Comparative thesis study between Lipoabdominoplasty Versus Traditional Abdominoplast

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Abstract: Background: Abdominoplasty is one of the most common aesthetic procedures that have developed significantly over the past several years. **Objectives:** The purpose of this study is to evaluate the safety of abdominoplasty with concurrent abdominal liposuction. **Patients and Methods:** Proper patient selection and education are critical factors to ensure long-term success of the procedure. Patients requiring abdominoplasty must have realistic expectations and should be committed to healthy lifestyle, a well-balanced diet and regular exercises. Between February of 2017 and January of 2019, in sheikh zayed specialized hospital, (32 patients) seeking abdominal contouring were evaluated and be operated. Data were taken from charts of patients with mean follow-up of 10 months postoperatively. **Results:** Concerning Infection, the total wound infection rate in our study in both of the groups was (3 patients 12.5%). In abdominoplasty group of patients (one patient 6.25%) got wound infection, Also, in lipoabdominoplasty group of patients' (one patient 6.25%) got infection. All cases required treatment with intravenous antibiotics for two weeks and healing with no further complications. **Conclusion:** Lipoabdominoplasty is a very effective tool to perfect body shape. This study showed that it wasn't associated with higher rates of complications than traditional abdominoplasty.

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1. Introduction

Abdominoplasty is one of the most commonly performed aesthetic procedures which has undergone a significant development over the past several years and decades ***(Wallach, 2004).***

According to the American Society for Aesthetic Plastic Surgery's 2004, Cosmetic Surgery National Data Bank, during the previous seven years the number of abdominoplasty procedures performed increased by 344 % ***(American Society for Aesthetic Plastic Surgery, 2004).***

Functional and aesthetic deformities of the abdominal wall due to skin flaccidity, lipodystrophy and diastasis of the abdominal wall muscles cause many negative psychological, physiological and aesthetic effects. Abdominoplasty and liposuction attempt to correct those problems. For many years abdominoplasty considered to be a relatively easy procedure to perform, but its results were not always satisfactory from a cosmetic point of view ***(Saldanha et al, 2010).***

Currently many surgical procedures are available for body and abdominal contouring, based on the individual characteristic of the patient's anatomy and their goals, these abdominal contouring procedures include liposuction, mini abdominoplasty, full abdominoplasty and abdominoplasty which are combined with liposuction which is called lipoabdominoplasty ***(Friedland and Maffi, 2008).***

The main goals in abdominoplasty procedures are to excise the redundant abdominal skin and subcutaneous tissue in a favorable manner. In addition, the abdominal musculo-aponeurotic layer should be restored to prevent abdominal hernias and diastasis, while at the same time, improving the abdominal wall contour ***(Shiffman and Mirrafati, 2008).***

Due to the number of variations and modifications of abdominoplasties, it is a key to select the appropriate technique in every individual case, determining the best procedure by minimizing morbidity and postoperative disability for desirable and favorable results ***(Hunstad and Repta, 2009).***

The adding of liposuction totally altered the concepts of traditional Abdominoplasty operation and surely improved the ability to contour the abdomen in a very good manner ***(Shiffman and Mirrafati, 2008).***

The introduction in the 1980s of suction assisted lipectomy (SAL) added a new dimension to abdominal contour surgery. Liposuction procedures alone or in combination with abdominoplasty allowed more patients with a wider variety of abdominal contour deformities to be successfully treated ***(Matarasso, 1989).***

Also, due to the development and popularity of liposuction, which surely is less invasive and offers a more rapid recovery? Combination of Liposuction and Abdominoplasty created a new technique called Lipoabdominoplasty ***(Matarasso, 1989).***

There has been much debate about performing liposuction on an undermined abdominoplasty flap, the use of wetting solutions, and the safety of combining abdominoplasty procedures with abdominal liposuction. The procedure of 'lipoabdominoplasty' consists of liposuction of the abdominal area and flanks, reduced lateral undermining, complete midline aponeurotic plication, and traditional abdominal excess skin flap resection ***(Saldanha et al., 2004).***

This modified approach offers more advantages and may reduce the most common complications which are ischemia and seroma that seen with classic abdominoplasty. The wide undermining of the abdominal flap in traditional abdominoplasty is believed by some to be a cause of complications ***(Hunstad and Repta, 2009).***

From these concepts the procedure of lipoabdominoplasty evolved as a logical method to define and treat abdominal contour deformities ***(Matarasso, 1993).***

Lipoabdominoplasty has been a controversial topic because of reported risks of liposuction-induced effects on the vascular supply of the resulting abdominal skin flap and the possibility of thrombotic or fat embolic complications ***(Manassa et al., 2003).***

Surgeons focused increased attention on reducing complications such as affected vascularity, hematoma, seroma, wound dehiscence, and skin infection. Greater effort has been set forward to determine the abdominal skin flap compromised vascularity to limit these complications ***(Matarasso et al., 2006)***.

