

## Efficacy And Saftey of Scarpa's Fascia Preservation during Abdominoplasty; A Comparative Randomised Study

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### Abstract

Objectives the study aims to evaluate the efficacy and safety of preservation of scarpa's fascia in abdominoplasty and compare it with conventional abdominoplasty in terms of surgical site infection, seroma, drain volumes, time of drain removal and hospital stay. Patients and methods The current study was carried on 40 female cases seeking for truncal body contouring. Their ages ranged between 20 and 65 years, and BMI ranged from 25 to 35. BMI above 35, previous abdominal surgery, any associated hernias, postbariatric surgery, smokers, and comorbid diseases such as diabetes, chronic obstructive airway disease, and autoimmune, liver, and renal diseases were excluded. Results With Scarpa's fascia preservation, the mean total drain output with scarpa's preservation ( $161 \pm 39.99$ ) was much lesser than the classic abdominoplasty ( $554.5 \pm 200.9$ ); moreover, drains were removed earlier with Scarpa's fascia preservation ( $2.95 \pm 0.22$  days) in comparison with classical abdominoplasty ( $5.55 \pm 1.10$  days). All patients passed without seroma formation in Scarpa's fascia preservation in group A; however, 2 cases presented with wound dehiscence (10%). In traditional abdominoplasty (group B), seroma was detected in a two cases (10%), umbilical ischemia in a single case (5%) and a single case (5%) presented with full-thickness infraumbilical necrosis in zone I. Conclusion Preservation of Scarpa's fascia during scarpa's preservation abdominoplasty reduces patient recovery in the form of reducing total drain output, time for drain removal, and hospital stays in comparison with traditional abdominoplasty. Its disadvantages include longer operative time.

**Key words:** Scarpa's Fascia Preservation, Abdominoplasty.

### 1.Introduction

The surgical procedures for contour of the abdomen, commonly known as abdominoplasty. Due to the number of variations and modification of abdominoplasty procedures, its critical to select the appropriate technique based upon patient characteristics in order to minimize morbidity and post-operative disability while providing a desirable and predictable result.[1]

Despite the good results obtained with a classic full abdominoplasty, a significant complication and secondary surgical revision rates are still reported. Postoperative seroma formation remains the most frequent complication after full abdominoplasty. [1, 2]

The beneficial effect of using a more superficial plane of dissection on the seroma rate has been fully confirmed along with other very relevant advantages: lower drain volume, earlier drain removal, shorter hospital stay, and lower hematoma and infection rates. The aesthetic result obtained with this technique was very good, considering both physician and patient evaluations [3]

### 2.Patients and methods

A comparative randomized inter individual clinical study on 40 cases admitted to The General Surgery Department- Benha University Hospital seeking for abdominal contour correction. These cases suffered from

weakness of the anterior abdominal wall and pendulous abdomen.

**Cases under the study were classified randomly into two groups:**

- Group (A): Included 20 cases where abdominoplasty with Preservation of the scarpa's fascia and the deep fat compartment in the infraumbilical area was used.
- Group (B): Included 20 cases where traditional abdominoplasty was used in abdominal contouring.

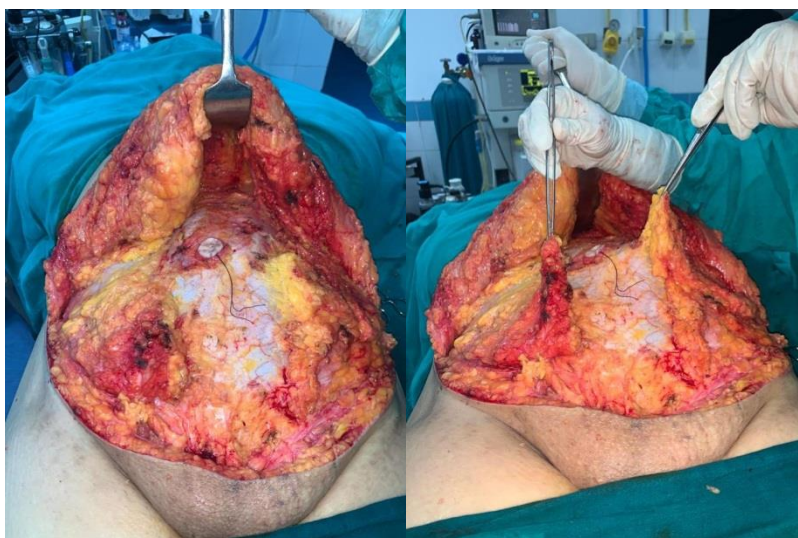
### Operative technique

Operative procedures were done under general anesthesia with endotracheal intubation and muscle relaxant.

