

## Evaluation of Reducing the Excess Abdominal Skin, Subcutaneous Tissue and Anterior Abdominal Wall Laxity: A Prospective Observational Study at Dhaka Medical College Hospital

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### ABSTRACT

**Summary:** Burn is one of the most common injuries which leading to high morbidity and mortality. Inflammation and infection involve in burn pathophysiology. Inflammation occurs in burn mainly due to release of inflammatory cytokines, while infection occurs when skin barrier damage and immune system is compromised due to suppression of neutrophils and T cells. In previous studies, silver nanoparticles (AgNPs) exhibit antimicrobial and anti-inflammatory properties through several mechanism. Antimicrobial mechanism of AgNPs including the damage of cell wall and alteration inner part of cell, while anti-inflammatory mechanism of AgNPs is by reducing pro-inflammatory cytokines. Therefore, silver nanoparticles can be reasonable treatment for burn.

**Background:** Lax abdominal muscles cause laxity or bulging. This is generally a consequence of age or post-pregnancy, causing the abdominal rectus muscles and fascia that overlies and divides them to weaken. Abdominoplasty, a popular cosmetic surgery, has improved in recent years. helped minimize abdominal fat and skin. Medical institutions are diagnosing and treating obesity at an increasing pace.

**Objective:** The purpose of the study was reduce the excess abdominal skin, subcutaneous tissue and anterior abdominal wall laxity.

**Methods:** The duration of this prospective observational research was from July 2014 to April 2015. The research population consisted of patients hospitalized to the Plastic Surgery Department of Dhaka Medical College Hospital and numerous private hospitals in Dhaka with extra abdominal skin and abdominal wall laxity owing to various causes, such as past pregnancy or severe weight loss. From the study population, 30 instances that satisfied the enrollment requirements were chosen.

**Results:** The majority of patients (26, or 86.67 %) were female, and 76 % were married. At the time of surgery, the average age was 41.3 years. The total complication rate was 40%, with just four serious complications (13.33%) and the most being mild (9, 30 %). Seroma (3, 10%), infection (2, 6.67%), hematoma (2, 6.67%), wound dehiscence (1, 3.33%), partial flap loss (2, 6.67%), umbilical stenosis (1, 3.33%), epidermolysis (1, 3.33%), DVT (1, 3.33%) were the most prevalent complications (1, 3.33 %). Very excellent (19, 66.3%), good (9, 30%), and adequate were patients' ratings of satisfaction (2, 6 %). No patient reported low or extremely bad satisfaction.

**Conclusion:** Abdominoplasty may be done with little risk and provides excellent results. Patients reported relief from their symptoms and satisfaction with the result. However, there was a high rate of mild problems, most of which involved wound healing. At most cases, problems were mild and quickly treated in a doctor's office.

**KEYWORDS:** abdominoplasty, excess abdominal skin, subcutaneous tissue, abdominal wall laxity.

### ARTICLE DETAILS

**Published On:**  
25 April 2023

**Available on:**  
<https://ijmscr.org/>

### INTRODUCTION

The reconstruction of the anterior abdominal wall is a difficult reconstructive technique that tries to preserve the

abdominal contents and restore functional support and structural integrity. [1] Abdominal wall abnormalities may be the consequence of prior surgery, removal of malignancies,

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trauma, or serious infections. Contamination, loss of domain, scarring from earlier surgeries or radiation, and the unavailability of local tissues for restoration may exacerbate such instances. Numerous treatments have been explored in an attempt to restore the integrity of the anterior abdominal wall so that it can tolerate the dynamic loads exerted on it. There have been several descriptions of autologous tissue procedures, such as component separation, local flap, and free tissue transfer. [2]

Kelly invented abdominoplasty in 1910. By removing excess lower abdominal tissue using a minimally invasive wedge excision [3]. Later, Babcock added a vertical component to the abdominal incision. Pitanguy published a series in 1967 showing the effectiveness of a low transverse incision with extensive undermining.[4] Grazer modified the Pitanguy approach by plicating the rectus diastasis without incising the anterior rectus sheath. [5] Abdominoplasty has gained popularity since it was originally done. According to the American Society of Plastic Surgeons, abdominoplasty is a common cosmetic procedure. Bozola and Psillakis [6] classified abdominal deformities. Abdominoplasty might be modest, modified, or extensive, says Matarasso. [7] The patient's abdominal wall, fat, and skin before surgery determined the operation. Many plastic surgeons now perform comprehensive abdominoplasty as a solo treatment or in combination with other operations [8]. The increased number of patients desiring aesthetic full abdominoplasty highlights the hazards. Seroma, hematoma, wound dehiscence, and infection are prevalent. Seroma is the most common abdominoplasty complication, with a 30-37.3% frequency. [11-19] Lack of large-scale research makes it hard to estimate cosmetic abdominoplasty complications. Survey-based research, which influence a large number of high-power studies, have statistical constraints. In this research, we examined the early outcomes of complete cosmetic abdominoplasty in a private clinic.

