

## Combined Abdominal Dermolipectomy-Hernioplasty in Obese Patients and after Bariatric Surgery

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### ABSTRACT

**Background:** There are several procedures used to flatten and improve the appearance of the abdomen which are called tummy tucks surgery. The determination of whether a combined tummy tuck/hernia operation is possible will be determined by the size, type and severity of the hernia, the type and complexity of tummy tuck and surgeon's experience. A combined dermolipectomy/Hernia operation has many advantages; save money, save the time, pain, discomfort and recovery of a second surgery.

**The Aim of Study:** Is to evaluate if hernioplasty combined with abdominoplasty is a safe procedure to the patients as regard complications, surgical results and quality of life.

**Patients and Methods:** Fifty three patients admitted in Mansoura university hospital. General surgery department from November 2008 to October 2010. Who had abdominal dermolipectomy combined with hernioplasty. Complications were classified into Major (D.V.T, pulmonary embolism flap necrosis, sepsis). And minor (seroma, minor dehiscence, sensory nerve injury). Quality of life was examined using the version 2.0 of the short-form 36 healthy survey (SF-36v2).

**Results:** There were minor complication in (12) patients (5 seroma 3 minor wound dehiscence & 2 minor superficial wound infection 2 wound haematoma) and major complications in four patients (two D.V.T, one flap necrosis & one severe wound infection). Recurrent hernia in four patients. Mean operative time was (163±45 minutes) range (106-315 minutes). Mean Hospital stay was (8.2±3 days) range (6-19 days) and there is improvement in the quality of life.

**Conclusion:** Hernioplasty combined with abdominal dermolipectomy is a safe procedure without increase the rate of complication and with good functions and esthetic results.

**Key Words:** Tummy tucks – Abdominoplasty – Dermolipectomy – Hernioplasty.

### INTRODUCTION

There are several procedures used to flatten and improve the appearance of the abdomen which are called tummy tucks surgery which include; Mini-tummy tuck (partial or modified abdominoplasty), Full abdominoplasty, Dermolipectomy, panniculectomy and liposuction [1].

Abdominoplasty is a type of the tummy tuck surgery used to make the abdomen tighter and is defined as a surgical procedure in which excess skin and fat in the abdominal area is removed; in addition, the diastases of recti will be repaired [2].

Dermolipectomy is the removal of excess abdominal skin and body fat plus positioning of a new belly button. The techniques and location of the surgical incisions, fat removal and skin excision are similar to mini-Abdominoplasty, but the procedure does not involve any tightening of the muscles in the abdomen. Dermolipectomy is indicated for patients who have a higher degree of skin laxity than mini-tummy tuck patients [3].

Panniculectomy is the removal of hanging fat and skin on the belly but does not usually reposition the navel and does not tighten the abdominal muscles. The procedure is called a panniculectomy because the hanging tummy is called a panniculus. The distinction between a dermolipectomy and a panniculectomy is a bit vague. The word panniculectomy is specific to the abdomen, however. Some surgeons reserve the term panniculectomy for procedures that remove a large amount of hanging abdominal fat and not just excess skin and some fat [4].

In response to the global rise in obesity, bariatric surgery has become increasingly more popular and successful. As a result, the demand for body contouring following massive weight loss is rapidly growing. Although bariatric procedures may produce impressive weight loss, people who achieve massive weight loss are often unhappy with the hanging folds of skin and subcutaneous tissue that remain [5].

Massive weight loss, defined as loss of fifty percent of excess weight often results in laxity and redundancy of the abdominal skin, causing

disabling rashes, pain, physical limitation, back strain, and cosmetic deformity [6].

Patients who intend to lose a considerable amount of weight should postpone the tummy tuck surgery till they reach the optimal weight; otherwise, sagging will recur [7].

Skin excess can lead to both functional problems and profound dissatisfaction with appearance. Correcting skin excess could improve all these corollaries, including body image [8].

