



AMERICAN SOCIETY OF
PLASTIC SURGEONS

Practice Parameter for Surgical Treatment of Skin Redundancy for Obese and Massive Weight Loss Patients

I. BACKGROUND

Obesity is classified as a body mass index (BMI) of 30 kg/m² or higher. Obesity has become an epidemic in contemporary America effecting fifty eight million people. In addition, an estimated 9 million Americans suffer from morbid obesity, defined as a BMI greater than 40 kg/m².¹ The large number of people affected by obesity or morbid obesity is troubling as studies indicate there is a direct relationship between an increase in weight and an increase in mortality.² Many chronic diseases, including type II diabetes, hypertension, pulmonary dysfunction, digestive diseases and endocrine disorders, may all be related to obesity. This has prompted the Centers for Disease Control to call for significant interventions to help people reduce their weight.³

There are various regimens that patients may follow to lose weight including exercise, diet or combinations of these routines. These traditional approaches may provide a partial or complete weight loss for some people. For those morbidly obese patients who have tried traditional weight loss regimens with little success, bariatric surgery offers an alternative treatment approach. In the United States, bariatric surgery has more than doubled during a two year period, from 63,100 procedures performed in 2002 to 140,640 procedures in 2004 (estimate by the American Society of Bariatric Surgeons).

BARIATRIC SURGERY – MECHANISM FOR WEIGHT LOSS

Bariatric surgery works through two mechanisms which contribute to weight loss; gastric restriction and malabsorption. Gastric restriction is created by reducing the capacity of the stomach and results in a reduction in caloric intake. Malabsorption procedures limit the absorption of nutrients and calories from ingested food by bypassing portions of the small intestine.⁴

In the past, bariatric surgery was typically an open surgery with a midline laparotomy incision. With the advancement of laparoscopic techniques, the laparoscopic approach to bariatric surgery has become more common. This has improved postoperative recovery, resulted in lower morbidity rates, including postoperative wound infections, dehiscence, and incisional hernias.⁴

II. DEFINITIONS

The focus of this practice parameter is on the surgical treatment of the excess skin and fat that occurs in obese patients or remains following massive weight loss. Abdominoplasty and panniculectomy procedures that are performed for circumstances **unrelated to obesity or massive weight loss** are discussed in the (*ASPS Practice Parameter for Abdominoplasty and Panniculectomy Unrelated to Obesity or Massive Weight Loss*).

Numerous procedures and terms describe the techniques developed to treat the wide range of defects associated with massive weight loss. Some of these terms describe similar procedures and in some cases

may be used interchangeably. To clarify the difference in the procedures, ASPS recommends the following definitions:

ABDOMINOPLASTY, typically performed for cosmetic purposes, involves the removal of excess skin and fat from the pubis to the umbilicus or above, and may include fascial plication of the rectus muscle diastasis and a neoumbilicoplasty.

PANNICULECTOMY involves the removal of hanging excess skin/fat in a transverse or vertical wedge but does **not** include muscle plication, neoumbilicoplasty or flap elevation. A cosmetic abdominoplasty is sometimes performed at the time of a functional panniculectomy or delayed pending completion of weight reduction.

BELT LIPECTOMY is a circumferential procedure which combines the elements of an abdominoplasty or panniculectomy with removal of excess skin/fat from the lateral thighs and buttock. The procedure involves removing a “belt” of tissue from around the circumference of the lower trunk which eliminates lower back rolls, and provides some elevation of the outer thighs, buttocks, and mons pubis. Similarly, a circumferential lipectomy describes an abdominoplasty or panniculectomy combined with flank and back lifts.

TORSOPLASTY is a series of operative procedures, usually done together to improve the contour of the torso, usually female (though not exclusively). This series would include abdominoplasty with liposuction of the hips/flanks and breast augmentation and/or breast lift/reduction. In men, this could include reduction of gynecomastia by suction assisted lipectomy/ultrasound assisted lipectomy or excision.

CIRCUMFERENTIAL LIPECTOMY combines an abdominoplasty with a “back lift”, both procedures being performed together sequentially and including suction assisted lipectomy, where necessary.

LOWER BODY LIFT is a procedure that treats the lower trunk and thighs as a unit by eliminating a circumferential wedge of tissue that is generally, but not always, more inferiorly positioned laterally and posteriorly than a belt lipectomy.

III. PREOPERATIVE ASSESSMENT AND SCREENING

Medical disorders associated with obesity decline as patients decrease their weight. However, patients may not experience complete resolution of their obesity related co-morbidities. Rubin suggests massive weight loss patients should be screened for the following conditions prior to surgery:⁵

- A. Depression – Bariatric surgery patients have a high incidence of depression, if on antidepressants, they should be stabilized on the medication for at least several weeks.
- B. Diabetes mellitus – As a routine screen, preoperative serum glucose should be checked in all patients.

