Post-bariatric abdominoplasty: our experience.

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# Post-bariatric abdominoplasty: our experience

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**Summary.** The fast increase in obesity has been followed by the growth in the demand for plastic surgery in formerly obese patients. The weight loss is accompanied by new dysfunctions and disorders of the outline of the body that affects the quality of life of the patient. Abdominoplasty is a cosmetic surgery procedure that aims to remove the excess of skin and the redundant fat. The aim of this paper was to analyze our experience in this field and to test how functional abdominoplasty improved quality of life in the operated patients. In our Unit from January 2012 to December 2014, 25 patients (18 women and 7 men, age: 24 - 79 years, mean: 51 years) underwent abdominoplastic surgery. Only at least six months after bariatric surgery the patients were eligible for functional abdominoplasty. Average weight of the patients before surgery was 83.5 kg (range 58 - 163 Kg); averege BMI was 31 (range 24.77 - 57). The average quantity of tissue removed was 1.765 Kg (range 250 g - 11,5 Kg). Minor complications rate was in agreement with the percentages reported in literature. No mortality and major complications have occurred in our series. The majority of patients undergoing post-bariatric abdominoplasty reported an improvement in the quality of life and psychological well-being. In our opinion, however, only a multidisciplinary (surgical, psychological, dietological) approach of the post-bariatric patient allows to maintain long-term aesthetic and functional results. (www.actabiomedica.it)

**Key words:** massive weight loss, abdominoplasty, quality of life

## Introduction

Plastic surgery of the abdominal wall has the purpose to correct the aesthetic and functional aspect of the abdominal wall, when compromised by pregnancies, overweight, aging or previous surgeries. Nowadays, obesity has become a social problem and its prevalence has increased over the last decade (1). The fast increase in obesity has been followed by the growth in the demand for plastic surgery in formerly obese patients. Weight loss is accompanied by new dysfunctions and disorders of the outline of the body that affects the quality of life. Generally, the vision of the abdominal apron is the first abdominal disorder faced by the patient who underwent post-bariatric surgery (2). Different types of surgeries are required after bariatric surgery: liposuction, breast reduction or breast lift, arm lift, torsoplasty and abdominoplasty (3). The patients who underwent post-bariatric surgery primarily ask for body contouring, feeling the need to remove the excess skin, which often hangs loose after a dramatic weight loss (4). Abdominoplasty is a cosmetic surgery in great demand especially in female patients; it aims to remove the excess of skin and redundant fat in order to recreate a slim profile, with plastic surgeons playing an important role (5-6).

## Methods

At the Cutaneous, Mininvasive, Regenerative and Plastic Surgery Section, Department of Surgical Sciences, University of Parma, Italy, from January 2012 to December 2014, 25 patients (18 women and 7 men) aged between 24 years and 79 years (mean age: 51 years) underwent abdominoplastic surgery. All patients reported a weight loss between 15 kg and 47 kg (average weight lost: 29 kg), obtained by previous bariatric surgery (14 Pt, 11F and 3M) or following a specific diet regimen (11 Pt, 7F and 4M). Six months after bariatric surgery, the patients were eligible for functional abdominoplasty. During this time-span, the patients stabilized their weight in order to reduce the risk of complications (7). The patients were also advised to stop smoking and female patients were recommended to avoid oral contraception 1 month before surgery. Locally, the surgeon made a prediction of area of skin excision through the maneuver of "pinching", delimiting an abdominal cutaneous lozenge adequate to remove the required excess of skin/subcutaneous tissue. All the procedures were performed with the patient under general anesthesia. The skin incision was designed in the pre-operative and performed bi-spinal-iliac or as inverted "T". The low transverse incision, previously marked, is made with a number 10 blade into, but not entirely through the dermis. Electrocautery is then used to complete the incision, and is also used to deepen the incision through the superficial fascia to reach the deep subcutaneous tissue. The superficial inferior epigastric vessels are identified and controlled. An electrocautery is used to perform soft-tissue dissection superiorly to the level of the umbilicus. The dissection was mainly above the muscular plane in the hypogastric region, being above the superficial fascia in the suprapubic and epigastric areas in order to spare the superficial lymphatic drainage. This is done to improve the final contour and to preserve lymphatics which lessens seroma formation. The umbilicus is vertically incised and dissected free with scissors. The dissection was performed superiorly until the xiphoid process and the costal margins. At this point the stage is set to perform myofascial plication, to correct the rectus muscles diastasis. The most superior point of the plication marking is the xiphoid process and the most inferior is the pubic symphysis. We used a double-breasted suture with Prolene 0/0 suture. If there were important diastase, incisional hernias and/or hernias, we prefer to place, a polypropylene mesh had been applied in collaboration with the General Surgeons. At this point, the patient is placed into a modified jack knife position prior to skin closure. This will take tension off of the abdominal closure and, in the majority of cases, allow all of the tissue between the low transverse incision and a point superior to the umbilicus to be resected. The amount of skin-adipose excess was established during the surgery by stretching the skin flap over the previous low-cut. Once the resection mark is determined, the two sides are meas ured and checked for symmetry. The amount of tissue to be resected should be equivalent on both sides. The full thickness of the tissue is then resected. The final step was the repositioning of the navel according to the technical standards. After careful hemostasis and insertion of 2 to 4 drainages (on average 2 drainages), skin closure was performed with absorbable monofilament (Vicryl 2/0 and 3/0 Monosyn). For all patients, antibiotic therapy was also administered in the immediate pre-operative and it was continued for 10 days. Postoperative care included 10 days of treatment with low molecular weight heparin to prevent major complications such as deep vein thrombosis and pulmonary embolism. Social activity was limited for 4 weeks after the discharge.

