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**Abdominoplasty with circumferential liposuction: a review of 1000 consecutive cases**

**Running head:** Abdominoplasty with circumferential liposuction

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## **ABSTRACT**

**Background:** Authors present the technique called 'abdominoplasty with concurrent circumferential liposuction' where the whole trunk is addressed as a single aesthetic unit.

**Materials and methods:** Between January 2008 and June 2016, abdominoplasty with circumferential liposuction was performed in 1000 patients (984 female, 16 male) by the senior author. Patients had a mean body mass index of 27.5 (range: 18.1-34.5). Liposuction was performed circumferentially and the abdominal flap was detached up to the costal margins. Simultaneous fat grafting was also performed if required. Outcomes, and complications were documented.

**Results:** Traditional abdominoplasty incisions were used in 359 patients (Fig. 1 A), whereas extended incisions were utilized in 641 patients (Fig. 1 B). The mean duration of follow-up was 27 months (12 days to 61 months) and the mean duration of surgery was 154 minutes (109-260 min). The mean amount of simultaneously aspirated supernatant lipoaspirate was 1940 cc (1700-4580 cc). Simultaneous gluteal fat grafting was performed in 34%. None of the patients had any skin necrosis. The most common complication was seroma (19%).

**Conclusion:** In abdominoplasty, the entire central body should be considered as a single unit. Circumferential widespread liposuction with standard undermining of the abdominal flap up to the costal margins is both safe and yields superior aesthetic outcomes.

**Keywords:** Abdominoplasty, circumferential liposuction, liposuction, body contouring.

Abdominoplasty since its introduction has made a great advance (1). Certain classifications and treatment algorithms have been proposed based on the skin excess, musculofascial laxity, and lipodystrophy (2,3). However, invention of liposuction by Illouz in the 1980s was a very important step especially in abdominal aesthetic surgery (4). Since then, concurrent use of liposuction with abdominoplasty has led to many debates (5,6). Many authors cautiously used liposuction with abdominoplasty and have designed different modifications due to the fear of skin necrosis (7,8). The article of Matarasso, which was based on the anatomical studies of Huber was advising against liposuctioning the detached abdominal flap (9,10). The 'lipoabdominoplasty' technique which was firstly described by Saldanha in 2001, was a very important step with respect to simultaneous use of abdominoplasty and liposuction (11). The author reported that undermining the flap above the umbilicus in the form of a limited triangular tunnel was safe and produced satisfactory aesthetic outcomes. Although many surgeons today still adopt a precautionary approach to performing liposuction to the detached flap during abdominoplasty, superior cosmetic outcomes in combined cases have been reported in literature (12,13).

il the last decade, the sense of beauty for women has also changed. Patients demand more curved lines around the hips and buttocks and more defined waistline. we believe that liposuction and fat grafting when indicated has become an irreplaceable tool to reach these goals in obtaining a modern feminine look during abdominoplasty.

We present our series of 1000 patients of abdominoplasty with concurrent circumferential liposuction which were performed by the senior author in 8 years. Outcomes and complications are discussed.

## **Materials and Methods**

1000 (984 female, 16 male) patients who were operated between January 2008 and June 2016 with the indication of standard or extended abdominoplasty due to skin excess, musculofascial laxity, and lipodystrophy were included in the study. Standard abdominoplasty defines where the complete surgical excision is performed while the patient is in supine position (Fig. 1 A). Extended abdominoplasty defines where the complete excision was performed from both prone and supine positions (Fig. 1 B). All patients were retrospectively reviewed in terms of demographic data, operative records, complications, liposuction, and fat grafting amounts. Mini-abdominoplasty, body lifting were excluded from the study.

All patients were operated in the accredited office operating room by the same surgeon (SOS) under general anesthesia.

### ***Surgical markings***

The key markings performed pre-operatively were placed to determine where the patient desired to have the abdominoplasty scar and areas to be liposuctioned or fat grafted (Fig. 2). But in case of abdominoplasty markings, we believe that the redundancy and weight of the abdominal tissue distorts the lower abdomen. Additionally, the pinch determination of excess skin changes once the liposuction is performed.

