Original Article

# Simultaneous Abdominoplasty and Hernioplasty in Patients with Ventral Hernias

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**Objective:** To determine the outcome of simultaneous Abdominoplasty and ventral hernia repair in patients presenting with ventral hernia.

**Methods:** Total 85 patients fulfilling the inclusion criteria were selected from Surgical unit 1, Services hospital, Lahore. Informed consent was taken. The demographic information was obtained. All patients were undergone abdominoplasty under general anesthesia by a single surgical team. Duration of surgery was noted. Surgery patients were shifted to ward, followed-up and total hospital stay was noted. Patients were discharged and were follow-up in OPD after 10 days of surgery for assessment of complications like wound infection and seroma formation.

**Results:** Mean age of patients was 41.15+11.05 years. There were 64 (75.3%) female and 21 (24.7%) male patients. Mean operative time was 145.65±29.33 minutes. There were 5 (6%) patients who suffered from wound infection. Mean duration for drain on right and left side was 6.55±2.23 days. Seroma formation was seen in 5 (6%) patients.

**Conclusions:** Based on the results of this study it can be said that the need for an operation may be driven by the hernia repair, performing it together with abdominoplasty is usually a safe and practical combination. There were 5(6%) patients who suffered from wound infection as well as seroma formation. Mean drain volume for right and left side drain was 198.04±79.45 and 193.61±74.27 ml.

**Keywords:** simultaneous abdominoplasty, ventral hernia repair, seroma formation, wound infection.

## Introduction

Hernia is derived from a latin word meaning "a rupture". Abdominal wall hernias are frequently encountered in surgical practice accounting for 15-18% of all surgical procedures. Worldwide, more than 20 millions hernias are operated per year [1] whereas abdominal wall hernias have been reported more prevalent in low socioeconomic status.[2]Ventral Incisional Hernias (VIH) are a well-known complication after abdominal surgery and the incidence after laparotomy reported in literature ranges from 10% to 20%.[3] Early diagnosis, easily accessible health facilities and health education are important to prevent complications.[4] Despite advances in surgical technique and prosthetic technologies, the risks for recurrence and infection are high following the repair of incisional ventral hernias. High-quality data suggest that all ventral hernia repairs should be reinforced with prosthetic repair materials.[5]

Abdominoplasty is a commonly performed truncal rejuvenation procedure, the popularity of which appears to be increasing. Abdominal hernia frequently occurs along with an excess of skin and subcutaneous tissue irregularly distributed on the abdomen, chest and between the limbs. Large pannus results in weight bearing down on the anterior abdominal wall and may lead to hernia recurrence although this has not been proven. Abdominoplasty procedure is a good approach to midline mesh hernia repair in patients who are suitable candidate for abdominoplasty.[6]

One study has found that with simultaneous abdominoplasty, complications rate was 18.3%. Major, minor and wound complications were (11.6, 1.6 and 11.7 %).[7] One more study has found that the length of hospital stay was 11± 4 days (6-22 days), mean operative time was 178.3 ± 30.9 minutes (120-240 minutes), mean duration of drain was 9.7± 4 days (5-21 days) while the mean total amount of drained fluid was 976±492 ml (450-2100). The most common complication was seroma (20.8%), followed by localized flank bulging (16.7%), wound infection (8.3%), partial wound dehiscence with skin necrosis (8.3%) and unacceptable scarring of the abdominal incisions (4.2%). The overall complication rate was 66.7 %.[6]

The outcome of simultaneous abdominoplasty and ventral hernia repair in patients presenting with ventral hernia. It has been observed in routine that abdominoplasty is vast procedure and require more time to be completed. Literature has also reported

controversial results as some showing low frequency of complications while others reporting high.[6,7]

Moreover, now a study has showed that abdominoplasty is associated with more complication rate as compared to single surgery for ventral hernia.[6] But no local evidence is present as well as no more literature is available regarding the issue. More evidence can be attained along with local data. This will help us to improve our practice and in future we will be able to implement the results of this study for the management of ventral hernia without compromising the complications.