## Results

Average weight of the patients before surgery was 83,5 kg (range: 58 to 163 kg); average BMI was 31 kg/m$^2$ (range 24,77 to 57). The average quantity of tissue removed was 1,765 kg (range: 250 g to 11,5 kg). The mean duration of surgery was 3 hours and 20 min (range: 1,50 hour to 5 hour). For 18 patients (12 F and 5 M; 72%) a tummy tuck scar inverted "T" procedure was performed; for the remaining 7 patients (6 F and 2 M; 28%) it was performed an abdominoplasty with bi-spinal-iliac scar. For 21 patients (84%) there was the need for navel translocation, while in 4 cases (16%) it was necessary to amputate the navel since it was evident during surgery its impossibility to survive.

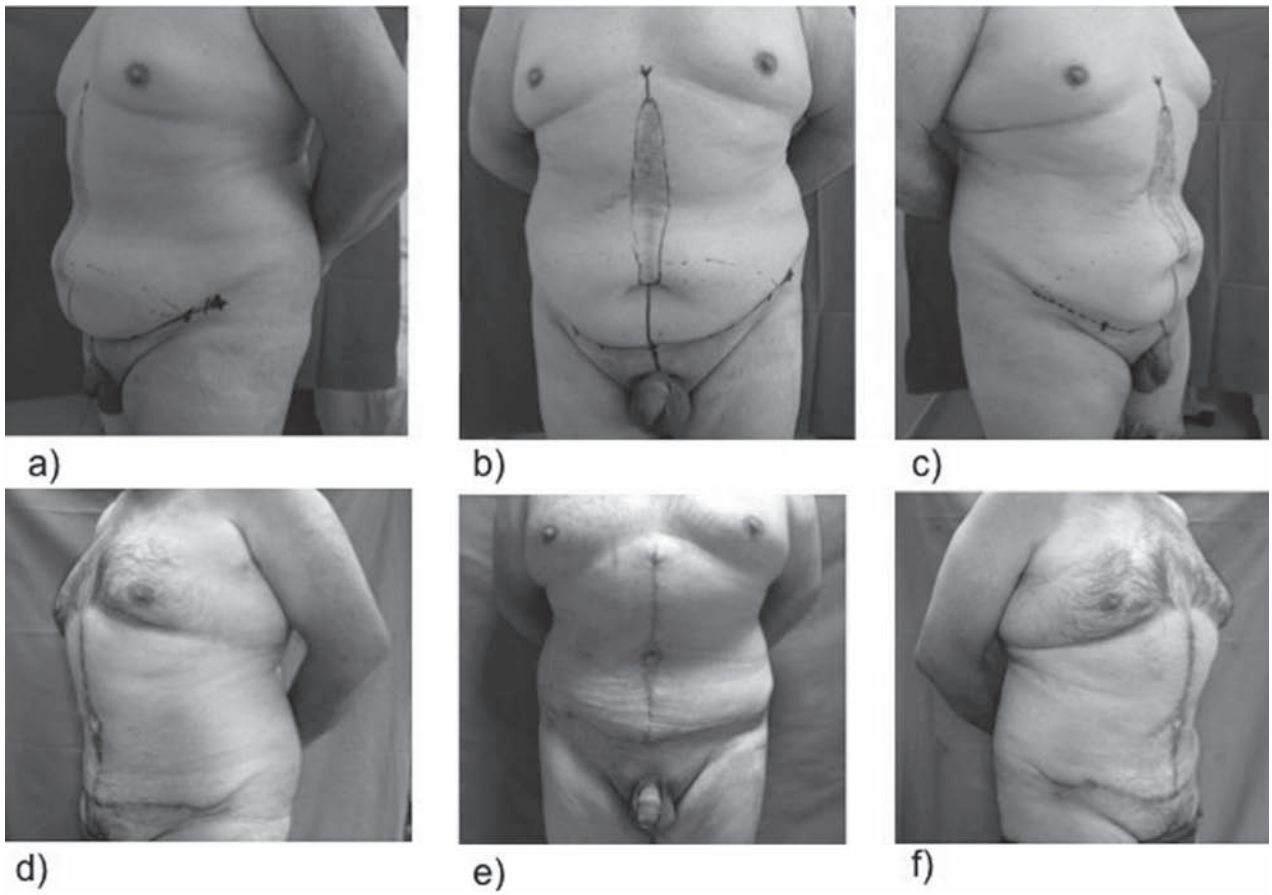


**Figure 1.** Male patient aged 63, previous sleeve gastrectomy, with distasis of rectus abdominis muscle and laparocele, underwent abdominoplasty with "T" reversed scar and placement of a polypropylene mesh. A), B) and C) Pre operative photos. D), E) and F) Post operative photos.

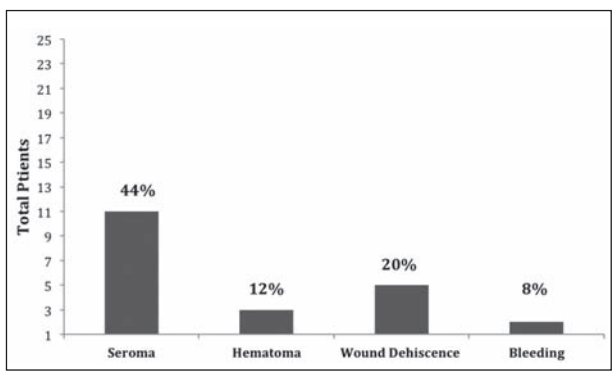


**Figure 2.** Table of complications

For 18 patients (72%) the recti abdominis fascia was sutured. For 16 patients (64%), one general surgeon collaborated in correcting the associated hernia with the placement of a polypropylene mesh. The percentage of complications in our patients was as follows: seroma in 11 patients (44%); hematoma in 3 cases (12%), wound dehiscence in 5 patients (20%); post-operative bleeding in 2 patients (8%) for whose it was necessary to re-operate within 24 hours from the first surgery (figure 1). No mortality and major complications were recorded.

## Discussion

The term obesity means a condition in which the patient has a body mass index (BMI) ≥40 kg/m$^2$ or ≥ 35 kg/m$^2$, often associated with diseases such as hypertension, diabetes, hyperlipidemia, atherosclerosis and severe pulmonary dysfunction (8). The massive weight loss after bariatric surgery is associated

with a major loss of skin elasticity, causing physical discomfort and affecting the quality of life of the patient. Body-contouring surgery is indicated to solve the disfigurement due to the excess of skin folds following bariatric surgery (9). These procedures are often required and beneficial in any type of obesity. Many areas of the body are appropriate for contouring. The number of patients candidate to abdominoplasty procedures is increasing, because of the growing