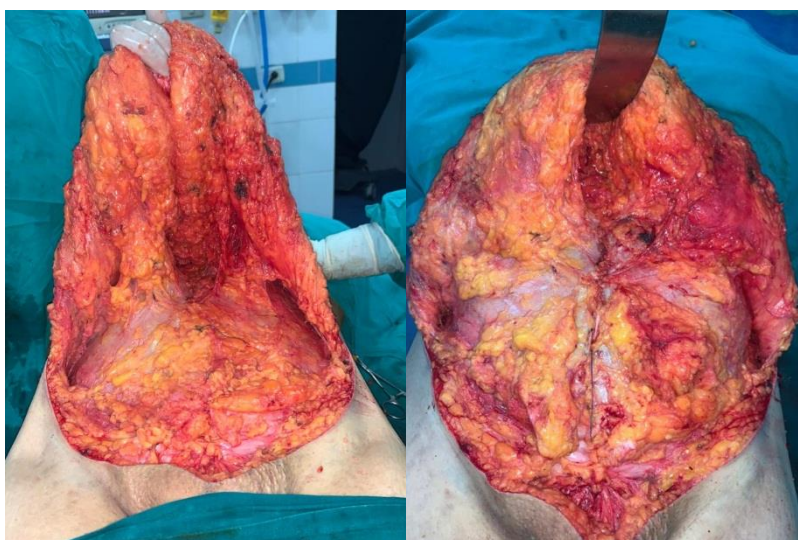
#### Group A

Following the individually marked incision line, a sharp incision was done in the suprapubic region; dissection occurs through the subcutaneous tissue using low-current electrocautery and extends to the level of Scarpa's fascia. Dissection was continued cephalically in the supra-Scarpa's fascial plane till the level of the umbilicus.

The umbilicus was preserved with good vascular pedicle. Dissection in the supraumbilical region was continued centrally toward the xiphisternum in the midline and costal margin laterally at the level of anterior abdominal musculature.



**Fig. (1)** Dissection at the level of rectus sheath with sparing scarpa.



**Fig. (2)** Rectus sheath plication from xiphisternum to the pubis.

The rectus sheath was plicated from the xiphoid to the umbilicus performed using polypropylene continuous sutures. Plication of the infraumbilical rectus sheath was carried out after incision and removal of a small central strip of Scarpa's fascia along with the underlying deep fat using the electrocautery to expose the muscular fascia plane. After infraumbilical plication of the rectus sheath, both edges of the Scarpa's fascia were approximated, and sutures were placed through continuous 2/0 vicryl sutures. Fig. (1)

The new umbilical site was located and marked in elliptical shape on the mid-abdomen or slightly below. The excess skin was assessed and excised. Two suction drains were placed through a separate stab incision. The wound was then closed in two layers. Compressive garment was then used after application of the closed dressing. Fig. (2)

### **Group B**

Traditional abdominoplasty steps and dissection over the anterior abdominal musculature were applied till xiphisternum. Umbilicus was preserved with good vascular pedicle. Anterior abdominal wall plication from the xiphoid to the umbilicus and from the umbilicus to the pubis using polypropylene continuous sutures was done. The same operative steps were continued as in group A.

### **Postoperative care and follow-up**

Routine postoperative care was done included parenteral antibiotic therapy, as well as anti-inflammatory, analgesics, and wound dressing. The drains were observed daily and removed once less than 30 ml/day output. Compression abdominal corset were used for at least 1 month after surgery. All cases were followed up for 2 weeks.

3. Results

Table (1) Postoperative descriptive data of both groups regarding total volume of drain output, time needed for drain removal and hospital stays.