Lipoabdominoplasty is a surgical procedure to improve abdominal contour by dealing with the areas not accessible to resection during classical abdominoplasty, especially flanks and upper epigastric region. Lipoabdominoplasty is nearly a daily aesthetic procedure. Adding liposuction to the abdominoplasty technique has not been clearly evaluated. More studies are needed to evaluate the effectiveness and safety of liposuction which is added to traditional abdominoplasty **(Aboelatta, 2014).**

Lipoabdominoplasty is very effective surgical procedure to maintain a youthful physique for aging people, improve body contouring, and remove excess skin caused by massive weight loss. For two decades combination of abdominoplasty and liposuction was a questionable procedure because of the potential for vascular damage of the abdominal flap and increased complications **(Xia 2018).**

Due to all these controversies and reported risks, this study is done to give more evidence of the benefit of adding liposuction to abdominoplasty and its potential effect on increasing the risk of compromising flap vascularity.

Aim of the Work

The purpose of this study is to evaluate the safety of abdominoplasty with concurrent abdominal liposuction.

2. Patients and Methods

Proper patient selection and education are critical factors to ensure long-term success of the procedure. Patients requiring abdominoplasty must have realistic expectations and should be committed to healthy lifestyle, a well-balanced diet and regular exercises.

Between February of 2017 and January of 2019, in sheikh zayed specialized hospital, (32 patients) seeking abdominal contouring were evaluated and be operated. Data were taken from charts of patients with mean follow-up of 10 months postoperatively.

Inclusion criteria are:

Healthy female patients with age between (25-55) years, multi-parity, with BMI between (30-38), non-smokers, non-diabetics, with no previous surgical operations except (Caesarean section), with infra-umbilical striae, moderate excess adiposity, skin and soft-tissue laxity, and rectus diastasis or Myofascial laxity who is looking for an improved abdominal contour: removal of excess abdominal skin and subcutaneous tissue, treatment of abdominal wall laxity, and correction of rectus diastasis.

Note: (a patient was considered a "nonsmoker" if she had never smoked or had stopped smoking 4 weeks before surgery).

Exclusion criteria are:

Male patients, cases aged over 55 years, nulli-parity, with BMI over 38, smokers or diabetics, with previous abdominal surgeries, with body dysmorphic or psychological disorders, thromboembolic disorders, or previous large abdominal scars.

Categorization of the patients:

(32) Patients were categorized into two groups:

Group I (n 16 Patients).

Traditional abdominoplasty was done Patients selected who had excess skin laxity in the supra-umbilical and infra-umbilical region, with poor muscle tone, but without excess fat accumulation in upper abdomen.

Group II (n 16 Patients).

Lipoabdominoplasty was done Patients selected who had excess fat in the upper and lower abdomen and also excess skin laxity in the supra-umbilical and infra-umbilical region, with poor muscle tone.

Evaluations of the patients were done as regard:

1) Patient Satisfaction

By scaling questionnaire and score from (0 to 10) (Salles, 2011).

This is based on subjective criteria.

The method scores each of the following five parameters:

1) Volume of subcutaneous tissue,
2) Contour,
3) Excess of skin,
4) Aspect of the navel,
5) Quality of the scar on the abdominal wall.

Wound complications: included

- **Vascularity of the abdominal flap:**

(By follow up the color changes of the abdominal flap for 14 days after surgery)

- **Irregularities of the abdominal wall**

(Small accepted or large and not accepted)

- **Wound infection** (Pus formation, criteria of inflammation fever)
- **Wound dehiscence** (Gap formation in the wound area: measured by cm)
- **Seroma**

(Days of seroma after operation)

- **Hematoma**

(Hematoma formation or not, area of hematoma by cm)

- **Skin edge necrosis.**

(Darkness of skin edges by cm)

Group I: (16) patients were included in this group:

Patients selected are who had excess skin laxity in the supra-umbilical and infra-umbilical region, with poor muscle tone, but without excess fat accumulation in upper abdomen.

