

Concomitant hernioplasty and abdominoplasty versus hernioplasty of paraumbilical hernia in multiparous women, with pendulous abdomen

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Background

The incidence of umbilical hernias in adults ranges from 10 to 25% in the literature and is increased in females. Abdominoplasty is a procedure used to flatten and improve abdominal contouring. Combined abdominoplasty and hernioplasty in women with pendulous abdomen, improves the cosmeses and life quality and decreases the postoperative complications.

Aim

To improve the outcomes of ventral hernia repair in multiparous females with pendulous abdomen.

Patients and methods

The present study was conducted on 40 women admitted for umbilical hernia repair. Patients were divided into two groups: group A included 20 patients managed by hernioplasty alone, while another 20 patients in group B were managed by concomitant hernioplasty and abdominoplasty.

Results

Both operative time and hospital stay were significantly longer in group B. Seroma was more common in group A but without a significant difference. Wound infection insignificantly complicated the first group. Abdominal deformity was significantly higher in group A.

Conclusion

Hernioplasty combined with abdominoplasty, for the management of paraumbilical hernia in multiparous females with pendulous abdomen, is a safe procedure with better esthetic results. It also decreases postoperative complications.

Keywords:

abdominoplasty, diastasis of recti, hernioplasty, paraumbilical hernia, pendulous abdomen

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Introduction

Umbilical and paraumbilical are common surgical problems in general. Twenty-million hernia operations are carried out yearly, 30% of them are on ventral hernia [1]. Paraumbilical hernias (PUH) are common in obese multiparous females with abdominal wall laxity and deformity [2], which cannot be corrected either by dieting or muscular exercise [3]. Management of umbilical hernias has been evaluated in the literature on a large scale, however, they lack its evaluation when associated with a pendulous abdomen [4].

Abdominoplasty is one of the tummy-tuck procedures used for tightening the wall of the abdomen and makes it firmer, it has an esthetic part concerning the excision of redundant skin and fat in the lower abdomen, and reconstructive function on the hernia and diastasis of recti [5]. Diastasis of recti is common in obese multiparous women, predisposing for PUH, which is one of the commonest types of all primary hernias [6].

Concomitant hernioplasty and abdominoplasty have many advantages, it improves the cosmeses, quality of life, and decreases the postoperative complications [7].

Patients and methods

This study was conducted on 40 multiparous female patients with a PUH and pendulous abdomen in the period from January 2019 to May 2021 at Zagazig University Hospital. This study was approved by the Institutional Review Board of the Faculty of Medicine, Zagazig University. The patients presented to the outpatient clinic of our tertiary hospital were enrolled in the study. The surgeon discussed the pros and the cons of both techniques with each patient, and the choice of the treatment method was based on the decision of each patient. The patients

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were classified into two groups. In group A, patients were managed by hernioplasty alone. While in group B, the patients were managed by concomitant hernioplasty and abdominoplasty.

Inclusion criteria

- (1) PUH in a female patient with a pendulous abdomen.
- (2) Uncomplicated hernia, except for irreducibility.

Exclusion criteria

- (1) Male patients.
- (2) Ventral hernia in females without pendulous abdomen.
- (3) Complicated hernia, except for irreducibility.

Preoperative

All patients were checked preoperatively by history taking and physical examination. All patients were assessed for the risk factors, including diabetes mellitus, corticosteroid medication, smoking, thromboembolic disease, and BMI was calculated for all patients. Preoperative investigations were in the form of abdominal ultrasound, complete blood count, coagulation profile, viral markers (hepatitis C, B, and HIV), liver, and kidney function.

Procedure

The procedures were performed under general or spinal anesthesia. A urinary catheter was inserted. Preoperative prophylactic antibiotic was given (third-generation cephalosporin) half an hour before the operation.

Paraumbilical hernia corrected by hernioplasty

The procedure was performed through a supraumbilical or infraumbilical incision. The sac was dissected and opened at its neck, then the contents were reduced into the abdominal cavity. The defect was repaired by polypropylene 1. The mesh was fixed by interrupted polypropylene 2/0 suture. A suction drain was inserted. The subcutaneous tissue was approximated by polyglactin 2/0, then the skin was closed by subcuticular polypropylene 3/0.

Paraumbilical hernia corrected by abdominoplasty

A curved handle-bar suprapubic incision was done. The wound extended laterally to the flanks. The final scare of this incision could be hidden in the bikini line. Epifascial dissection to raise the flap extended

superiorly to the xiphoid process (Figs 1 and 2). Above the level of the umbilicus, the flap dissection was limited to the central part of the anterior abdominal wall to preserve its blood and nerve supply from the subcostal region. Repair of the defect and tightening of

Figure 1



PUH with a pendulous abdomen. PUH, paraumbilical hernia.