The lateral location of the future scar was one of the main determinants of the scar shape and placement. Patients were asked where they wanted their scar in relative to anterior superior iliac spine. This point was marked. For a standard abdominoplasty, this point determined the most lateral extension the incision. In an extended abdominoplasty, the location of the scar extension was marked (Fig. 2). The midline supra pubic location of the scar was marked after performing the liposuction of the pubic area. The mobility and the degree

of ptosis of the pubic area and the height of the torso of the patient contributed in the location of this point which was usually located 4-6 cm above the fourchette. Once the midline point is determined, a gentle smiley line connecting the lateral two points to the midline point was drawn as our incision. All excisional markings are performed during the surgery.

### ***Surgical technique***

Every surgery started in a prone position. As a super-wet solution of 1 liter of Ringer's lactate, 50 cc of 1% lidocaine, and 1 cc of 1:1000 epinephrine was used. Suction assisted liposuction was performed in lower back and other areas if needed. To define the waist line, liposuction of both superficial and deep fat compartments of flanks were performed. In case of an extended abdominoplasty, excess skin was marked by pinching equal amounts around the pre-operative marking of the desired scar location. Marked skin and subcutaneous tissue was removed. At this stage, gluteal fat grafting was done if necessary. If the presacral area was significantly thinned with liposuction a 15 french JP drain was placed in the area (**See Video 1**, which demonstrates Circumferential lipoabdominoplasty: prone position, available in the "Related Videos" section of the Full-Text article on PRSJJournal.com or, for Ovid users, available at [INSERT HYPER LINK](#)) (Video Graphic 1). Later, the patient was turned to supine position where liposuction upper abdomen and pubic area was performed. The lower abdominal incision was marked as described. The flap was undermined up to the xiphoid and costal margins while the umbilicus was incised circumferentially and left attached to its origin (Fig. 3).

The extend of the plication was marked in the midline. We used a barbed, double armed, bidirectional double 0 PDS suture. The plication started right above the umbilicus in a running fashion all the way to the xyphoid and back to the start point. Considering the thick-

ness of the skin flap, shortening of the umbilicus was done by passing the same suture through the superior and inferior umbilical stalk borders. The plication was carried all the way to the pubic area and back up to the umbilicus (Fig. 4).

The operating table was flexed by 25-30 degrees. The upper flap was pulled down at the scarpa fascia using an Alis clamp. It is important to emphasize that the pull was applied only at the midline and the excision was marked without any other pull to secure a smooth, tension free closure. In some cases, the origin of the umbilicus was closed vertically to avoid tension and misplacement of the pubic. The marked excess skin was removed. The location of the new umbilicus was determined. The umbilicus was taken out through a 1 cm length of vertical elliptical excision. The umbilicus was sewn to the flap with vertical mattress sutures interrupted 4/0 polypropylene ensuring to leave the knots on the umbilical side. A single 19 F JP drain was placed through the stab incision in pubic area. Skin closure started with approximating the skin in the midline with 0 Vicryl interrupted suture passing through the Scarpa's fascia and the lower rectus fascia to secure the position of the pubic area. And then superficial fascia is approximated in a continuous manner from lateral to medial using 0 Vicryl suture. A 3-0 barbed PDS suture was used in a continuous manner for subcutaneous repair. A 3/0 monocryl was used for subcuticular closure (**See Video 2**, which demonstrates Circumferential lipoabdominoplasty: supine position, available in the "Related Videos" section of the Full-Text article on PRSJJournal.com or, for Ovid users, available at [INSERT HYPER LINK](#)) (Video Graphic 2). A surgical garment was placed in the operating room. Most of the patients were discharged on the same day after the discharge criteria were met . Patients with risk factors such as age, high BMI or patients who did not have good support at home were kept overnight.

