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Panniculectomy During Cesarean Section

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ABSTRACT

Background: Many women in clinical practice desire a panniculectomy following a cesarean section to remove excess skin and stretch marks that have grown during pregnancy.

Aim of the study: : to see how panniculectomy and cesarean section worked together.

Patients and Methods: This is a prospective randomized controlled trial that took place in the obstetric department of a hospital. Elmahalla, Elkobra -general hospital. Eligible 66 patients had been randomly collected; the groups were divided into two equal groups using a computer-generated randomization table, with group assignments hidden in sealed opaque envelopes: (n=33) Control Group (C): Patients underwent elective CS alone. Combined group (C+P) (n=33): Patients underwent panniculectomy Combined with Cesarean Delivery.

Results: In terms of operative time and intraoperative bleeding, there was a substantial difference between the groups tested. There was a considerable distinction between the two groups regarding persistent bulging of abdomen, bulging of umbilicus Postoperative complications, operative time, intraoperative bleeding and stretch mark removal.

Conclusion: Panniculectomy after cesarean section is linked to a higher rate of post-surgical fever and a higher rate of other wound problems, such as seromas and wound dehiscence. During cesarean section, removing the pannus was linked to higher incidence of blood loss, longer operative time and a larger incision. Further studies need to be undertaken to investigate the effect of combining panniculectomy with cesarean section.

Keywords: Panniculectomy; Pregnancy; Cesarean Section; Complications.

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INTRODUCTION

Over a 40-week timeframe, the abdominal area stretches an unimaginable amount to accommodate a growing baby. Abdominal muscles are separated into two sections (a right side and a left side). These two abdominal muscles are usually spaced one finger's width apart. During pregnancy, the abdomen expands due to increased hormone production and a growing uterus that protects and nourishes the baby. Before pregnancy, the uterus is roughly the size of a pear. Over the following nine months, it will grow to nearly five times that size. This increase pushes the abdomen out, stretching the muscles and the skin that covers them. The pressure of this can cause the muscles to separate or tear. This condition is known as diastasis recti, and it affects nearly 60 percent of postpartum women. Vascular changes in the muscles of the abdominal wall in the late pregnancy are evident due to the high level of estrogen. High levels of estrogen are believed to be responsible for the proliferation of blood vessels and congestion within

the muscles and abdominal skin. Large pannus is still a major risk factor for abdominal surgery, including cesarean delivery. Upon patient's request, panniculectomy or abdominoplasty "tummy-tuck," is becoming an accepted procedure as a part of abdominal and gynecological surgeries.¹ Many women in clinical practice desire a panniculectomy following a cesarean section to remove excess skin and stretch marks that have grown during pregnancy. Furthermore, many obstetricians and gynecologists are learning how to perform cosmetic treatments.²

Longer hospital stays, blood transfusion risk, and infection were the most prevalent consequences when abdominoplasty was combined with obstetric or gynecologic procedures.

Obesity and a longer operational duration were blamed for the elevated hazards.² given the prevalence of cesarean section and panniculectomy in the same patient population, it was assumed that the two procedures had been combined. It's possible that doing a cesarean section with panniculectomy is

safe, but the cosmetic results are doubtful. Combining plastic surgery with gynecologic or other surgical treatments appears to have a favorable safety profile, which could include cesarean section.⁴ there are few studies on combined panniculectomy at the time of cesarean section. The goal of this study is to determine the safety and aesthetic outcomes of combining panniculectomy and cesarean section

PATIENTS AND METHODS

This is a prospective randomized controlled trial that took place in the obstetric department of a hospital. Elmahalla, Elkobra general hospital. Eligible 66 patients had been randomly collected. The groups were divided into two equal groups using a computer-generated randomization table, with group assignments hidden in sealed opaque envelopes: Control Group (C) (n=33): Patients underwent elective CS alone. Combined group (C+P) (n=33): Patients underwent panniculectomy Combined with Cesarean Delivery. The Inclusion Criteria for study group include Women undergoing elective CS surgery and having at least one previous Cesarean delivery, patients with a full term and mature baby and age between 25 and 35 years. Patient refusal, BMI >40 kg/m², twin, premature rupture of membranes, diabetic women, hypertensive patients and anemic Patients were excluded from study. Faculty of Medicine receives permission from the Institutional Review Board., Al-Azhar University, patients had been interviewed and written informed consents were obtained from them. Underwent elective CS. Surgery, Patients who had been selected randomly by a computer-generated randomization table in obstetric department of Elmahalla Elkobra general Hospital Underwent: Personal history including: Name, Age, marital state, address, menstrual history: including age of Menarche, menstrual disturbance, dysmenorrhea, related symptoms, present history: of chronic diseases and medication, past history of HTN, DM, family history of similar condition and history of allergy to any medication and surgical history of operation, laparoscopic interference, treatment of hirsutism by laser. Signs of life (Blood pressure, Temperature, Heart rate, Respiratory rate), signs of (Pallor, Cyanosis, Jaundice, and Lymph node enlargement)