Incisional hernia is a bulge or protrusion that occurs near or directly along a prior abdominal surgical incision. It can occur at the site of any type of abdominal surgery previously performed on a wide range of individuals, from the breastbone down to the groin [9].

After median laparotomy approximately 10 to 20 percent of patients will develop an Incisional hernia. Primary closure of these hernias is associated with a high recurrence rate of 40% and respiratory impairment. Clinical symptoms of Incisional hernias range from virtually none to serious limitations due to hampering of the digestive tract or endangered skin [10].

Increased understanding and correct application of prosthetic mesh has reduced recurrence rates during recent years after reconstruction of large abdominal wall defects [11].

Sudden incarceration of the hernia content has been described less frequently but might be life threatening. Additionally, this may cause marked lifestyle impairment. Most complaints concern abdominal pain and back pain. Both can be explained by the disruption of the ventral muscular wall, resulting in a more ventral position of the patients' centre of gravity, which has to be compensated by an increased lumbar lordosis, often associated with de-novo or increased back pain [12].

The determination of whether a combined tummy tuck/hernia operation is possible will be determined by the size, type and severity of the hernia, the type and complexity of tummy tuck and surgeon's experience [13].

A large hernia may make a combined tummy tuck/hernia operation too complicated and impose too great a risk. In such cases the hernia would have to be repaired first, followed by a later operation for the tummy tuck. A small hernia that is easily repaired is often possible to fix during a tummy tuck/hernia operation [14].

A combined dermolipectomy/Hernia operation has many advantages; save money, save the time, pain, discomfort and recovery of a second surgery, and may be less dangerous because it is only one surgery. Every surgery carries its own risks (one is better than two) [15].

The aim of our study is to evaluate if hernioplasty combined with dermolipectomy is a safe procedure to the patients as regard complications, surgical results and quality of life.

## PATIENTS AND METHODS

This is a case serial study including 53 patients admitted in Mansoura University Hospital. General Surgery Department from April 2008 to September 2010. Who had abdominal dermolipectomy combined with hernioplasty.

14 patients had Incisional hernia after upper midline incision for bariatric surgery. 39 patients had ventral hernia (6 recurrent hernias and 33 primary hernias).

Thorough history taken and physical examination was done. All patients were assessed for risk Factors, including diabetes mellitus, corticosteroid use, smoking and previous thrombo-embolic disease. Body mass index (BMI) was calculated to all patients.

The preoperative evaluation is made of individual way. It is important to consider the quantification of red blood cells and hemoglobin, albumin levels, kidney function, ionogram, and concomitant pathologies.

Preoperative prophylactic antibiotic in the form of third generation cephalosporin was given and also low molecular weight heparin for deep vein thrombosis prophylaxis was given to all patients

All operations were performed under general anesthesia. A urinary catheter inserted into the bladder to remove urine and decompress the bladder, a gastric tube inserted to decompress the stomach.

The handle-bar incision was slightly curved at suprapubic region; the wound should be extended laterally to the fold extension. It might reach the flanks or even the back, in which case the patient should be moved to a prone position as in belt dermolipectomy. The slant incision of subcutaneous fat is made (beveled upwards) and a bulk of fat is left in the suprapubic region to close the dead space. The flap is dissected at the epifascial level

and above the umbilicus, and is narrowed only to the extent needed for the plication of rectal diversion to preserve the blood and nerve supply from the subcostal region to the flap.

Haemostasis meticulously secured and the sac was opened only if there was a definite history of obstruction or if the sac was irreducible otherwise sac was inverted by approximation of its lateral edges with continuous 0 proline suture. After that onlay polypropylene mesh placed with three to five centimeters overlap on to normal tissue to which it secured with interrupted monofilament 0 proline sutures.

Finally the excess tissue of the transverse incision is removed and Umbilical fixation is made by placating the stump in order to give a natural dip in the new umbilical opening.

Two suction drains were inserted, and skin closed with subcuticular sutures, drains were removed when there was less than 50ml of drainage in 24 hours.

