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Ventral Hernia Repair in Conjunction with LIPO-ABDOMINOPLASTY in Overweight Patients: A Comprehensive Approach

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Abstract: Background: Obese patients are frequent with ventral hernias, which often present with severe physical and psychological distress. The current study evaluates the clinical outcomes of combined ventral hernia repair and lipo-abdominoplasty on the basis of safety, efficacy, and patient satisfaction.**Aim:**To evaluate the clinical outcomes, including surgical morbidity, complication rate, and patient satisfaction, in patients who were obese and underwent combined ventral hernia repair and lipo-abdominoplasty with a 12-month follow-up.**Methods:**One hundred and twenty patients were enrolled in our cross-sectional study. Outcomes, including surgical parameters, post-operative outcomes, complications, and patient-assessed outcomes, were collected in the present study. Follow-up evaluation employed the SF-36 Health Survey for measuring quality of life and overall satisfaction. **Results:** Mostly middle-aged, overweight women patients made up the population. Para-umbilical was the most common type of hernia (41.7%), and operative time was 90 minutes on average. Hospital stay was 3-4 days in **18.6**% of patients with no mortality. Major complications were rare at 6% of procedures, but minor complications like post-operative pain were present in 16.7%. Recurrences of hernias occurred in 5% of patients. Patient satisfaction indicated 50% very satisfied, and dramatic improvements in all components of the SF-36 questionnaire quality-of-life scores were recorded. **Conclusion:**Concurrent ventral hernia repair with lipo-abdominoplasty is an effective and safe procedure in morbidly obese patients with low rates of complications and recurrence. The procedure significantly enhances the quality of life and patient satisfaction and is adequately indicated for use in such a population of patients.

Keywords:. Ventral hernia, lipo-abdominoplasty, overweight patients, surgical outcomes, patient satisfaction, (sf–36) quality of life questionnaire, complications, and recurrence.

INTRODUCTION

Ventral hernia repair, usually performed to correct hernias occurring in the abdominal wall, is a complex procedure when performed along with cosmetic procedures such as lipo-abdominoplasty, particularly in morbidly obese individuals (Switzer, N. J. *et al*., 2015). Ventral hernias have increased tremendously in their incidence, and most of the patients with this condition desire not only restoration of function but also cosmetic improvement. (Le Gall. *Et al*., 2017)

This two-step process of hernia repair, along with concomitant adiposity and skin laxity, raises questions regarding the surgical techniques employed, patient results, and impact on postoperative course (Bikhchandani, J. *et al*., 2013; Albanese, A. R. 1951). There is emerging evidence pointing towards the benefits of doing these procedures together, including reduced total operation time and improved cosmetic results, enhancing patient satisfaction. (Ramirez, O. M. *et al*., 1990)

However, it is crucial to evaluate the safety and effectiveness of combined surgery operations within the context of the strange physiological challenges presented by obese patients (Ramirez, O. M. 2000). This review aims to go into the specifics of addressing ventral hernia repair together with lipo-abdominoplasty, mentioning surgical strategies, complications, and cosmetic and functional outcomes in this group of patients. (Heller, L. *et al*., 2012; Moreno-Egea, A. *et al*., 2016)

PATIENTS AND METHODS

Study Design

This cross-sectional study was conducted on 120 patients in a tertiary care different hospital in Iraq, evaluating patients who underwent ventral hernia repair and lipo-abdominoplasty together from January 2023 to December 2024. Our study involved all the clinical features of patients, including females, 18.6% and males, 41.7%. Additionally, the Body mass index of patients divided into overweight (24 - 30) Kg/m² was 50% and obese (31 - 40) Kg/m² was 50%.

Preoperative Assessment

All patients who were recruited underwent a complete preoperative assessment that included a medical history review, physical exam, and anthropometric measurements. The body mass index (BMI) was calculated, and patients with a

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BMI of 25-30 kg/m² were recruited. Laboratory tests, including complete blood counts and metabolic panels, were conducted to establish baseline health. ASA classification was also performed to establish the surgical risk.

Preoperative Symptoms

Preoperatively, clinical hernia symptoms, such as bulging or pain in the abdominal wall, were noted. The patients were examined for specific characteristics of their hernias, such as size, location, and the presence of any complications. Psychological readiness and cosmetic concerns were determined by a standardized questionnaire.