Group II: Lipoabdominoplasty

Patient selection: (16) Patients included in this group.

Patients who were selected for Lipoabdominoplasty were Patients who had excess fat in the upper and lower abdomen and also excess skin laxity in the supra-umbilical and infra-umbilical region, with poor muscle tone with or without rectus muscles diastasis.

2. Results

Table (1): Comparison between two groups regarding Demographic data

		Traditional abdominoplasty	Liboabdominoplsty	Test value•	P-value	Sig.
		No. = 16	No. = 16			
Age	Mean±SD Range	36.56 ± 8.47 25 – 55	38.44 ± 7.38 25 – 55	-0.668	0.509	NS
BMI	Mean±SD Range	34.55 ± 2.00 30 – 37.5	36.06 ± 2.03 33 – 39	-2.122	0.042	S
Hospital stay	Mean±SD Range	1.13 ± 0.34 1 – 2	1.25 ± 0.58 1 – 3	-0.745	0.462	NS
Operative time (min)	Mean±SD Range	198.13 ± 24.76 165 – 250	229.69 ± 18.75 195 – 255	-4.065	0.000	HS

P-value >0.05: Non significant (NS); P-value <0.05: Significant (S); P-value< 0.01: highly significant (HS)
•: Independent t-test

The Previous table shows that there was statistically significant difference found between two groups regarding BMI with P-value (0.042). While there was highly statistically significant difference found between two groups regarding operative time with p-value (<0.001). And there was no statistically significant difference found between two groups regarding (Age and hospital stay).

Table (2): Comparison between two groups regarding time of edema subsidence and patients satisfaction according to scale (1-10)

		Traditional abdominoplasty	Liboabdominoplsty	Test value•	P-value	Sig.
		No. = 16	No. = 16			
Time of edema subsidence	Mean±SD Range	10.81 ± 2.90 7 – 18	11.13 ± 3.50 6 – 18	-0.275	0.785	NS
Patient satisfaction according to scale (1-10)	Mean±SD Range	5.88 ± 0.89 5 – 7	7.75 ± 1.00 6 – 9	-5.616	0.000	HS

P-value >0.05: Non significant (NS); P-value <0.05: Significant (S); P-value< 0.01: highly significant (HS)
•: Independent t-test

The previous table shows that there was no statistically significant difference found between two groups regarding time of edema subsidence with P-value (0.785) while there was highly statistically significant difference found between two groups regarding patient satisfaction according to scale (1-10) with P-value (0.000).

Table (3): Comparison between two groups regarding complications

Complications	Traditional abdominoplasty		Liboabdominoplasty		Test value	P-value	Sig.
	No.	%	No.	%			
No complication	12	75.0%	12	75.0%	0.000	1.000	NS
Complications	4	25.0%	4	25.0%			
Type of complications							
Seroma	1	6.3%	2	12.5%	0.368	0.544	NS
Hematoma bleeding	0	0.0%	0	0.0%	NA	NA	NA
Infection	1	6.3%	1	6.3%	0.000	1.000	NS
Healing problems	2	12.5%	1	6.3%	0.368	0.544	NS
Fat embolism	0	0.0%	0	0.0%	NA	NA	NA
DVT	0	0.0%	0	0.0%	NA	NA	NA
Death	0	0.0%	0	0.0%	NA	NA	NA

P-value >0.05: Non significant (NS); P-value <0.05: Significant (S); P-value< 0.01: highly significant (HS)
*: Chi-square test

The previous table shows that there was no statistically significant difference found between two groups regarding the total number of complications, seroma, hematoma bleeding, infection and healing problems with P-value (>0.05) while there was cases of fat embolism, DVT and death.

4. Discussion

In our study we included 36 female patients divided into two groups, (group I) which consists of 16 patients did traditional abdominoplasty; (group II) which consists 16 patients did lipoabdominoplasty.

Total complication rate was the same in both groups which was (25%).

According to Stevens et al., in 2005, in the study that included 406 cases, they didn't find any difference in complication rates between patients that did traditional abdominoplasty alone or lipoabdominoplasty**.**

According to ***Lane F. Smith, in (2015)*****,** in his study which included 300 patients. it shows that standard abdominoplasty can be safely combined with concurrent abdominal liposuction**.** (17.3 %) of patients faced complications. Complications were categorized into two groups, major and minor complications. Only (1.3 %) of the patients had major complications. (16 %) of the patients had minor complications.