Mean hospital stay was estimated.

Follow-up of the patients in out patient clinics every week (removal of stitches and drain in out patient clinics) in each visit we examined the patient for wound infection, seroma, haematoma and chronic wound pain. The patients were examined also for recurrent hernia.

Complications were classified into Major (D.V.T, pulmonary embolism flap necrosis, sepsis). And minor (seroma, minor dehiscence, sensory nerve injury).

Quality of life was examined using the version 2.0 of the short-form 36 healthy survey (SF-36v2)

#### *Statistical analysis:*

The statistical analysis of data done by using excel program and SPSS program statistical package for social science version 10.

The description of the data done in form of mean ( $\pm$ ) SD for quantitative data. And Frequency & proportion for Qualitative data.

*N.B:*  $p$  is significant if  $<$  or  $=$  0.05 at confidence interval 95%.

## **RESULTS**

During the study fifty three patients who had hernia and redundant abdominal skin were treated; fourteen patients had Incisional hernia after upper

midline incision for bariatric surgery there were (10) females and (4) males with mean age was  $27\pm 4.5$  years (range 22-38 years). While thirty nine patients had ventral hernia (31 females and 8 males) (6) patients had recurrent epigastric hernia, (20) patients had epigastric hernia, (3) patients had diversion of recti, one patient have umbilical hernia (4) patients had Para umbilical hernia and (5) patients had Incisional hernia [four after right subcostal incision for cholecystectomy and one after grid iron incision for appendectomy]. Mean age was ( $30\pm 5.6$  years) range (25-51 years).

Regarding age there is no significance in age between obese patients and patients after bariatric surgery.

There is a highly significant difference between sexes in studied group females to males (77.4% to 22.6%) (41 female: 12 male) ( $p=0.002$ ).

BMI in patients after bariatric surgery was 30.5 Kgm<sup>2</sup>. While BMI in obese patient was 33.7 Kgm<sup>2</sup> range (28-40 Kgm<sup>2</sup>).

In the studied patients there was (9) patients had diabetes mellitus, 8 patients hypertensive and 3 patient were smokers [All the above results in Tables 1,2].

As regard complications there were minor complication in (12) patients (5 seroma 3 minor wound dehiscence & 2 minor superficial wound infection 2 wound haematoma). Four patients developed major complications (two DVT, one flap necrosis & one severe wound infection in which mesh removal was done).

Recurrent hernia was observed in 4 patients after 2, 5, 11, 12 months postoperative (Table 3).

Complications were common in patients with Co-morbid condition flap necrosis and D.V.T occurs in Diabetes mellitus and hypertensive patients. While recurrence occurs in two smoker patients and one in elderly patient & one had no Co. morbidity.

Mean operative time was ( $163\pm 45$  minutes) range (106-315 minutes).

Mean Hospital study was ( $8.2\pm 3$  days) range (6-19 days).

There is improvement in the quality of life as shown by data derived from the SF-36 health survey (Table 4).

Case (1): Obese patient with incisional hernia after right subcostal incision.



(A)



(B)



(C)

(A,B,C): Preoperative.



(D)



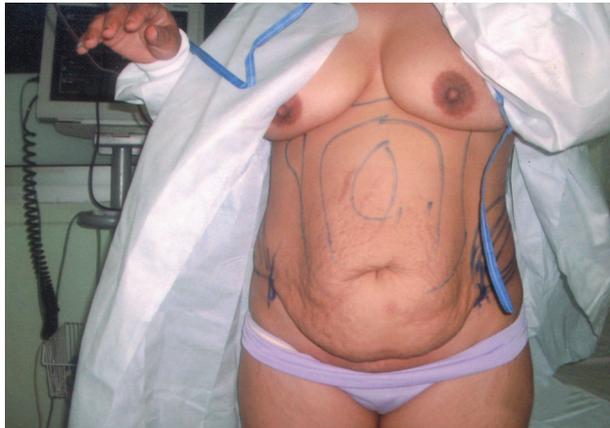
(E)



(F)

(D,E,F): Postoperative after hernioplasty and abdominal dermolipectomy.