### *Post-operative care:*

Antibiotic prophylaxis was administered to all patients in the operating room and was continued for 10 days. Anticoagulant therapy with enoxaparin (30-40 mg/day) was started the next day after the surgery and was continued for 10 days. (Total 10 doses) For the last 2 years we have been routinely obtaining a doppler study of the lower extremities in first week after surgery.

Patients stood up straight as soon as they can, usually in a matter of 3 or 4 days. Patients wore garments for 4 weeks. Drains usually were removed in the first week when the output was less than 75cc/24 hours. Patients with fat grafting were allowed to sit on their buttocks immediately after surgery. Patients usually returned to work in 10 to 14 days and returned to exercising in 5 weeks.

### **Results**

1000 patients, of whom the mean age was 45.2(range: 25 -71) and the mean body mass index was 27.3 (18.1-35.5), were followed-up for a mean period of 27 months (3-61 months). The mean duration of surgery was 154 minutes (109-260 min). The mean total aspirated fluid amount was 2540 cc (1650-6200 cc) while the mean aspirated supernatant fat material amount was 1940 cc (1700-4580 cc). Simultaneous gluteal fat injection was performed in 341 (34%) patients . Simultaneous umbilical hernia repair was performed in 63 (6.3%) patients. Simultaneous breast surgery (breast augmentation, breast reduction, mastopexy) was performed in 368 patients (37%) while simultaneous facial surgery was performed in 18 patients (1.8%) . Tables 1-3 summarizes the results.

With respect to complications, no skin flap necrosis was seen in any patients. Transfusion was used in 10 patients (1%). The most common complication was noted as seroma (19%).

Most common site for seroma was the presacral. Hematoma was observed in 4 (0.4%) patients. Revision was performed in 61 (6%) patients. The most common cause of revision was dog-ear and scar revision in 37 patients, and secondary liposuction in 24 patients. Clinically documented DVT was observed in 15 patients, and 3 patients had pulmonary embolism. One PE was fatal and the other 2 patients were hospitalized for a mean duration of 1 week, received IV heparin therapy, and were discharged thereafter. We had 15 infections requiring IV antibiotics.

The complication results obtained are demonstrated in table 3.

## **Discussion**

Many surgeons have approached concurrent liposuction with abdominoplasty conservatively (14). However in recent years, studies have demonstrated that combination of abdominoplasty and liposuction did not lead to extra morbidity actually (15-17). Among these studies, the study done by Hunstad et al, deserves extra mentioning. The authors reported their results with extensive liposuction and abdominoplasty with wide undermining of the entire flap up to the costal margins. Excellent cosmetic results with acceptable complication rates were reported (17).

In our operations for the last 8 years, we started every operation in prone position. This allowed us to give a better definition to the waistline that cannot be achieved from supine position only. We performed superficial and deep liposuction of the entire flanks area which is an important maneuver to define the waist line (fig5).

We think that performing simultaneous liposuction with abdominoplasty brings many advantages in addition to achieving a shapelier body. After liposuction, the tissue burden to be supplied by lateral subcostal perforators decreases. Moreover, the abdominal tissue af-



ter liposuction gains more mobility and the extend of lateral undermining is minimized hence preserving better circulation to the detached abdominal flap.

In terms of standard flap detachment up to the costal margins instead of a more conservative tunnel shaped undermining, a wider musculofascial plication could be performed which helped in achieving aesthetically satisfying waist lines, flatter upper abdomen with better definition. We still utilize tunnel type of undermining in patients with upper quadrant scars or history of smoking in an effort to maximize the amount of perforators feeding the flap. We do not perform lipoabdominoplasty in active smokers.