According to ***Heller et al., in (2008)*****,** Group of patients that did traditional abdominoplasty had a total complication rate of (42%), while in group of patients that did lipoabdominoplasty significantly lowered to (9%).

Concerning seroma, the total seroma rate in our study in both groups was (3 patients 18.75%).

In abdominoplasty group of patients' seroma rate was (one patient 6.25%) developed seroma, in lipoabdominoplasty group of patients' seroma rate was (two patients 12.5%) developed seroma. All seromas resolved simultaneously or with needle aspiration.

According to ***Gould et al., in (2018)*** seroma rate in the abdominoplasty group of patients was (6.67%) while the rate of Seroma in the lipoabdominoplasty group of patients was (6.19%).

According to ***Xia (2018)*****,** 17 trials included 14,061 patients were checked and reported, 577 (4.1%) Of these patients developed seroma and with further detailed analysis revealed that the group of patients who did lipoabdominoplasty had a lower incidence of seroma (RR = 0.69; 95% CI 0.57-0.85; p = 0.000).

Concerning Infection, the total wound infection rate in our study in both of the groups was (3 patients 12.5%).

In abdominoplasty group of patients (one patient 6.25%) got wound infection, Also, in lipoabdominoplasty group of patients' (one patient 6.25%) got infection**.**

All cases required treatment with intravenous antibiotics for two weeks and healing with no further complications.

According to ***Weiler et al. (2010)*****,** Infection rate was the same in both groups that did abdominoplasty and lipoabdominoplasty which was (7.5%); it just

required antibiotic therapy and resolved without further intervention.

According to ***Xia (2018)*****,** 17 trials included 14,061 patients were checked and reported. Of these patients, 783 (5.6%) experienced wound infection.

Concerning delayed healing problems, the rate in our study in both groups was (3 patients 18.75%).

In abdominoplasty group of patients' two patients (12.5%) suffer from delayed healing problems, in lipoabdominoplasty group of patients': (one patient 6.25%) suffer from delayed healing problems.

According to ***Lane F. Smith, (2015)*****,** delayed healing problems were the most common complication rate which was (7 %), Patients were in need for scar revision and was the same in both groups.

According to study of ***Heller et al. (2008)*****,** wound revision rate in the abdominoplasty group of patients was (39%), while the wound revision rate in the lipoabdominoplasty group of patients was (3%).

Minor dehiscence or wound edge necrosis usually happened in the central region of the abdomen along the center of the incisional line at the maximum tension point. All the necrotic areas were less than 2 cm in width and 4 cm in long. All resolved with minimal wound care. From all the patients in our study, two patients developed infection of the lower abdomen, one patient in each group. This infection was resolved with two weeks oral antibiotics.

Concerning flap necrosis, hematoma and bleeding, there were no cases in both groups of patients.

According to ***Xia (2018)*****,** Subgroup analysis showed that the group of patients that did lipoabdominoplasty had a lower incidence of hematoma (RR = 0.56; 95% CI 0.36-0.86; p = 0.009).

Concerning Operative time, traditional abdominoplasty is providing a potential shorter operative time. In abdominoplasty group of patients' mean Operative time was (165 min), while in lipoabdominoplasty group of patients' mean Operative time was (229 min).

Concerning systemic complication rates in our study in both traditional abdominoplasty and lipoabdominoplasty groups, there were no reported cases. Systemic Complications that included fat embolism and thromboembolic complications like: (deep vein thrombosis and pulmonary thromboembolism).

Concerning patient satisfaction, According to satisfaction scale the mean satisfaction rate differs from both groups that discuss (volume of subcutaneous tissue, body contour, excess of skin, the umbilicus shape, quality of the scar on the abdominal wall), this scale ranging from (0 to 10).

In abdominoplasty group of patients' the mean satisfaction rate was (**5.875**), while in lipoabdominoplasty group of patients' the mean satisfaction rate was (**7.75**).

According to study of ***Heller et al., in (2008)*****,** satisfaction rate in Abdominoplasty group of patients was (58%), while the satisfaction rate of lipoabdominoplasty group of patients was (97%).

According to ***Kanjoor (2012),*** the lipoabdominoplasty is supposed to give a more satisfaction rate than traditional abdominoplasty by giving more overall body contouring results and by reducing the epigastric fullness sensation which is felt after traditional abdominoplasty.

Conclusion

Lipoabdominoplasty is a very effective tool to perfect body shape. This study showed that it wasn't associated with higher rates of complications than traditional abdominoplasty.

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