## Methods

Descriptive case series carried out at Unit 1, Department of Surgery, Services hospital Lahorefor a period of 6 months from 24-07-2015 to 23-01-2016 and patients were followed for 1 year.

Sample size of 85 cases were calculated with 95% confidence level, 6% margin of error and taking expected percentage of complications i.e. 8.3% with simultaneous abdominoplasty with ventral hernia repair in patients presenting with ventral hernia.

Patients of age 25-60 years of either gender, with BMI of 18-40 Kg/m2 and ASA status I-II were selected with ventral hernia as per operational definition. And patients with diabetes mellitus (BSR > 186mg/dl), hypertension (BP≥140/90mmHg), abnormal clotting profile (PT>20sec, aPTT>33 sec, INR>2), ASA III or IV and patients underwent redo ventral hernia surgery were excluded. All procedures were approved from Hospital Ethical Committee. 85 patients fulfilling the inclusion criteria were selected from ward of Department of Surgery, Surgery hospital, Lahore. Informed consent was taken. The demographic information like age, sex and address were obtained. All patients underwent abdominoplasty under general anesthesia by a single surgical team. Patients were shifted to ward after surgery and followed-up there. Patients were follow-up in OPD after 10 days of surgery where they were assessed for complications like wound infection, wound dehiscence, seroma or hematoma formation (as per operational definition). All the data was collected on a pre-designed Performa (attached). Hospital stay was measured in days taking operative day as day 0. Patients were discharged when they were oral free and pain free upon oral analgesics.

Operative Time was measured from stop watch in minutes from first incision to end of last stitch.Wound Infection (redness, erythema, pus discharge at site of wound) were graded according to Southampton wound grading system. It was labeled +ve if grade >3. It was assessed while in Hospital and 10 days postop. Seroma detected clinically and with the help of ultrasound scan and needs drainage. It was assessed 10 days postop. Total drain volume were measured in ml and Duration of the drain requirement in days. Drain was removed when volume will be < 30 ml/24 hours.Ventral hernia is the abnormal protrusion of abdominal content through a weakness in the anterior abdominal wall. Contents can be reduced and a positive cough impulse and defect appreciated clinically and radiologically (defect size >2 cm). The data was entered and analyzed in SPSS version 20. Quantitative variables like age were calculated as mean and standard deviation. Qualitative variables like gender and complications were calculated as frequency and percentage.

## Results

Mean age of patients was 41.15±11.05 years. Minimum and maximum age of patients was 25 and 60 years. **(Table-1)** Gender distribution of patients showed that there were 64(75.3%) female and 21(24.7%) male patients. **(Table-2)** Mean body mass index of patients was 21.4±1.75. Minimum and maximum body mass index of patients was 19 and 25. **(Table-3)** Mean operative time was 145.65±29.33 minutes. Minimum and maximum operative time was 100 and 200 minutes. **(Table-4)** There were 5(6%) patients who suffered from wound infection. **(Figure-1)** Mean drain volume for right and left side drain was 198.04±79.45 and 193.61±74.27 ml. **(Table-5)** Mean duration for drain on right and left side was 6.55±2.23 days. **(Table-6)** Seroma formation was seen in 5(6%) patients. **(Figure-2)** Mean operative time for patients who were <40 years was 148.38±27.99 years. While mean operative time for patients whose age was >40 years was 143.22±30.58 years. No difference (p>0.05) was observed for operative time in relation to age of patients. For right side drain mean drain volume in patients. <40 and in >40 years patients were 201.98mL and 194.53mL. However for left side mean drain volume in patients <40 and in >40 years patients was 191.85mL and 195.18mL respectively. No difference (p>0.05) was seen in drain volume on both sides in relation to age of patients. Patients who were <40 years among them mean duration of drain for right and left side was 6.58 days and for patients