Traditionally, patients are brought to a sitting position exceeding 45 degrees and the excess skin is marked by exerting traction to multiple points of the detached abdominal flap. This may cause unpredictable distortion of the pubic area and the resultant scar when the patient stands up straight. We prefer sitting the patient only 30 degrees. The only tension point is in the midline but the reach of the detached abdominal flap is better due to liposuction which enables us to have less tension even at this point. It is important to emphasize that this midline point is initially secured to the low rectus fascia to avoid distortion of the pubic area and rest of the excess skin is marked without any. We did have a vertical scar component in 6% of the patients in our efforts to keep the midline tension low (fig 6). This is an important point to be discussed with the patients preoperatively. In our experience, vertical scar component is more common with skinny patients, patients with high location of umbilicus and patients with previous history of abdominal liposuction or abdominoplasty.

Discussing the location and the shape of the scar is critically important. That is why we ask all our patients where they want the lateral portion of their scar. All the patients wanted

their central scar low but the height of the scar laterally varied from one patient to another. Some preferred straight low scar, where some others preferred low but smiley shape or curving almost like a bicycle handle (fig7).

We had 96 patients who had previous abdominoplasty. It is perfectly safe with these patients to perform a lipo-abdominoplasty because all these patients had their perforators divided during the first surgery which created a delay type of effect on the detached abdominal flap (fig 8).

We have been using continuous suturing technique for plication and closure for the last 10 years. We think that multiple interrupted sutures increase the risk of fat necrosis, infection, and foreign body reaction. Continuous technique also saves time.

In our series, we presented that 34% of the patients received fat grafting to buttocks and hips. But in our current practice fat grafting is done in more than 60% of the patients which includes fat grafting to the breast. (fig9).

It is also important to mention that pubic area is an integral portion of the abdomen and needs to be addressed accordingly. When indicated fat needs to be removed directly or by liposuction and pubic area needs to be reduced and suspended to the lower rectus fascia. (fig10)

In our series, the rates of complications were found to be parallel with the values reported previously in the literature (19,20). Importantly, no skin necrosis was observed which demonstrates the reliability of our technique. Seroma was the most common complication. We had two sites for seroma, one was the presacral area and the second was the abdomen. The fact that we started every abdominoplasty in prone position and performed liposuction of the presacral area explains the unusual occurrence of presacral seroma. We believe the dependent nature of the area

makes this site vulnerable to seroma formation during the recovery period and liposuction of the area impairs the lymphatic drainage. The high rate of seroma in the abdomen could be explained by wide undermining in the supraumbilical area and the use of concomitant liposuction. In patients in whom we observed seroma, repeated aspirations were undertaken immediately and only 16 patients (1.6%) required re-insertion of a drain. No patient required additional surgery for treatment of seroma. The progressive tension sutures which has been proven to be effective, may be used to prevent a seroma (23). However, risk of compromising the circulation of the liposuctioned flap and the extra time to be spent during the surgery should be considered as well.

The rates of DVT and pulmonary embolism (PE), were 1.5% and 0.3%, respectively. Two patients who presented with PE were hospitalized for 7 days and discharged without mortality (12,19). Unfortunately, we had one patient passed away due to fatal pulmonary embolism. This patient had 10 days course of DVT prophylaxis with enoxaparin 40mg/day and had no risk factors. Incident took place on the 12<sup>th</sup> postoperative day. Pulmonary embolus was confirmed with autopsy and but no DVT was found in the lower extremities. In a review of a large series of autopsies after PE, no source of embolus was found in 22,6% of the patients (27). In our series of 1000 patients we used different approaches to medical DVT prophylaxis. In fact, there are debates in the literature relating to the time of onset of anti-coagulant therapy (19, 25). Currently, we give 30-40mg/day enoxaparin starting on the 1<sup>st</sup> postoperative day and continue for 10 days. Since we had a fatal PE, we started to obtain doppler studies of lower extremities of every abdominoplasty patient in the first postoperative week. The study is cheap and non-invasive.

We had 15 patients who developed infections requiring IV antibiotics. All of them had infected seromas which was undetected initially. Surgical drainage was performed for all the patients. Once the drainage was done there was no further need for IV antibiotics and patients were kept on oral antibiotics for 10 days.