Case (2): Obese patient with epigastric hernia.



(A): Preoperative.



(B)



(C)

(B&C): Intraoperative.



(D): Postoperative after hernioplasty and abdominal dermolipectomy.

Table (1): Patient characteristics.

	Obese patients	Patients after bariatric surgery
Number	39	14
Age	27±4.5 years	30±5.6 years
Sex	Male/female (8/31)	Male/female (4/10)
B.MI	33.7 Kgm <sup>2</sup>	Preoperative; 45 Kgm <sup>2</sup> Postoperative; 30.5 Kgm <sup>2</sup>
Diabetes mellitus	7	2

Table (2): Types of hernia.

Type of hernia	Number	%
Incisional hernia	14	After upper mid line incision
	19-4	After right subcostal incision
	1	After grid iron incision
Epigastric hernia	20	37.7
Recurrent epigastric hernia	6	11.3
Para umbilical hernia	4	7.6
Divercation of the recti	3	5.7
Umbilical hernia	1	1.9

Table (3): Complications.

Complication	Number	Percentage
Recurrent hernia	4	7.6
D.V.T	1	3.8
Flap necrosis	1	1.9
Wound sepsis	1	1.9
Seroma	5	9.5
Minor wound dehiscence	3	5.7
Minor superficial wound infection	2	3.8
Wound haematoma	2	3.8

Table (4): Outcome of quality of life assessed by SF-36 health survey.

	Preoperative	6 menthes Post-operative
Physical functioning	63	71
Role physical	44	61
Bodily pain	70	68
General health	65	66
Vitality	59	64
Social functioning	55	77
Role emotional	76	79
Mental health	69	66

## DISCUSSION

Abdominoplasty has become an increasingly popular procedure amongst patients seeking plastic surgery. Apart from removing excess skin and fat and abdominal muscle tightening, abdominoplasty also has a preventive and therapeutic effect on back pain [16]. It can also improve the quality of life, in terms of daily physical activity and sexual life, and improves the sexual relationship with his or her partner [3]. Abdominoplasty also benefits in the elimination of fungal infection, ability to wear fitted garments and improvement of psychological status [1].

Abdominoplasty techniques are classified, according to the direction of the excision and the resulting scar, as horizontal, vertical, or mixed. The most widely used, for esthetic purposes, are the horizontal techniques with wide undermining up to the costal margin and umbilical translocation, the main reason being that the final scar is hidden in the bikini [4].

Because of its benefits for skin removal, dermolipectomy is the most important procedure for treatment deformities caused by massive weight loss. By comparison, liposuction may be useful for removing fat deposits without traditional surgical incisions, but its use depends upon the ability of the skin to contract newly sculpted figure. Thus while liposuction can be useful in treating a patient's body contouring after weight loss, unlike dermolipectomy it is not a primary procedure [17].

Health complications and recovery time after dermolipectomy are similar to mini-Abdominoplasty except that dermolipectomy does not involve surgical tightening of the abdominal muscles. Thus post-operative discomfort is reduced [18].

In our study the incidence of seroma formation was 9.5% and the incidence of wound infection was 3.8% minor superficial wound infection which is treated by dressing and systemic antibiotics and 1.9% severe wound sepsis which treated in operative theatre by removal of the mesh.

Mazin (2007) found that the incidence of seroma formation following Incisional hernia repair by mesh was 17.3% while in van Geffen and Simmermacher study (2005) found that incidence of seroma after hernioplasty was 23%, Leonidas et al. (2000) report the incidence of seroma formation after abdominal dermolipectomy following weight loss was 5.2%.

Heniford et al. [19] reported that the rate of infection after hernioplasty range from 3% to 18% while Leonidas et al. [4] reported wound infection after dermolipectomy 1%.