were >40 years of age among them only 3(6.67%) patients suffered from infection. No difference (p>0.05) was observed for infection in relation to age of patients. No difference (p>0.05) was observed for seroma formation in relation to age of patients i.e. (<40 years: 10% vs. >40 Years: 2.22%). Mean operative time for male and female patients was same (p>0.05) for both genders i.e. Male: 148.43 vs. Female: 144.73,) On right side mean drain volume in male and female patients was 195.90mL and 198.73mL. On left side mean drain volume in male and female patients was 194.52mL and 193.31mL. No difference (p>0.05) was seen for drain volume on both sides in male and female patients. Mean duration for drain for both sides in male and female were was 6.71 days and 6.50 days respectively. No difference (p>0.05) was observed for drain duration in male and female patients on both sides (Right & Left side). Among male patients, only 1(4.76%) patient was suffered from wound infection whereas in females 4(6.25%) patients were suffered from wound infection. No difference (p>0.05) was observed for wound infection in male and female

**Table-1:** Age distribution of patients.

| n | 85 |
|---|---|
| Mean | 41.15 |
| SD | 11.05 |
| Minimum | 25 |
| Maxcimum | 60 |

**Table-2:** Gender distribution of patients.

| | Frequency | Frequency |
|---|---|---|
| Male | 21 | 24.7% |
| Female | 64 | 75.3% |
| Total | 85 | 100% |

**Table-3:** Descriptive statistics for body mass index.

| n | 85 |
|---|---|
| Mean | 21.74 (Kg/m$^2$) |
| SD | 1.75 |
| Minimum | 19 |
| Maxcimum | 25 |

**Table-4:** Descriptive statistics for operative time.

| n | 85 |
|---|---|
| Mean | 145.65 Minutes |
| SD | 29.33 |
| Minimum | 100 |
| Maxcimum | 200 |

**Table-5:** Descriptive statistics for drain volume.

| | Drain Volume | |
|---|---|---|
| | Right side drain (ml) | Left side drain (ml) |
| Mean | 198.04 | 193.61 |
| SD | 79.541 | 74.272 |
| Minimum | 53 | 74 |
| Maxcimum | 428 | 376 |

**Table-6:** Descriptive statistics for duration of drain .

| | Drain Volume | |
|---|---|---|
| | Right side drain (ml) | Left side drain (ml) |
| Mean | 6.55 | 6.55 |
| SD | 2.239 | 2.239 |
| Minimum | 03 | 03 |
| Maxcimum | 10 | 10 |

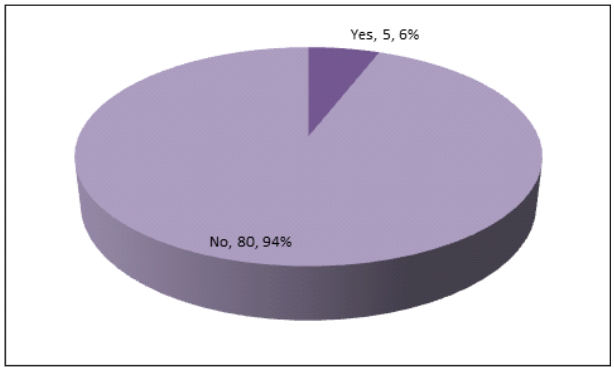


**Fig-1:** Wound infection in patients .

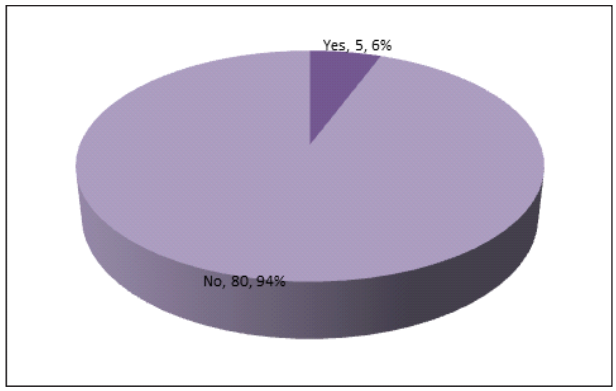


**Fig-2:** Seroma formation in patients.

patients. No difference (p>0.05) was seen for seroma formation, wound infection, duration of drains, volume of drains, in male and female patients.

However it was seen that both age and gender did not affect the outcome of the procedure because no difference (p>0.05) was seen for operative time, drain volume, drain duration, wound infection and for seroma formation.