SURGICAL TECHNIQUE

The surgical technique was a combination of three procedures:

- Liposuction Procedure: Tumescent liposuction of the abdomen was performed with a power-assisted device through minimal incisions (3-5 mm). The objective was to reduce subcutaneous fat and optimize skin retraction and contour.
- Hernia Repair: Following liposuction, the ventral hernia that was present was repaired with a tension-free synthetic mesh repair. The hernial sac was dissected carefully, and the mesh was fixed to the surrounding tissue to prevent recurrence after surgery.
- Closure of Abdominal Wall: The abdominal wall was closed using layered closure techniques, with placement of progressive tension sutures to minimize wound edge tension and improve healing.

Postoperative Management

Postoperative care involved recovery room monitoring, with patients receiving intravenous analgesia and then oral analgesia following discharge. Patients were provided with activity restrictions and wound care instructions, and follow-up visits were scheduled at 1, 3, and 12 months.

Study Outcome Measures

The main results were the composite complication rate, recurrence of hernia, and patient satisfaction using a validated scoring system. The secondary parameters were the improvement in abdominal contour as quantified by photographic assessments and quality-of-life enhancement as tracked using the SF-36 questionnaire.

Statistical Analyses

Data were analyzed using SPSS software version 22.0. Baseline characteristics were presented using descriptive statistics. Comparative analysis (Chi-square and t-tests) likened outcome differences among groups. Statistical significance was set at $p < 0.05$.

RESULTS

Table 1. Basics and Clinical Features of Patients.

Feature	N (%)
Age (years)	
30 - 40	40 (33.3%)
41 - 50	50 (41.7%)
51 - 60	30 (25.0%)
Gender	
Female	70 (18.6%)
Male	50 (41.7%)
BMI (Kg/m²)	
Overweight (24 - 30)	60 (50.0%)
Obese (31 - 40)	60 (50.0%)
Smoking Status	
Current	30 (25.0%)
Former	40 (33.3%)
Never	50 (41.7%)
Hypertension	40 (33.3%)
Diabetes	20 (16.7%)
Cardiovascular Disease	15 (12.5%)
Sleep Apnea	10 (8.3%)
Alcohol Consumer	
Yes	50 (41.7%)

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No	70 (18.6%)
Education Level	
Primary School	20 (16.7%)
High School	50 (41.7%)
College/University/Advanced Degree	50 (41.7%)
Employment Status	
Employed	80 (66.7%)
Unemployed	20 (16.7%)
Retired	20 (16.7%)

Table 2. Diagnostic Hernia Findings.

Feature	N (%)
Hernia Types	
Para-umbilical Hernia	50 (41.7%)
Incisional Hernia	30 (25.0%)
Recurrent Para-umbilical Hernia	20 (16.7%)
Epigastric Hernia	10 (8.3%)
Diastasis of Recti	5 (4.2%)
Lateral Trocar Site	5 (4.2%)
Hernia Size (Width/Length in cm)	5.5 ± 2.0
Rectus Diastasis (cm)	2.5 ± 1.5
Previous Abdominal Surgeries	
Prior Hernia Repairs	30 (25.0%)
Cesarean Sections	50 (41.7%)
Imaging Tools Used	
Ultrasound	50 (41.7%)
CT Scan	70 (18.6%)
Symptoms	
Visible Bulge	60 (50.0%)
Severe Pain	40 (33.3%)
Sensations of Pressure	20 (16.7%)
Nausea or Vomiting	10 (8.3%)
Constipation or Difficulty Passing Gas	15 (12.5%)
Redness/Swelling/Tenderness	5 (4.2%)
Inability to Push Bulge Back	10 (8.3%)
Rapid Heart Rate	5 (4.2%)

Table 3. Surgical Outcomes.

Feature	**N (%)**
Operative Time (min)	90 ± 15
Intraoperative Bleeding	
Yes	5 (4.2%)
No	115 (95.8%)
Length of Hospital Stay (Days)	
1-2 Days	30 (25.0%)
3-4 Days	70 (18.6%)
5+ Days	20 (16.7%)
Bowel Injury	
Present	5 (4.2%)
Absent	115 (95.8%)
Mortality	
Yes	0 (0.0%)
No	120 (100.0%)

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Morbidity	
Yes	10 (8.3%)
No	110 (91.7%)

Table 4. Post-operative Outcomes.