Grazer and Goldwyn [20] in which 958 plastic surgeons were questioned regarding their experience with abdominoplasties in general. It was found that in a total of 10,490 abdominoplasties, the rate of wound infection was 7.3%, haematoma-seroma 6%, wound dehiscence 5.4%, deep vein thrombosis 1.1%, pulmonary emboli 0.8%, and death due to pulmonary emboli 0.01%.

The rate of wound infection in many studies was similar to the incidence of wound infection in our study as Toy [21] reported 3% wound infection, Ben-Hlaim and [22] reported 1%. While Le Blanc [23] reported 2%.

Recurrence rate of hernia in our study was 7.6% which is nearly equal to recurrence rate of hernioplasty in many studies such as Carbajo [24] reported recurrence rate 4.4% while Le Black, reported 6.5% and Heniford, reported 4.7%.

Minor wound dehiscence in our study was 5.7% which is less than that reported by Ortega et al. [18] which report wound dehiscence in (13%) while Leonidas et al., reported wound dehiscence after dermolipectomy following weight loss (6%).

There was one patient develops flap necrosis in our study and treated in the operative theatre by debridement & closures of the flap under umbrella of systemic antibiotics and there is no need for removal of the mesh.

Two patients developed deep venous thrombosis and treated by low molecular weight heparin and oral anticoagulant; Gorcia reported the incidence of DVT with pulmonary embolism was 8%. This is higher than our study.

Mean hospital stay to our patient was 8.2 days which is nearly equally to that reported by Leonidas et al., in which mean hospital stay was 9.5 days. While Gohriy [25] reported mean hospital stay after dermolipectomy was 13 days.

The quality of life to all patients is improved after combined abdominal dermolipectomy and hernioplasty by using SF-36 health survey and this is also achieved by Cintra et al. [26].

### Conclusion:

Hernioplasty combined with abdominal dermolipectomy is a safe procedure without increase the

rate of complication and with good functions and esthetic results.