To the best of our knowledge, this study is the largest series related to abdominoplasty with concurrent circumferential liposuction to address the central body. With 360-degree patient evaluation combined with liposuction and complimentary fat grafting, highly satisfactory results. Major flaws of the current study, however may be summarized as its retrospective design, and evaluation of the aesthetic outcomes rather subjectively.

### **Conclusion**

In the abdominoplasty with circumferential liposuction technique which addresses all central body units with a 360-degree approach, it is possible to obtain an aesthetically pleasing central body. The most important key points in success can be summarized as performing liposuction liberally in the whole mid-trunk circumferentially, detaching the abdominal flap widely up to the costal margins, low tension closure of the incision and augmenting aesthetic units with fat grafting as required.

### **Summary**

In circumferential lipoabdominoplasty, the aesthetic unit of the abdomen is considered to be 360 degrees including the buttocks and the flanks. Every surgery is initiated in prone position. Incorporation of liposuction of flanks allows us to achieve a better definition of the waistline. Fat grafting, when indicated, can create more feminine curves to complement the result. In supine position, liposuction of the abdomen including the pubic area brings additional definition to abdomen. Complications rates are acceptable and are consistent

with what is reported in the literature. Circumferential lipoabdominoplasty is a safe procedure that can produce aesthetically more pleasing results that can not be achieved with the traditional abdominoplasty where the procedure is performed in only supine position and usually, liposuction is not performed.

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## References

1. Kelly, H. A. Report of gynecological cases. Johns Hopkins Med. J. 10: 197, 1899
2. Sozer SO, Agullo FJ, Santillan AA, Wolf C. Decision making in abdominoplasty. Aesthetic Plast Surg. 2007 Mar-Apr;31(2):117-27.
3. Matarasso, A., "Abdominolipoplasty A System of Classification and Treatment for Combined Abdominoplasty and Suction-Assisted Lipectomy". Aesthetic Plastic Surgery. 15:111, 1991
4. Illouz YG. Body contouring by lipolysis: a 5-year experience with over 3000 cases. Plast Reconstr Surg. 1983 No: v;72(5):591-7.
5. Hester TR Jr, Baird W, Bostwick J 3rd, Nahai F, Cukic J. Abdominoplasty combined with other major surgical procedures: safe or sorry? Plast Reconstr Surg. 1989 Jun;83(6):997-1004.
6. Matarasso A. Liposuction as an adjunct to a full abdominoplasty. Plast Reconstr Surg. 1995 Apr;95(5):829-36.
7. Illouz YG. A new safe and aesthetic approach to suction abdominoplasty : Aesthetic Plast Surg. 1992 Summer;16(3):237-45.
8. Shestak KC. Marriage abdominoplasty expands the mini abdominoplasty concept: Plast Reconstr Surg. 1999 Mar;103(3):1020-31; discussion 1032-5.
9. Matarasso A. Liposuction as an adjunct to a full abdominoplasty revisited. Plast Reconstr Surg. 2000 Oct;106(5):1197-1202; discussion 1203-5.
10. Huger WE Jr. The anatomic rationale for abdominal lipectomy. Am Surg. 1979 Sep;45(9):612-7.