## OBJECTIVE

The purpose of the study was to reduce the excess abdominal skin, subcutaneous tissue and anterior abdominal wall laxity.

## METHODS

The observational was performed over the period from July 2014 to April 2015. The research population consisted of patients hospitalized to the Plastic Surgery Department of Dhaka Medical College Hospital and numerous private hospitals in Dhaka with extra abdominal skin and abdominal wall laxity owing to various causes, such as past pregnancy

or severe weight loss. From the study population, 30 instances that satisfied the enrollment requirements were chosen.

## Inclusion Criteria:

1. Skin and subcutaneous tissue excess and/or laxity limited to anterior abdomen.
2. Abdominal wall laxity.

## Exclusion Criteria:

1. Unrealistic expectations
2. Psychiatric instability
3. Being a current smoker.
4. Plan for pregnancy in the near future
5. Patients with unoptimized co-morbid medical conditions like COPD, DM, Malignancy, jaundice, uremia, as it may influence the outcome by increased chance of infection and decreased healing capacity of the body.
6. Patients denying surgery or unwilling to take part in the study.

## Data Collection and Analysis

After hospitalization, the researcher addressed himself to the patient or the patient's guardian, described the goal of the study, and requested participation. The patient's information, physical examination, and local examination results were documented. In addition to the results of the local examination, the records contained pre-operative, intra-operative, and post-operative photographs. Prior to the procedure, informed written permission was acquired from all patients or their parents. On the 14th, 28th, and 42nd days after hospital discharge, follow-up care was administered. In every follow-up, photographs were taken. The researcher thanked the responder at the conclusion of the study. Microsoft Excel 2013 was used to combine and organize the collected data. All data were first compiled in a single table. Standard statistical formulas and Statistical Package for Social Science (SPSS) 23 were utilized for analysis.

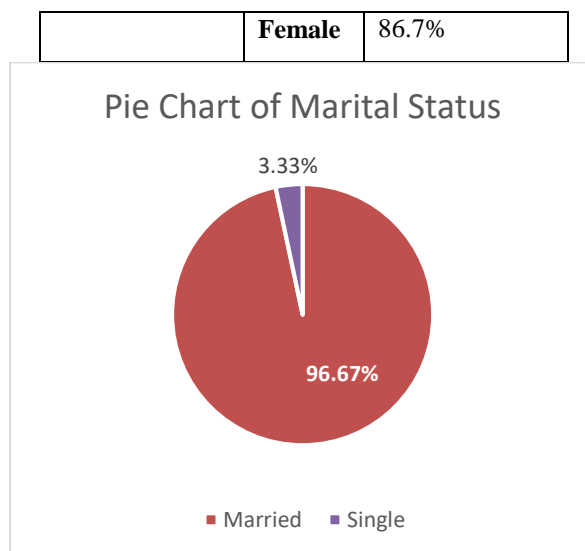
## RESULTS

The age range was from 24 to 59. They averaged 41 years of age. Twelve out of forty (40% of the total) of the incidents occurred among people aged 25 to 39. The ratio of females to males was calculated to be 6.5:1. Women made up 26 (or 86.7%) of the total, while men accounted for just 4 (13.87%). A statistical examination of the patients' marital statuses showed that 96.7% of them were married and only 3.3% were single. Patients were most likely to be stay-at-home mothers (50%), followed by professionals (33.3%), and then businesspeople (16.7%). There is no causal link between these demographic variables and the results of the study.

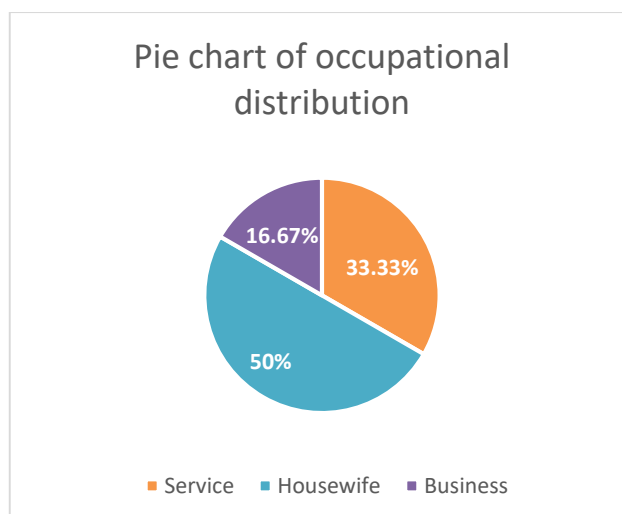
**Table 1. Frequency distribution of Age and Gender.**