## REFERENCES

- 1- El-Khatib H. and Bener A.: Abdominal dermolipectomy in an abdomen with pre-existing scars: A different concept, *Plast. Reconstr. Surg.*, 114: pp. 992-997, 2004.
- 2- Murshid M., Khalid K.N., Shakir A. and Bener A.: 2Abdominoplasty in obese and in morbidly obese patients; *Journal of plastic, Reconstructive & Aesthetic Surgery*, Volume 63, Issue, Page 820-825, May 2010.
- 3- Bolton M., Pruzinsky T. and Cash T., et al.: Measuring outcomes in plastic surgery: Body image and quality of life in abdominoplasty patients, *Plast. Reconstr. Surg.*, 112: pp. 619-625, 2003.
- 4- Fotopoulos L., Kehagias I. and Kalfarentzos F.: Dermolipectomies following weight loss after surgery for morbid obesity; *Obesity Surgery*, 451-459, 2000.
- 5- Spector T.A., Levine S.M. and Xarp N.S.: Surgical solution to the problem of massive weight loss, *World J. Gastroenterol.*, 7; 12 (41): 6602-7, Nov. 2006.
- 6- Manahan M.A. and Shermak M.A.: Massive panniculectomy after massive weight loss; *Plast. Reconstr. Surg.*, 117 (7): 2191-7, Jun. 2006.
- 7- Calin C.L., Clerc S, Deneuve I. and Milliez P.: Abdominoplasty after major weight loss: Improvement of quality of life and psychological status. *Obes. Surg.*, 19 (8): 1175-9, Aug. 2009.
- 8- Song A.Y., Rubin J.P., Thomas V., Dudas J.R., Marra K.G. and Fernstrom M.W.: Body image and quality of life in post massive weight loss body contouring patients; obesity surgery, 14 (9) 1626-36, Sep. 2006.
- 9- Mazin Hawaz: Factors influencing post-operative complication after prosthetic "Mesh" repair of Incisional hernia (A prospective study); *Bas. J. Surg.*, 13, Sept. 2007.
- 10- Kreb D.L., Simmermacher R.K.G. and Van Geffen W.J.A.A.: Prospective evaluation of lung and muscle function after Ramirez abdominoplasty in patients with abdominal wall defects. *J. Am. Coll. Surg.*, 201: 206-212, 2005.
- 11- Van Geffen H.J.A.A. and simmermacher R.K.J.: Incisional hernia repair-abdominoplasty tissue expansion and methods of augmentation *World J. Surg.*, 29: 1080-1085, 2005.
- 12- Toranto I.R.: Resolution of back pain with the wide abdominal rectus placation abdominoplasty; *Plast. Reconstr. Surg.*, 81: 777-779, 1988.
- 13- Le Louarn C., Pascal J.F., Levet Y., et al.: Abdominoplastic complications. *Ann. Chir. Plast. Esthet.*, 49: 601-4, 2004.
- 14- Garica-Velasco M: Safety Recommendations for abdominoplasty: Simple or combined with other procedures; the 14<sup>th</sup> international congress of the international confederation for plastic, Reconstructive and Aesthetic Surgery; Berlin, Germany, June 26-30, 2007.
- 15- Conta G., Pasa S., Mahovicil I. and Domente S.: Combined operation in body contour surgery; the 14<sup>th</sup> international congress of the international confederation for plastic, Reconstructive and Aesthetic Surgery; Berlin, Germany, June 26-30, 2007.
- 16- Roucher F., Drevet J.V. and Auberge T.: Breast reduction and abdominoplasty: preventive and therapeutic effect on back pain in women, *Ann. Chir. Plast. Esthet.*, 35: pp. 228-232, 1990.
- 17- Fuente del Campo A., Allegretti E., Filho J., et al.: Regional dermolipectomy as treatment for sequelae of massive weight loss. *World J. Surg.*, 22: 974-80, 1998.
- 18- Ortega J., Navarro V., Cassinello N. and Liedo S.: Requirement and postoperative outcomes of abdominal panniculectomy alone or in combination with other procedures in a bariatric surgery unit; *Am. J. Surg.*, 200 (2) 235-40 Aug. 2010 .
- 19- Heniford B.T., Park A., Ramshaw B.J. and Voeller G.: Laparoscopic repair of ventral hernias: Nine years experience with 850 consecutive hernias. *Ann. Surg.*, 238: 391-400, 2003.
- 20- Grazer F.M. and Goldwyn R.M.: Abdominoplasty assessed by survey with emphasis on complication. *Plast. Reconstr. Surg.*, 59: 513-7, 1977.
- 21- Toy F.K., Bailey R.W., Carey S., et al.: Prospective, multicenter study of laparoscopic ventral hernioplasty. *Surg. Endosc.*, 12: 955-959, 1998.
- 22- Ben-Haim M., Kuriansky J., Tal R., et al.: Pitfalls and complications with laparoscopic intraperitoneal expanded polytetrafluoroethylene patch repair of postoperative ventral hernia. *Surg. Endosc.*, 16: 785-788, 2002.
- 23- LeBlanc K.A., Whitaker J.M., Bellanger D.E. and Rhynes V.K.: Laparoscopic Incisional and ventral hernioplasty: Lessons from 200 patients. *Hernia.*, 7: 118-124, 2004.
- 24- Carbajo M.A., Martp Del Olmo J.C., Blanco J.I., et al.: Laparoscopic approach to Incisional hernias. *Surg. Endosc.*, 17: 118-122, 2003.
- 25- Gohrity A., Assassi P., Aust M. and Vogt P.M.: Abdominal Dermolipectomy after massive weight loss in male patients: The 14<sup>th</sup> international congress of the international confederation for plastic, reconstructive and Aesthetic Surgery; Berlin, Germany, June 26-30, 2007.
- 26- Cintra W., Modolin M.L., Gemperli R., et al.: Quality of life after abdominoplasty in women after bariatric surgery. *Obes. Surg.*, 18: 728-32, 2008.