number of patients that undergoes massive weight loss by diet or after surgery (10). Abdominoplasty is a surgical technique reliable and safe. The first to describe it was Kelly in 1899 (11). Subsequently, the technique was perfected by Thorek (12) and Pitanguy (13), which respectively describe a procedure for preserving the navel and suture the fascia of the rectus muscles. Since then many authors have tried to make changes whose ultimate goal was to reduce the risk of complications and improve the benefits of the technique. The goal of abdominoplasty is to modulate the abdominal wall by removing the adipo-cutaneous excess, restore the neo-competence of the abdominal wall and correct the pubic ptosis (2). This is still an intervention that is not free from complications, which can be divided into local and systemic. The most common complications include contour irregularities, skin necrosis, seroma, scar revision, hematoma and wound infection (14-15-16). Systemic complication includes complications related to anesthesia, need for blood transfusion, deep vein thrombosis, pulmonary embolism, toxic shock syndrome (17-18). Obviously, the risk of complications in post-obese patients is relevantly high (19). The most frequent complication in abdominoplasty, from our experience and according to literature, is the seroma. Despite the high risk of complications, we have found that patients, who have undergone extensive weight loss, accept and tolerate well the complications, against the benefits in terms of both function and esthetics. Moreover, the majority of patients undergoing post-bariatric abdominoplasty reported an improvement in the quality of life, psychological well being, and a better social and sexual life (3-20). Furthermore, we believe that a multidisciplinary approach to the post-bariatric patient allows maintaining long-term aesthetic and functional results obtained.

## Conclusions

Abdominoplasty is a safe and effective surgical technique for the correction of body contour in patients with massive weight loss after bariatric surgery. Diet and exercise cannot deal with excess skin after extreme weight loss. Generally, the risk of complications is higher compared to a cosmetic abdominoplasty. Despite this, many patients undergo a functional abdominoplasty, as this surgical technique allows a better quality of life in these ex-obese patients.

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