Demographic variables		Frequency (%)
Age (Mean Age)		41.3
Gender	Male	13.87%

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**Figure 1. Pie chart of marital status among the patients.**



**Figure 2. Pie chart of occupational distribution among the patients.**

The majority of abdominoplasty procedures (43.33%) were performed owing to extra abdominal tissue from a prior

pregnancy. (Figure 1). This table indicates that the majority of patients were overweight (36.7%). (Table 2)

**Table 2. Distribution of the patients according to BMI:**

BMI	Percentage (%)	
Underweight (<18.5)	0	
Normal weight (18.5 to 24.9)	30	
Overweight (25.0 to 29.9)	36.7	
Obese (30.0 to 39.9)	26.7	
Morbidly obese (>40.0)	2	6.7
Total	30	100.0

Distribution of patients according to previous abdominal surgeries shows most of the patients underwent caesarean section (46.67%). (Table 3)

**Table 3. Distribution of patients according to Previous Abdominal Surgeries (n=23)**

Previous abdominal surgery	No. of patients	Percentage (%)
Caesarean section	14	46.67

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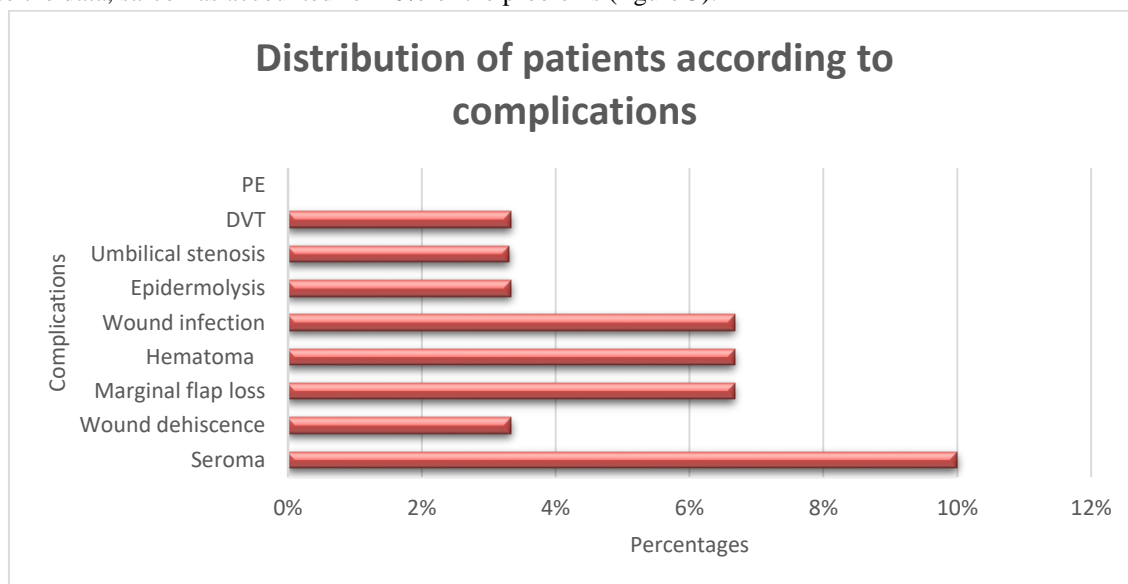
Total Abdominal Hysterectomy	2	6.67
Cholecystectomy	2	6.67
Bilateral tubal ligation	2	6.67
Appendicectomy	2	6.67
Salpingoophorectomy	1	3.33

In this investigation, 28 flaps (93.33%) were found to be entirely asymptomatic. Two instances (6.67%) had marginal flap necrosis. (Table 4)

**Table 4. Outcome of flap of the study population (n=30)**

Outcome	Frequency	Percentage (%)
Marginal flap necrosis	02	6.67
Partial flap loss	00	00
Major flap loss	00	00
Total flap loss	00	00
No loss (Complete survival)	28	93.33
Total	30	100

According to the data, sarcomas accounted for 10% of the problems (figure 3).