11. Saldanha OR, Pinto EB, Matos WN Jr, Lucon RL, Magalhães F, Bello EM. Lipoabdominoplasty without undermining. *Aesthet Surg J*. 2001 Nov;21(6):518-26.
12. Smith LF, Smith LF Jr. Safely combining abdominoplasty with aggressive abdominal liposuction based on perforator vessels: technique and a review of 300 consecutive cases. *Plast Reconstr Surg*. 2015 May;135(5):1357-66.
13. Swanson E. Prospective outcome study of 360 patients treated with liposuction, lipoabdominoplasty, and abdominoplasty. *Plast Reconstr Surg*. 2012 Apr;129(4):965-78.
14. Huger WE Jr. The anatomic rationale for abdominal lipectomy. *Am Surg*. 1979 Sep;45(9):612-7.
15. Graf R, de Araujo LR, Rippel R, Neto LG, Pace DT, Cruz GA. Lipoabdominoplasty: liposuction with reduced undermining and traditional abdominal skin flap resection. *Aesthetic Plast Surg*. 2006 Jan-Feb;30(1):1-8.
16. Stevens WG, Cohen R, Vath SD, Stoker DA, Hirsch EM. Does lipoplasty really add morbidity to abdominoplasty? Revisiting the controversy with a series of 406 cases. *Aesthet Surg J*. 2005 Jul-Aug;25(4):353-8.
17. Hunstad JP, Jones SR. Abdominoplasty with thorough concurrent circumferential abdominal tumescent liposuction. *Aesthet Surg J*. 2011 Jul;31(5):572-90.
18. Saldanha OR, Federico R, Daher PF, Malheiros AA, Carneiro PR, Azevedo SF, Saldanha Filho OR, Saldanha CB. Lipoabdominoplasty. *Plast Reconstr Surg*. 2009 Sep;124(3):934-42.
19. Friedland JA, Maffi TR. MOC-PS(SM) CME article: abdominoplasty. *Plast Reconstr Surg*. 2008 Apr;121(4 Suppl):1-11.

20. Matarasso A, Swift RW, Rankin M. Abdominoplasty and abdominal contour surgery: a national plastic surgery survey. *Plast Reconstr Surg*. 2006 May;117(6):1797-808.
21. Teimourian B. Management of seroma in abdominoplasty. *Aesthet Surg J*. 2005 Sep-Oct;25(5):510-1.
22. Spiegelman JI, Levine RH. Abdominoplasty: a comparison of outpatient and inpatient procedures shows that it is a safe and effective procedure for outpatients in an office-based surgery clinic. *Plast Reconstr Surg*. 2006 Aug;118(2):517-22; discussion 523-4.
23. Pollock TA, Pollock H. Progressive tension sutures in abdominoplasty: a review of 597 consecutive cases. *Aesthet Surg J*. 2012 Aug;32(6):729-42.
24. Baroudi R, Ferreira CA. Seroma: how to avoid it and how to treat it. *Aesthet Surg J*. 1998 Nov-Dec;18(6):439-41.
25. Hull RD, Pineo GF, Francis C, Bergqvist D, Fellenius C, Soderberg K, Holmqvist A, Mant M, Dear R, Baylis B, Mah A, Brant R. Low-molecular-weight heparin prophylaxis using dalteparin extended out-of-hospital vs in-hospital warfarin/out-of-hospital placebo in hip arthroplasty patients: a double-blind, randomized comparison. North American Fragmin Trial Investigators. *Arch Intern Med*. 2000 Jul 24;160(14):2208-15.
26. Swanson E. Ultrasound screening for deep venous thrombosis detection: a prospective evaluation of 200 plastic surgery outpatients. *Plast Reconstr Surg Glob Open*. 2015 Apr 7;3(3):e332.
27. Tadlock MD, et al. The origin of fatal pulmonary emboli: a postmortem analysis of 500 deaths from pulmonary embolism in trauma, surgical, and medical patients. *Am J Surg*. 2015 Jun;209(6):959-68.



## FIGURE LEGENDS

**Fig. 1.** A post-operative photo that shows the standard abdominoplasty incision's length and level (A) . Abdominal incision's length and level in extended abdominoplasty (B).

**Fig. 2.** The key markings in standard abdominoplasty (A) and in extended abdominoplasty (B).

**Fig. 3.** The detached abdominal flap.

**Fig. 4.** The plication of rectus fascia (Published with permission ©EFE).

**Fig. 5.** Pre-operative oblique view of a patient (A). The post-operative photo of same patient after extended abdominoplasty and superficial&deep liposuction of the entire flanks area (B).