Total drain output volume	Group A (n = 20)	Group B (n = 20)	t	p
Min. – Max.	100 – 220	280 – 970		
Mean ± SD.	161 ± 39.99	554.5 ± 200.9	8.592*	<0.001*
Median (IQR)	155 (125 – 195)	540(385 – 685)		
Time of drain removal				
Min. – Max.	2 – 3	4 – 7		
Mean ± SD.	2.95 ± 0.22	5.55 ± 1.10	10.367*	<0.001*
Median (IQR)	3(3 – 3)	5(5 – 7)		
Hospital stay				
Min. – Max.	2 – 3	4 – 7		
Mean ± SD.	2.95 ± 0.22	5.60 ± 1.10	10.600*	<0.001*
Median (IQR)	3 (3 – 3)	5(5 – 7)		

There was a statistically significant increase in the operation time in group A in comparison with group B. There was a statistically significant increase in the mean total drain output (554.5 ± 200.9 ml) and time for drain removal (5.55 ± 1.10 days) in group B as compared with group A (161 ± 39.99 ml and 2.95 ± 0.22 days, respectively) .

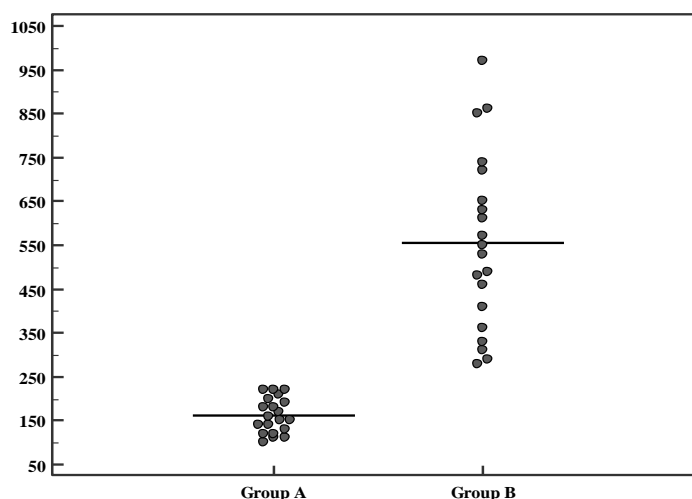


Fig. (3) Comparison between the two studied groups according to Drain output volume.

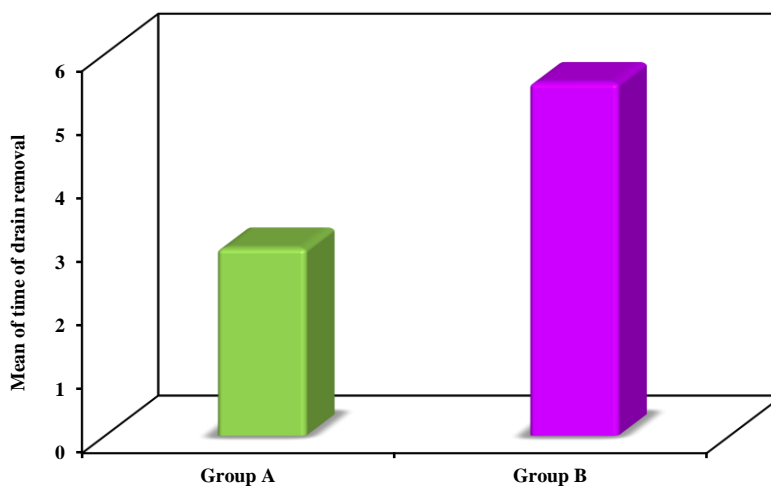


Fig. (4) Comparison between the two studied groups according to time of drain removal

The results of both groups showed no statistically significant difference regarding the total complications and esthetic outcome.

Table (2) Comparison between the two studied groups according to complications.