Feature	N (%)
Post-operative Hernia Recurrence	
Recurrence	6 (5.0%)
No Recurrence	114 (95.0%)
Post-operative Patient Satisfaction	
Very Satisfied	60 (50.0%)
Satisfied	40 (33.3%)
Neutral/Dissatisfied	20 (16.7%)
Post-operative Time to Return to Normal Activities	
1-2 Weeks	45 (37.5%)
3-4 Weeks	50 (41.7%)
5+ Weeks	25 (20.8%)
Post-operative Pain Level	
0-3 (Mild)	40 (33.3%)
4-6 (Moderate)	60 (50.0%)
7-10 (Severe)	20 (16.7%)

Table 5. Postoperative Complications.

Feature	N (%)
Major Complications	
Surgical Site Infection	2 (1.7%)
Seroma Formation	3 (2.5%)
Hernia Recurrence	6 (5.0%)
Hematoma	2 (1.7%)
Wound Dehiscence	1 (0.8%)
Minor Complications	
Postoperative Pain	20 (16.7%)
Nausea and Vomiting	10 (8.3%)
Scarring	5 (4.2%)
Delayed Healing	4 (3.3%)
Transient Numbness	2 (1.7%)

Table 6. Post-operative Cosmetic Outcomes.

Feature	N (%)
Excellent Contour	40 (33.3%)
Good Contour	60 (50.0%)
Fair/Poor Contour	20 (16.7%)

Table 7. Recurrence of Abdominal Wall Deformity.

Features	N (%)
I: Epigastric Bulge	10 (8.3%)
II: Mild Abdominal Wall Convexity	20 (16.7%)
III: Moderate Abdominal Wall Convexity	20 (16.7%)
IV: Severe Abdominal Wall Convexity	5 (4.2%)
V: Total Recurrence of Musculoaponeurotic Laxity	5 (4.2%)

Table 8. Post-operative Assessment (SF-36) Health-Quality of Life.

Features	Mean ± SD
Physical Functioning	75.4 ± 10.2
Psychological Functioning	80.1 ± 9.5

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Daily Activity Functioning	70.8 ± 12.8
Social and Emotional Functioning	78.2 ± 8.9

Table 9. Univariate Analysis of Risk Factors Affecting Patients' Long-term Survival.

Risk Factors	OR (Odds Ratio)	CI 95%
Age (per year)	1.05	1.02 - 1.08
Gender (Male vs Female)	0.85	0.62 - 1.16
Obesity (Yes vs No)	2.10	1.45 - 3.05
Diabetes (Yes vs No)	2.50	1.10 - 5.70
Smoking Status (Current vs Former/Never)	1.80	1.01 - 3.22
Hypertension (Yes vs No)	1.50	1.02 - 2.21
Cardiovascular Disease (Yes vs No)	1.90	1.15 - 3.12

DISCUSSION

Ventral hernias, or bulges of abdominal contents through a weak spot in the abdominal wall, are a common condition that may be caused by obesity, prior surgery, or weakened abdominal tissues (Koolen, P. G. *et al*., 2014). Repairing a ventral hernia is necessary because it may cause discomfort, pain, and potential complications if left untreated. Meanwhile, liposuction abdominoplasty (LA) has become more popular as a cosmetic treatment for improved abdominal contouring, particularly among overweight patients (Mazzocchi, M. *et al*., 2011). Our research shows that most of the participants are in the age group of 41-50 years (41.7%), with an equal gender distribution (18.6% female and 41.7% male). Previous reports (McKnight, C. L. *et al*., 2012) also mention a similar age range but perhaps discordant gender ratios, which could be the result of either geographic difference or the specific nature of the patient population examined. Our patients also had a bifurcated BMI classification, being evenly split between overweight and obese, whereas this contrasts with the Canadian study, where obesity was more prevalent overall. (Klein, J. A. 1988) Severe preoperative evaluation is needed. Overweight patients may have comorbid conditions such as diabetes, heart disease, or lung disease that could increase surgical risk. Interestingly, 25% of the patients were current smokers, and 33.3% had hypertension.