**Fig. 6.** Pre-op. and post-op. views of the patient with the vertical component of previous umbilicus.

**Fig. 7.** Varies designs of abdominoplasty scars.

**Fig. 8.** Pre-op. and post-op. photos of a secondary abdominoplasty.

**Fig. 9.** A result of fat grafting and abdominoplasty combination.

**Fig. 10.** The result of the abdominoplasty with reduction and suspension of pubic area.

## TABLE LEGENDS

**Table 1.** Data of 1000 Patients Undergoing Abdominoplasty.

**Table 2.** Abdominoplasty and Concomitant Procedures in the Study.

**Table 3.** Complications.

## VIDEO LEGENDS

**Video Graphic 1.** See **Video 1**, which demonstrates Circumferential lipoabdominoplasty: prone position, available in the “Related Videos” section of the Full-Text article on PRSJJournal.com or, for Ovid users, available at INSERT HYPER LINK.

**Video Graphic 2.** See **Video 2**, which demonstrates Circumferential lipoabdominoplasty: supine position, available in the “Related Videos” section of the Full-Text article on PRSJournal.com or, for Ovid users, available at [INSERT HYPER LINK](#).

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**Table 1. Data of 1000 Patients Undergoing Abdominoplasty**

<b>Age, mean, range</b>	45.2 ( 25-71)			
<b>BMI</b>	Underweight <18.5 patients 51 (5%)	Normal Weight 18.5-24.9 patients 229 (23%)	Overweight 25-29.9 patients 420(42%)	Obesity 30-30< patients 300 (30%)
<b>Sex</b>	16 male patients		984 female patients	
<b>Smoker</b> these are patients with history of smoking	51 ( %5)			
<b>Follow-up</b>	27 Months (3-61 months)			
<b>Type of Abdominoplasty</b>	Standart Abdominoplasty 359 (36.4%)		Extended Abdominoplasty 641 ( 63.6 %)	
<b>The duration of the surgery</b>	154 minutes (109- 260 minutes)			
<b>Total aspirated fluid amount</b>	2540 cc (1650-6200 cc)			
<b>Aspirated supernatant fat material amount</b>	1940 cc (1700-4580 cc)			

**Table 2. Abdominoplasty and Concomitant Procedures in the Study**

<b>Concomitant Surgeries</b>	<b>No. of Patients</b>
<b>Breast Surgeries (Breast Augmentation, Breast Reduction, Mastopexy)</b>	<b>368 (36.8%)</b>
<b>Fat injections to buttocks</b>	<b>341 (34.1%)</b>
<b>Umbilical Hernia Repair</b>	<b>63 (6.3%)</b>
<b>Facial Surgeries (Face Lift, Neck Lift)</b>	<b>18 (1.8%)</b>

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**Table 3. Complications**

<b>Abdominoplasty Complications</b>	<b>No. of Patients (%)</b>
<b>Total</b>	<b>364 (36%)</b>
<b>Total Seroma</b>	<b>194 (19%)</b>
<i>Seroma in the abdominal area</i>	<i>42 (22%)</i>
<i>Seroma in the presacral area</i>	<i>118 (61%)</i>
<i>In the both sides</i>	<i>34 (17%)</i>
<b>Minor infections requiring prolonged oral antibiotics</b>	<b>34 (3.4%)</b>
<b>Serious infections requiring intravenous antibiotics</b>	<b>15 (1.5%)</b>
<b>Hematoma</b>	<b>4 (0.4%)</b>
<b>Need for blood transfusion</b>	<b>10 (1%)</b>
<b>Dog-ears, Wide and pigmented scars</b>	<b>37 (3.7%)</b>
<b>Clinically documented DVT</b>	<b>15 (1.5%)</b>
<b>Pulmonary Embolism</b>	<b>3 (0.3%)</b>
<b>Fatal Pulmonary Embolism</b>	<b>1 (0.1%)</b>