Antenatal management: All patients had been subjected to regular antenatal visits and checkup. Patients had been informed about the possible complications of panniculectomy and that the result might be less than perfect.

At the time of delivery: Complete blood picture (CBC): hemoglobin concentration (Hb %), red blood cells (RBC's), white blood cells (WBCs), platelet count, coagulation profile (INR, PTT, platelets and fibrinogen), fasting blood sugar and preoperative ultrasound examination also will be done for every participant.

Operative Technique: A lower segment Cesarean section a few centimeters above the indicated incision line has been the technique for Cesarean delivery. As part of a cesarean section, all procedures

were carried out by an obstetrician. The abdominal flap was designed to remove extra skin and fat from beneath the skin. The specimen's weight was reported. Multiple layers of closure were used to close the incision. Monofilament non-permanent sutures were used to seal the subcuticular layer. In every case, drains and compression garments were used.

Postnatal follow up: Patients had been followed up for an average period of 3 months as follows immediately, one week later, 3 weeks, 6 weeks then at 3 months by the following parameters

Collected data / comparative parameters: Immediately: Operation time, Hospital stay, blood loss, hypotension and shock and blood transfusion, one week later: Aesthetic results: Consistent abdominal bulge and a lack of waist definition. Postoperative complications include postpartum fever, seroma, hematoma, wound dehiscence, wound infection, and distant necrosis of the abdomen skin, as well as mortality rates. Healing by secondary intention, surgical debridement and secondary sutures required, excess skin redundancy, six-week and three-month recovery periods, and umbilicus bulging, abdominal redundancy If patients are dissatisfied with the form of their abdomen and the satisfaction of their doctors,

The primary outcome: The primary outcome will be investigating the safety of combining panniculectomy with cesarean section in the terms of operative time, recovery period, hospital stay and wound dehiscence incidence.

The secondary outcomes: The secondary outcome will be investigating the other possible complications and the aesthetic results of the combined procedures.

Statistical analysis: The data was statistically analyzed using the Statistical Package for Social Science (SPSS) application version 22.

Only significant data proved to be nonparametric when the Shapiro-Wilk test was performed to examine the normality of data distribution.

If the conditions of the unpaired student-t test were met, the Mann-Whitney test was utilized for non-parametric comparisons of numerical variables between groups.

RESULTS

66 patients were randomly allocated by a computer-generated randomization table, and group assignments were concealed in sealed opaque envelopes into 2 equal groups. Control Group (C) (n=33): Patients will undergo elective CS alone and combined group (C+P) (n=33): Patients will undergo panniculectomy Combined with Cesarean delivery

The results showed no significant difference between the two studied groups regarding age, laboratory parameters, and BMI

There was a significant difference between the studied groups regarding operative time and intraoperative bleeding.

There were postoperative complication with higher incidence rates in group (C+P) patients suffered from postoperative complication as wound dehiscence, wound infection, distal skin necrosis, seroma and hematoma

In our study, postoperative esthetic outcomes showed that some patient complained of Persistent bulging of abdomen and bulging of umbilicus and recurrent abdominal skin redundancy

Variables	Group C (n=33)	Group C&P (n=33)	t / χ^2	P
Operative time(min)	43.25±8.46	126.73± 15.32	27	.000
Intraoperative bleeding (CC)	82.41 ± 25.36	107.5 ± 36.72	3.23	.002
Intraoperative blood transfusion	7 (21.2%)	12 (27.3%)	1.85	.174
Hospital stay(days)	1.02 ± 0.551	1.1 ± 0.308	.728	.469