Figure 2



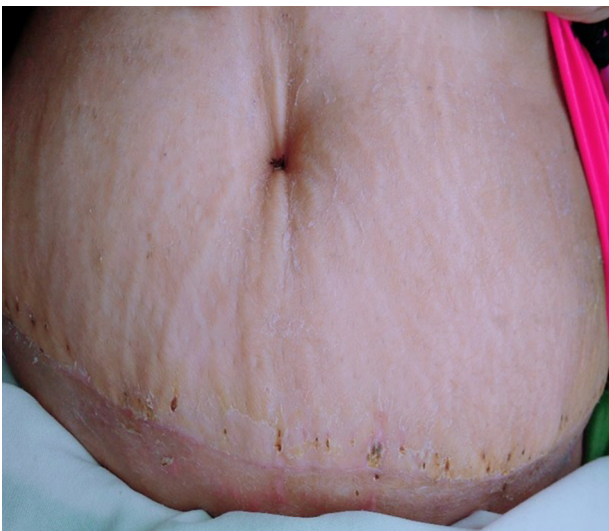
Flap elevation, hernia-defect closure, correction of diastasis, and mesh abdominoplasty.

the muscles were done using polypropylene 1. A large onlay polypropylene mesh 30×30 cm was designed, then placed, and fixed to extend beyond the fascial repair for at least 5 cm in all directions. Two suction drains were inserted. Excess skin was excised, including the umbilicus. A new umbilicus was constructed by a stitch through the dermis by PDS 2/0 to make a skin dimpling (Fig. 3). The subcutaneous tissue was approximated using polyglactin 4/0 and the skin was closed by subcuticular polypropylene 3/0. The wound was covered with bulky dressing without compression.

Postoperative

Operative time and hospital stay were reported. The patients were followed up in outpatient clinics every week for a month and then monthly for the next 5 months. Removal of stitches was carried out in the outpatient clinic. The drains were removed when the contents became as little as 30 ml of serous fluid in 24 h. In each visit, we examined the patient for

Figure 3



New umbilicus (dimple) after abdominoplasty for PUH correction. PUH, paraumbilical hernia.

wound infection, flap necrosis, seroma, hematoma, intertrigo, and abdominal wall deformity.

Statistical analysis

Statistics were carried out by Statistical Program Package for the Social Sciences (version 25.0; SPSS Inc., Armonk, New York, USA).

Significant level

P value of less than 0.05 was considered significant.

Results

Group A included 20 female patients of mean age of 43.4500±8.38843, and group B had 20 female patients of mean age of 43.4500±8.79279. There was no statistical difference between both groups regarding the patients' age with *P* value of 1.000. Both groups were comparable regarding the BMI, preoperative comorbidities (hypertension and diabetes), and the presence of intertrigo (Tables 1 and 2).

The operative time in group A was shorter than group B, 70.55±7.64 min in group A versus 103.5000±11.13317 min in group B. This was statistically significant with *P* value less than 0.05. Regarding the hospital stay, it was shorter in group A than in group B with *P* value less than 0.05 (Table 1).

Concerning the postoperative outcomes, the deformity of the anterior abdominal wall was higher in group A than in group B, this was a statistically significant *P* value of 0.047. Abdominal wall deformity was defined as abdominal wall disfigurement in the form of epigastric bulging, hernial recurrence, or moderate-to-severe abdominal wall convexity (Table 3).

Seroma formation was noticed in six (30%) patients in group A versus two (10%) patients in group B. This was statistically insignificant, *P* value of 0.235. Wound

Table 1 General characteristics of studied groups

	Study	Mean	SD	<i>P</i> value
Age	Group A	43.4500	8.38843	1.000 ^a
	Group B	43.4500	8.79279	
Number of pregnancies	Group A	3.3000	1.12858	0.769 ^a
	Group B	3.2000	1.00525	
BMI	Group A	30.0000	3.02620	0.675 ^a
	Group B	29.6500	2.13431	
Operative time	Group A	70.5500	7.63975	0.000 ^a
	Group B	103.5000	11.13317	
Hospital stay	Group A	1.4000	0.50262	0.000 ^a
	Group B	2.5500	0.51042	

^aIndependent *t* test.

infection was noticed in 2/20 (10%) patients in the hernioplasty group, and only one (5%) patient in the abdominoplasty group, this was statistically insignificant P value more than 0.05 (Table 3).

Postoperative fungal skin infection at the lower abdominal crease, intertrigo, was found in 11/20 (55%) in group A, while there were no cases of intertrigo among patients of group B, P value of 0.001 (Table 3). There was improvement of intertrigo among patients of group B, while there was no improvement in group A, P values were 1.000 and 0.001, respectively (Table 4).

Regarding hernia recurrence, there was recurrence in three (15%) patients of group A, while there was no recurrence in group B. This was statistically insignificant, P value of 0.231 (Table 3).

Table 2 Operative data among both studied groups

	Study		P value
	Group A	Group B	
Preoperative intertrigo			
No	11	12	1.000 ^a
Yes	9	8	
HPN			
No	18	17	1.000 ^a
Yes	2	3	
Diabetes			
No	15	14	1.000 ^a
Yes	5	6	

^aFisher's exact test.