**Figure 3. Bar chart Distribution of patients according to complications**

## DISCUSSION

As more individuals lose weight through healthy lifestyle choices and surgery, the need for body sculpting will increase. Even with frequent skin-tightening operations, people who have lost a significant amount of weight may have excess skin. Obese individuals utilize body-contouring to seem thinner. Early abdominoplasty results were studied. This study implies abdominoplasty has downsides. Blood flow disruptions to the abdominal wall flap cause most wound-healing difficulties. Midline incisions, smoking, and untreated hematomas may slow wound healing. These concerns are typically minor and non-surgical. 30 patients with loose abdominal muscles participated. 24-59-year-olds attended. 42Twelve of them were between the ages of 25 and 39 (representing 40%), ten were between the ages of 40 and 49 (33.33%), and three were 50 or older (representing

23.33%). Patients are 25. (1, 3.33%). Patients of any age are welcome to receive this therapy. The ratio of females to males, which is 6.5 to 1, is imbalanced. Participation was made up of 86.7% women and 4% males (13.87% total). Related to pregnancy and detrimental to a woman's sense of self-esteem The next most prevalent group was professionals (33.3%), followed by proprietors of their own businesses (16%). 16.7% The patient had an abdominoplasty to get rid of extra abdominal tissue (43.33%), improve their body image (23.33%), lose weight (20%), and get rid of a stretch mark (3.33%). Abdominoplasty candidates had abdominal wall laxity due to pregnancy. Hensel JM, Lehman Jr JA, Tantri MP, et al.(2001)[20] discovered that the most prevalent reasons for abdominoplasty were to remove excess abdominal tissue following weight loss (26%), to remove stretch marks from pregnancy (25%), to remove an

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abdominal scar (18%), or for other reasons (8%). The replication of study findings revealed that five abdominoplasty surgeries were performed for aesthetic reasons; five for emotional reasons; four for functional reasons; two for physiologic reasons; two for reduced leisure activities; and two for subjective physical-sexual discomfort. This goes against scientific findings. 70% of patients were obese, and 36.7% had hypertension, smoking, diabetes, or hypothyroidism. 62% of subjects had bad medical history [21]. Diabetes, hypothyroidism, and hypertension were prevalent. 37 patients smoked. Garcia-Garcia ML et al. found hypertension (44.4%), diabetes (23.6%), and smoking in 2014. (26.4 %). Obesity (35.4%), hypertension (19.4%), smoking (18.4%), and diabetes (7.8%; IDDDM 2.9%; NIDDM 4.9%) were the most common comorbidities in 2007[20]. A similar study was conducted by Neaman KC and Hansen JE. 36.7% of the population was obese; 30.3% was healthy, 26.7% was obese, and 6.7% was very obese. Underweight (BMI of 18.5), normal weight (BMI18.5-24.9), overweight (BMI25-29.9), obese (BMI30-39.9%), or morbidly obese (BMI>40). No patients were underweight (70%) Neaman KC and Hansen JE (2007) [23] discovered that the average BMI of 206 abdominoplasty patients was 28.78 (range: 17.8-58.9); 73 were obese (BMI > 30Kg/m<sup>2</sup>). 121 abdominoplasty patients had a mean BMI of 26, while 44 individuals had a mean BMI of 27.1. The findings matched TAH (6.67 %) was the most prevalent abdominal surgery, followed by cholecystectomy (6.67 %), caesarean section (46.67 % ), bilateral tubal ligation (6.67 % ), salpingoophorectomy (3.33 % ), and appendectomy (3.33 % ). (3.33 % ). The vast majority of women underwent some sort of surgical procedure connected to their pregnancies. Similar research found that 157 (76.2%) of 206 patients had undergone prior abdominal surgeries, including 58 caesarean sections, 45 TAHs, 34 cholecystectomies, 31 bilateral tubal ligations, 29 gastric bypasses, 22 appendectomies, 16 exploratory laparoscopies, 16 ventral hernia repairs, 10 cystectomies, and 17 other gynecological Similar research complications, both severe and minor. Concerns about surgery, aspiration, intravenous/intramuscular antibiotics, and hospitalization also arose. Problems kept coming up. A total of 13 people (40.33%) reported some sort of problem, with 9 (30%) only having minor problems and 4 (13.3%) having moderate to severe ones. At least once for seroma, hematoma, infection, and dehiscence. Two seromas, one hematoma, one wound infection, one wound dehiscence, one epidermolysis, and one deep vein thrombosis were rare. In this study, drains and intravenous antibiotics were used to treat infected wounds. Antimicrobial wound swabs that have been cultured to detect certain microorganisms. Escherichia coli and pseudomonas were cultured in one flask.

## CONCLUSION

Abdominoplasty is safe and pleasant. Patients are happy with the result, and there are little hazards. In obese people, problems increased. In this research, most individuals with complications recovered. Very happy patients. The degree of unhappiness is largely due to post-operative issues, not the cosmetic effect. In most instances, problems were minimal and treated in an office setting.

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