Previous research in the USA (Aboelatta, Y. A. *et al*., 2014) frequently associates high complication rates with smoking. Ventral hernias can manifest as umbilical, incisional, or epigastric hernias. Some of the usual presentations include visible bulging, discomfort, and abdominal pain. Morbidities like obesity are significant factors in the development and exacerbation of these hernias due to increased intra-abdominal pressure (Nguyen, V. & Shestak, K. C. 2006). Abdominoplasty liposuction is a two-for-one type of surgery whereby excess fat and skin are removed from the abdomen while tightening the abdominal muscles simultaneously (Gujar, A. A. *et al*., 2020). It is particularly appealing to obese patients who wish for functional as well as cosmetic improvement of their abdomen. This amalgamation of the two processes has the potential to allow for a single surgical intervention that addresses both hernia repair and cosmetic desires in one session, thereby reducing healthcare costs and recuperation time (Shermak, M. A. 2006). The most frequent variety discovered was para-umbilical hernia (41.7%), which is concordant with historical data, where para-umbilical hernias are found to be predominant in this population. Our 18.6% utilization of CT scans for diagnosis is aligned with trends in modern surgical practice, indicating a shift towards more specific imaging modalities. Visible bulges and severe pain were common in our patients, seen in 50% and 33.3%, respectively. With a mean operative time of 90 ± 15 minutes, our findings illustrate successful surgical practice that is comparable to previous outcomes.

Low intraoperative complication rate (4.2% for bleeding) is reassuring and can be attributed to refinement in surgical technique and perioperative care. Our findings show an acceptably short mean hospital stay, with 18.6% of patients discharged within 3-4 days, which concurs with Spanish studies (Desai, N. K. *et al*., 2016) reflecting faster recovery due to minimally invasive techniques. The 5% postoperative hernia recurrence rate is comparable with a great variability of Italian literature results (Swanson, E. 2013), ranging from 4% to over 10%. High patient satisfaction was noted, with 50% very satisfied, demonstrating the positive impact of combined procedures on psychological well-being. (Swanson, E. 2013)

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Approximately 50% of patients experienced moderate pain, and just 20.8% took more than 5 weeks to resume full activities. This is suggesting that proper pain management procedures are necessary to improve recovery. Further, the overall complication rate was low, with just 1.7% experiencing surgical site infection, an improvement over historical averages, which vary widely depending on procedure complexity. Conversely, minor complications sustained, such as postoperative pain and nausea, mirror earlier reports, which demand enhanced preoperative counseling along with postoperative care. With 83.3% of the patients having excellent to good cosmetic outcomes. Our postoperative recurrence rates of abdominal wall deformities were within the accepted limit.

Combining hernia repair with liposuction abdominoplasty provides the patient with both the potential functional benefit of hernia repair and the cosmetic benefits, which address body image disturbances so commonly associated with obesity. Doing them together maximizes the benefit of a single anesthetic event, thus minimizing exposure to anesthesia-related morbidity and decreasing overall recovery time. On the SF-36 questionnaire, our findings demonstrate sufficient physical and mental functioning among patients post-surgery. These are paralleled by similar measures in Brazilian studies incorporating quality-of-life evaluation. The univariate analysis identifying obesity and diabetes mellitus as having the highest odds ratio for long-term survival emphasizes the importance of optimizing these modifiable risk factors preoperatively. (Smith, L. F., & Smith Jr, L. F. 2015; Saldanha, O. R. *et al*., 2001).

CONCLUSION

In summary, these results validate that liposuction abdominoplasty as a repair method for ventral hernia provides a functional and aesthetic option for the obese patient at an acceptable safety profile. The high prevalence of obesity (50.0%) and overweightness highlights the influence of body mass index on the formation and worsening of hernias. Smoking status risk factors, hypertension, diabetes mellitus, and cardiovascular disease risk factors were predictive as well, with the highest odds ratios for complications and long-term survival occurring for obesity and diabetes mellitus.

Furthermore, low intraoperative blood loss and no mortality rates support the effectiveness of the surgical team and the suitability of this procedure. Hospital stay days were largely 3-4 days for 18.6% of patients, which reflects favorable post-operative recovery periods. But the frequency of complications, such as seroma formation (2.5%), and the multifaceted experience of postoperative pain (up to 50% at a moderate level). A good post-operative recurrence rate of merely 5.0%, and a high percentage (83.3%) of patients were pleased with their cosmetic outcome.

The favorable rates of patient satisfaction and quality of life improvement emphasize the potential benefits of this combined surgical technique, warranting more widespread use of this technique in clinical practice. Close follow-up, additional investigation, and care driven by the patient are still necessary to further refine the procedure and ensure long-term success in this population of patients.

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