Table 3 Outcome and complications among both studied groups

	Study		P value
	Group A	Group B	
Deformity			
No	15	20	0.047 ^a
Yes	5	0	
Postoperative intertrigo			
No	11	20	0.001 ^a
Yes	9	0	
Infection			
No	18	19	1.000 ^a
Yes	2	1	
Seroma			
No	14	18	0.235 ^a
Yes	6	2	
Recurrence			
No	17	20	0.231 ^a
Yes	3	0	

^aFisher's exact test.

Discussion

Abdominoplasty is one of the most common plastic surgery procedures performed for rejuvenation of the abdominal trunk [8]. It has two parts, an esthetic part that concerns with creation of a new harmony between the abdomen and the rest of the body contouring, and a reconstructive part that deals with musculoaponeurotic laxity and its reinforcement [5,9]. It may also prevent and relieve back pain in some cases [10]. It may improve both physical and sexual activities [11]. It also helps to eliminate fungal infection and decreases the incidence of intertrigo [12]. Abdominoplasty gives a good cosmetic result as the bikini line hides its final scar [13].

Our study was carried out on 40 multiparous female patients with PUH associated with pendulous abdomen. Patients were allocated into two groups, with 20 patients in each group. In group A, the mean age was 43.4500 ± 8.38843 versus 43.4500 ± 8.79279 in group B, P value of 1.000. However, Ghnam [9] conducted a study on 24 patients who were managed for ventral abdominal hernia correction combined with an abdominoplasty, their mean age was 51.6 ± 5.5 years.

In this study, the BMI of group A was 30.0 ± 3.02 kg/m², while it was 29.65 ± 2.13 kg/m² in group B with no statistical difference between both groups of patients, P value less than 0.05. Cheesborough and Dumanian [3] reported BMI of 26 kg/m² among 32 patients with ventral hernia and severe rectus diastasis.

In our study, the mean operative time in group A was 70.5500 ± 7.63975 that ranged between 60 and 100 min, while it ranged between 90 and 130 min with a mean equal 103.5000 ± 11.13317 in group B. There was a highly significant difference between both groups.

McNichols *et al.* [14] reported that the average operative time for ventral hernia repair and panniculectomy was 225 min, while mean operative time in a study conducted by Aamer *et al.* [5] was 163 ± 45 min for abdominoplasty after sleeve gastrectomy.

Table 4 Preoperative and postoperative intertrigo

	Intertrigo		P value
	No	Yes	
Group A			
Preoperative	11	9	1.000 ^a
Postoperative	11	9	
Group B			
Preoperative	12	8	0.003 ^a
Postoperative	20	0	

^a χ^2 test.

The present study showed that the mean hospital stay in group A was 1.4000 ± 50262 days, and 2.5500 ± 51042 days in group B, this was statistically significant with *P* value less than 0.05.

Roshdy *et al.* [15] reported a mean hospital stay of 8.23 days for combined abdominal dermolipectomy–hernioplasty in obese patients and after bariatric surgery.

Postoperative recurrence of hernia in our study was three (15%) patients in the first group A and no hernia recurrence was detected in group B, this difference was statistically insignificant. The recurrence was observed within the first 6 months of follow-up. The lower rate of recurrence in the abdominoplasty group may be contributed to the reconstructive function on the hernia and diastasis of the recti.

In our study, seroma was detected in six (30%) patients of group A and in two (10%) patients of group B. Cases that complicated by seroma were managed by weekly aspiration and compression till they improved. There was no need for reoperation. Le Louarn *et al.* [16] reported seroma after abdominal dermolipectomy in 5.2%. In this study, although there is no statistically significant difference between both groups regarding seroma formation, the rate of seroma formation was higher in the hernioplasty group. This may be contributed to the presence of the redundant skin in the hernioplasty group, which exerts a traction effect on the flaps.

In the present study, wound infection complicated two (10%) patients of the first group and one (5%) patient of group B with no significant difference between both groups, patients with wound infection were treated by repeated wound dressing and systemic antibiotics, and there was no need for mesh removal. Grazer and Goldwyn [17] reported wound infection of 7.3% after abdominoplasty.

Flap necrosis was not detected in both groups. Aamer *et al.* [5] reported that 3/30 patients developed flap necrosis after classic abdominoplasty.

Intertrigo complicated nine (45%) patients of our group A only. This signifies that abdominoplasty improves skin infection resulting from pendulous abdomen and redundant skin fold. It can be managed locally by antifungal and by keeping the skin always dry. A redundant moist skin has intertrigo problem due to difficult hygiene.

In our study, abdominal deformity was observed in five (25%) of group A only with a significant difference between both groups.

Conclusion

Hernioplasty combined with abdominoplasty, for the management of PUH in multiparous females with pendulous abdomen, is a safe procedure with better esthetic results. It also decreases postoperative complications.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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