## Discussion

Abdominoplasty is a commonly performed truncal rejuvenation procedure, the popularity of which appears to be increasing. Umbilical hernias are occasionally present in patients desiring abdominoplasty. Current data strongly support the use of synthetic mesh when repairing ventral hernias >2 cm in diameter. Long-term data demonstrate improved recurrence rates with mesh, even for smaller umbilical defects. With simultaneous abdominoplasty, an open approach to umbilical herniorhaphy is preferred due to the improved exposure; however, dissection of an umbilical hernia at the fascial level can damage the umbilical perforating vessels, resulting in necrosis and loss.[9,10]

While it is important to keep in mind that ventral hernia surgery and abdominoplasty are two distinct operations, they are performed in the same area (abdomen) and address problems that often have a common origin. While the need for an operation may be driven by the hernia repair, performing it together with abdominoplasty is usually a safe and practical combination. In addition to having a diagnosed ventral hernia from whatever cause, two conditions account for about 95% of patients interested in combining hernia surgery with abdominoplasty. One condition is associated with women who have had one or more children, which left them with stretch marks and an abdominal wall musculature permanently deformed by carrying a baby. The other is the result of massive weight loss, where the patient develops folds of overhanging skin. In either case, abdominoplasty is required to correct for substantial and unsightly tissue and skin.

In this study mean operative time was 145.65 minutes. Wound infection and seroma formation was seen in 5(6%) patients. As per operational definition both drain volume and drain duration was in acceptable range. Age and gender of the patients was stratified to see any effect of these variables on the outcome. However it was seen that both age and gender did not affect the outcome of the procedure because no difference (p>0.05) was seen for operative time, drain volume, drain duration, wound infection and for seroma formation.

Ghnnam WM 2009 reported complications and initial results of mesh hernia repair with an abdominoplasty. Mean operative time was 178.3±30.9 minutes. The most common complication was seroma (20.8%), followed by localized flank bulging (16.7%), wound infection (8.3%), partial wound dehiscence with skin necrosis (8.3%) and unacceptable scarring of the abdominal incisions (4.2%).[6] However in our study operative time, wound infection and seroma formation in patients was quite less as compared to that of reported by Ghunnam WM 2009.

Abdominoplasty operations vary in scope, and are frequently subdivided. omplete abdominoplasty can take 1 to 5 hours.[11] Mean duration of operative time was 145.65 minutes in our study. The priorities when combining abdominoplasty with other procedures are to ensure the safety of either procedure alone, and to determine how the combination will affect the outcome. The safety of combining abdominoplasty with other abdominal procedures has been a concern. Although seroma is often cited as the most common complication, incidence varies greatly from 1% to 42 %.[12, 13] Long-term drainage can interfere with the mobility of the patient, potentially promoting the thrombo-embolic phenomenon, and does not appear to prevent seroma.[14] In present study seroma formation was seen in only 5(6%) of the patients which is quite low as compared to the seroma formtion rate reported in the literature regarding Abdominoplasty. No local study is available on this topic. However this is the first of its kind study in which outcome of simultaneous Abdominoplasty and ventral hernia repair in patients presenting with ventral hernia is studied. The addition of abdominoplasty at the time of umbilical herniorrhaphy may theoretically increase the concern for wound complications. This possibility is of particular interest when mesh is involved.[15]The results of present study produced local data regarding Abdominoplasty and ventral hernia repair. So as per these findings simultaneous Abdominoplasty in patients presenting with ventral hernia is effective procedure in terms of operative time and less complications (wound infection & seroma formation). The abdominoplasty approach to mesh hernia repair is extremely helpful. It provides the best exposure obtainable. Other hernias, which may have

## Conclusion

Based on the results of this study it can be said that the need for an operation may be driven by the hernia repair, performing it together with abdominoplasty is usually a safe and practical combination. There were 5(6%) patients who suffered from wound infection as well as seroma formation. Mean drain volume for right and left side drain was 198.04±79.45 and 193.61±74.27 ml.

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