:</i>			
Inverted	0	1	10
Flat	1	9	90
Everted	2	0	0
<i>Size:</i>			
1.5-2 centimeters in diameters	0	10	100
More or less	1	0	0
Total	0-5		

Table (3): Percentage of results.

Interpretation of aesthetic results	N	Percentage %
Excellent	4	40
Good	6	60
Total	10	100

DISCUSSION AND CONCLUSION

In conclusion, combining abdominoplasty and abdominal liposuction is a safe procedure that achieves gratifying results. It promotes a more youthful abdominal silhouette, better matching between the abdominal flap and the pubis, and a shorter scar. We believe that it is a safer way to treat the abdominal region than classical abdominoplasty and has a fewer complications.

We emphasize that the foundation for this success is central and limited undermining of the flap, which enables preservation of the important flap blood vessels and reduce the dead space this is agreed by Antonetti JW, Antonetti A. and Saldanha [10,11] who stated that liposuction of the anterior abdominal wall is safe when combined with limited dissection, in addition to obtaining a more harmonious and aesthetic abdominal profile by sculpturing the subcutaneous abdominal fat by liposuction.

As regarding the measurements for marking, in the contrary of Saldanha et al., [12] we stress that it should be personalized for each patient to exclude dog ear deformity and maximize aesthetic results.

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