Table 1: Operative and clinical data between the two studied groups

This table shows a significant difference was found between the studied groups regarding operative time and intraoperative bleeding. Table (1)

Variables	Group C (n=33)		Group C&P (n=33)		χ^2	P
	N	%	N	%		
Wound dehiscence	2	6.1	7	21.2	3.22	.073
Wound infection	6	18.2	12	36.4	2.75	.097
Distal skin necrosis	4	12.1	7	21.2	.982	.322
Seroma	6	18.2	13	39.4	3.62	.057
Hematoma	9	27.3	16	48.5	3.16	.076

Table 2: Postoperative complications between the two studied groups

Regarding complications, the complications frequencies were higher in the C & P group compared to C group. Table (2)

Variables	Group C (n=33)		Group C&P (n=33)		χ^2	P
	N	%	N	%		
Persistent bulging of abdomen	12	36.4	5	15.2	3.88	.049
Bulging of umbilicus	10	30.1	3	9.1	4.69	.030
Recurrent abdominal skin redundancy	6	18.2	4	12.1	.471	.492
Stretch marks removal	0	--	21	63.6	31	.000

Table 3: Postoperative esthetic outcomes between the two studied groups

There was a significant difference between the groups regarding persistent bulging of abdomen, bulging of umbilicus and stretch mark removal. Table (3)

		Group C (n=33)	Group C&P (n=33)	χ^2	P
Surgeon satisfaction	Good	19 (57.6%)	10 (30.3%)	7.4	.025
	Fair	12 (36.4%)	14 (42.4%)		
	Unsatisfactory	2 (6.1%)	9 (27.3%)		
Patient satisfaction	Good	13 (39.4%)	5 (15.2%)	13.9	.001
	Fair	16 (48.5%)	10 (30.3%)		
	Unsatisfactory	4 (12.1%)	18 (54.5%)		

Table 4: Patient and surgeon satisfaction

There was a significant difference between the groups regarding patient and surgeon satisfaction. Table (4)

DISCUSSION

In clinical practice, many women request abdominoplasty at the time of cesarean section in order to remove excess skin and stretch marks that develop during pregnancy. In addition, many obstetrician and gynecologists are learning to do cosmetic procedures, such as Panniculectomy.³ As

the most common surgical procedure, cesarean section is delivery of a fetus through a hysterotomy and accounts for more than one million major operations in the United States annually.⁴

Panniculectomy is a cosmetic procedure to undermine and remove excess abdominal skin and fat, either alone, or with tightening of the abdominal

muscles as a part of abdominoplasty. With a full abdominoplasty, the stretched linea alba is plicated from the pubic symphysis to the xiphoid to correct abdominal wall laxity, resulting in a flat and toned appearance.⁵

It is not uncommon that some pregnant women would request panniculectomy be done at the same time as CS to avoid a future procedure.²

The aim of this study was to investigate the effect of combining panniculectomy with cesarean section. That's by investigating the safety of combining panniculectomy with cesarean section in the terms of operative time, recovery period, hospital stay and wound dehiscence incidence, the other possible complications, and the aesthetic results of the combined procedures.

This prospective randomized controlled study was conducted in the obstetric department of Elmahalla Elkobra general hospital.

66 patients were randomly allocated by a computer-generated randomization table, and group assignments were concealed in sealed opaque envelopes into 2 equal groups. Control Group (C) (n=33): Patients will undergo elective CS alone and combined group (C+P) (n=33): Patients will undergo panniculectomy Combined with Cesarean Delivery.

The results of the present study showed no significant difference between the two studied groups regarding age, laboratory parameters, and BMI.

There was a significant difference between the studied groups regarding operative time and intraoperative bleeding. The time of the operation was [43.25 ± 8.46(min)] in Group (C) and longer duration [126.73 ± 15.32 (min)] in group (C+P), and the amount of intraoperative bleeding was [82.41 ± 25.36(cc)] in Group (C) with larger amount [107.5 ± 36.72 (cc)] in group (C+P), number of patients needed blood transfusion was seven (21.2%) in Group (C) and more patients twelve (27.3%) in group (C+P).