Complications	Group A (n = 20)		Group B (n = 20)		$\chi^2$	MCp
	No.	%	No.	%		
Nil	18	90	15	75	4.176	0.395
Seroma collection	0	0.0	2	10		
Umbilical ischemia	0	0.0	1	5		
Partial infraumbilical flap necrosis	0	0.0	1	5		
Wound dehiscence	2	10	1	5		

$\chi^2$ : Chi square test

MC: Monte Carlo

p: p value for comparing between the studied groups

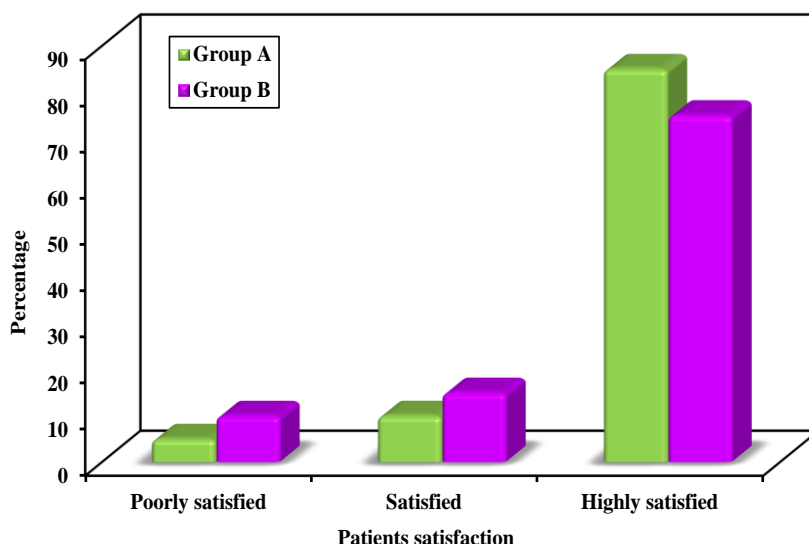


Fig. (5) Comparison between the two studied groups according to patient's satisfaction

**4. Discussion**

Supra-Scarpa's fascia Abdominoplasty is not a new method. it was suggested by Le Louarn more than 30 years ago with the aim of providing better results and reducing the time needed for recovery, and more importantly to reduce the occurrence of seroma .[4]

The advantages of preserving the Scarpa's fascia are: decreasing the total drain output, decreasing the time to drain removal [8] and contouring the waist.[5]

Le Louarn [6, 7] mentioned that preservation the deep fat compartment respects the anatomic structures of the abdomen and provides a well vascularized tissue with the accompanying lymphatic vessels, which speeds up recovery and reduces seroma occurrence.

In our study, preservation of Scarpa's fascia had reduced the total amount of drain output by 70% and reduced the time needed for drain removal and hospital stay to 2.6 days.

On the other hand these results were almost equal to the results of Costa-Ferreira et al., (2013)[8] in his prospective randomized study on 160 full abdominoplasties (group A, 80 patients; group B, 80 patient) with 65.50% and less than results of Shahin et al (2018) [9] in his comparative study on 38 patients (group

A, 18 patients scarpa fascia preservation; group B, 20 patients) which is almost 75.50%.

Our results also agree with Ardehali and Francesca, who studied the effect of abdominoplasty modifications in incidence of seroma. They reported six cases developed seroma of 228 (2.63%) patients who underwent Scarpa's fascia preservation, whereas 15 experienced seroma of 224 (6.69%) patients in traditional abdominoplasty group [10].

The mean time for drain removal in cases under the current study was (2.95 ± 0.22) days in group A compared to (5.55 ± 1.10) days in group B. Comparing the time needed for drain removal in both groups revealed a highly statistically significant increased time in group (B) than in group (A).

Both groups showed no statistically significant difference regarding the total complications and esthetic outcome in our study. These results agree with Abdullah et al. [11], who performed a comparative study including 20 patients (10 cases underwent traditional abdominoplasty and 10 patients underwent Scarpa's fascia preservation abdominoplasty). They revealed no statistically difference between the two groups regarding total complications and esthetic outcome.

In our work, the better candidates for the preservation of Scarpa's fascia during abdominoplasty are patients with low BMI, as there is no infraumbilical bulging, which was noticed in cases with high BMI. Scarpa's fascia preservation on the infraumbilical area better respects the physiology of the abdominal wall, as it also implies the preservation of the deep fatty layer along with its connective tissue, lymphatic vessels, arteries, and veins.

### 5. Conclusion

Preservation of scarpa's fascia during scarpa's preservation abdominoplasty reduces patient recovery time in the form of reducing total drain output, time for drain removal and hospital stays in comparison with traditional abdominoplasty. Its disadvantages include longer operative time.

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