**Figure 1**



**Figure 2**

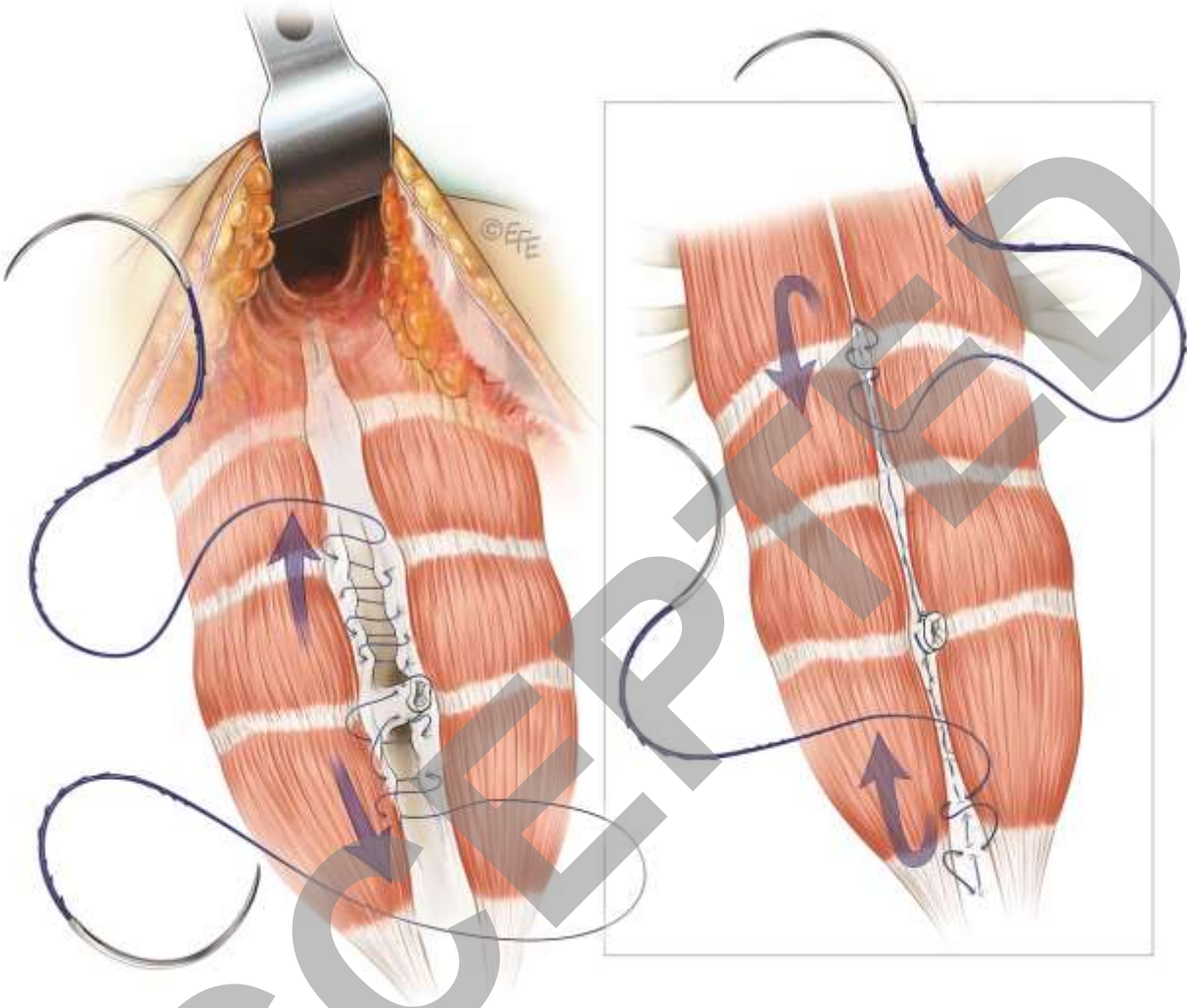


**Figure 3**





Figure 4



**Figure 5**



Figure 6



Figure 7



**Figure 8**



**Figure 9**



**Figure 10**



Video.graphic1





Video.graphic2