Also, there was a significant difference between the studied groups regarding postoperative complications with higher incidence in group (C+P) patients, as regard wound dehiscence two patients (6.1%) in Group (C), seven patients (21.2%) in group (C+P); wound infection six patient (18.2%) in Group (C), twelve patient (36.4%) in group (C+P); distal skin necrosis four patient (12.1%) in Group (C), seven patients (21.2%) in group (C+P); seroma six patients (18.2%) in Group (C), thirteen patient (39.4%) in group (C+P); hematoma nine patient (27.3%) in Group (C), sixteen patient (48.5%) in group (C+P).

Regarding postoperative complications in Abdelaty & Taha,⁶ nine (18%) patients had wound infection; three (6%) of them had wound dehiscence (gapped). Infection was treated by frequent dressing and antimicrobial according to the culture and sensitivity tests, whereas wound gaping was treated by secondary suture.

Overall, six (12%) patients presented with distal necrosis of the abdominal wall skin, which measured

about 5×7 cm, some with skin infection. Three of them healed by secondary intention after weeks of conservative management. The other patients required debridement and secondary sutures.⁶

Patients in Petrikovsky,¹ had increased incidence of postpartum fever and wound dehiscence compared to control group with BMI < 30 but not compared to control group patients with BMI > 30

In Fennimore et al.,⁷ of the 30 women who underwent modified panniculectomy at the time of cesarean, 3% (n = 1) developed operative site infection that required readmission. In the control group, 24% (n = 7) developed operative site infection (p = 0.026), and 10% (n = 3) were readmitted (p = 0.35). There was no difference in the postpartum length of hospital stay, intraoperative blood loss, operative time and infant delivery time between the two groups.

There were some postoperative complications in Ali & Essam,⁸ Nine patients (18%) developed wound infection; three of them (6%) developed wound dehiscence. Wound infection was treated by frequent dressing and specific antimicrobial according to the culture and antibiotic sensitivity tests. Wound dehiscence was treated by secondary sutures. Six patients (12%) developed a distal necrosis of the abdominal skin, some with skin infection. The largest area of skin necrosis measured 5 9 7 cm. Three patients healed by secondary intention after several weeks of conservative management. The other three patients needed surgical debridement and secondary sutures.

In our study postoperative esthetic outcomes showed that some patients complained of Persistent bulging of the abdomen twelve (36.4%) in Group (C), with better results in group (C+P) with only five patients (15.2%).

Same as bulging of umbilicus, ten patients (30.1%) in Group (C), with better results in group (C+P) only three patients (9.1%) complained of bulging of umbilicus.

Six patients (18.2%) suffered from recurrent abdominal skin redundancy in Group (C), with better results in group (C+P) only four patients (12.1%)

Stretch marks were removed in twenty-one patients (63.6%) in group (C+P) and not removed in Group (C).

Persistent bulging of the abdomen and/or lack of waist definition were the most unaesthetic results. This may be caused by limited panniculectomy from the Para median areas and flanks, as well as inadequate placcation of the abdominal muscles due to a bulky uterus and muscles. Bulging of the umbilicus could be explained by congested abdominal muscles and the increased intra-abdominal pressure in pregnancy. Excess skin redundancy (in the lower abdomen) was noted in a number of patients. This could be explained by postpartum bulkiness of the uterus, which stretches the abdominal wall and decreases the ability of the surgeon to adequately estimate the extent of the skin resection needed. It

becomes more apparent, a few months following delivery and involution of the uterus

Regarding Patient and surgeon satisfaction from the esthetic outcomes. In Group (C) surgeon was satisfied in 31(94%) of the cases and the patients were satisfied in 19 (87.9%) of the cases, in group (C+P) surgeon was satisfied in 24(72.7%) of the cases and the patients were satisfied in 15(45.5%) of the cases.

CONCLUSION

Post-surgical fever and other wound problems, including seromas and wound dehiscence, are linked to panniculectomy following cesarean section. During cesarean section, removing the pannus was linked to higher incidence of blood loss and longer operative time and a larger incision. Further studies need to be undertaken to investigate the effect of combining panniculectomy with cesarean section. It may seem quite beneficial to combine the two surgical procedures in the same setting in special situations such as multi para patient with severe panniculus abdomen or grade (4) panniculus abdomen, however there is higher risk of post-operative complications and unaesthetic outcomes.

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