- C. Cardiac disease – Obesity is associated with a high incidence of heart disease, hypertension, and hyperlipemia; all predispositions for myocardial infarction (MI), congestive heart failure and other cardiovascular events.
- D. Sleep apnea and pulmonary disease – Over fifty percent of obese individuals suffer from obstructive sleep apnea (OSA) or obesity hypoventilation syndrome (OHS). Plastic surgeons should keep in mind that postoperative analgesia, particularly narcotics and sedatives, may exacerbate mild or borderline apnea symptoms.
- E. Deep vein thrombosis (DVT) and pulmonary embolism (PE) – Patients should be assessed for DVT and PE risk factors. Prophylactic measures should be utilized during surgery and depending on the level of risk; a hematology referral may be indicated.
- F. Gastroesophageal reflux disease (GERD) – High BMI is associated with increased GERD symptoms. Individuals with active GERD should be referred to their bariatric surgeon or a gastroenterologist for stabilization prior to surgery.
- G. Nutrition – Long-term nutrient deficiencies are not uncommon for bariatric surgery patients. Protein, calcium, vitamin D, vitamin B12, and iron are the most common deficiencies.
- H. Abdominal wall hernias – Patients that undergo open gastric bypass procedures have a high risk of incisional hernia development. Hernias are typically not repaired until sufficient weight loss has occurred to decrease intra-abdominal pressure. Once sufficient weight loss occurs, small to moderate hernia repairs are often combined with body contouring procedures. Large hernia repairs may need to be staged.
- I. Excess intra-abdominal content – Excess intra-abdominal content combined with the rectus fascia plication performed in abdominoplasty or circumferential surgical procedures, lead to an increase in intra-abdominal pressure. This increased pressure may result in an increased risk of wound dehiscence and DVT and can push the abdominal contents against the diaphragm exacerbating respiratory conditions.
- J. Preoperative lab work / diagnostic testing: Laboratory or diagnostic tests that are often ordered include complete blood count, prothrombin time, partial prothrombin time, serum electrolytes (including calcium, magnesium and phosphorus), albumin, prealbumin, iron, TIBC, B12, folate, serum glucose, and serum HCG (in premenopausal female patients). Chest x rays should be ordered when there is a history of smoking or multiple procedures are planned, and ECG should be ordered for patients over age 50 or when the patient has a history of hypertension or cardiac disease.

Medical clearance by the patient's family physician or appropriate specialist should be obtained if indicated by the results of the preoperative assessment and screening. Ideally smokers should be instructed to stop smoking prior to surgery as studies indicate it can impair postoperative wound healing as well as increase the risk of pulmonary complications. Some surgeons choose not to operate on smokers because of the high risk. If the patient is unable to stop smoking, is diabetic, or has been treated with steroids, the surgeon should consider limiting the extent of the procedure, especially the amount of tissue undermining performed.

IV. MANAGEMENT

NONOPERATIVE TREATMENT

There are few alternative treatment options for those patients who are not surgical candidates because the excess skin and fat folds are virtually impossible to correct by diet, weight loss or exercise.⁶

TIMING

Body contouring surgery is ideally performed after the patient maintains a stable weight for two to six months. For post bariatric surgery patients, this often occurs 12-18 months after surgery or at the 25 kg/mg² to 30 kg/mg² weight range.⁵ Sometimes procedures are staged. An initial functional panniculectomy with limited tissue undermining and/or reduction mammoplasty may be necessary to increase the patient's comfort and facilitate the ease of exercise and further weight loss. Once the patient approaches his/her ideal body weight more refined body contouring surgery may be performed to address aesthetic issues.⁵

INDICATIONS / OPERATIVE TREATMENT

Deformities associated with massive weight loss vary greatly depending on the patients' body type, their fat deposition pattern, and the amount of weight gained or lost.⁷ These deformities can lead to patient dissatisfaction with appearance, inability to exercise, impaired ambulation, difficulty with hygiene and symptoms such as uncontrolled intertrigo and skin necrosis. A discussion of the specific anatomical regions follows.

- A. TRUNK – Excess skin and fat affect the entire trunk region; however the area that is usually emphasized is the anterior abdomen. The severity of abdominal deformities are graded as follows:
 1. Grade 1: panniculus covers hairline and mons pubis but not the genitals
 2. Grade 2: panniculus covers genitals and upper thigh crease
 3. Grade 3: panniculus covers upper thigh
 4. Grade 4: panniculus covers mid-thigh
 5. Grade 5: panniculus covers knees and below⁸

A panniculectomy or abdominoplasty alone will eliminate the large hanging abdominal pannis and its associated symptomatology, but may leave redundant tissue known as "dog ears" posterior to the excision. Circumferential approaches such as belt lipectomy, and circumferential lipectomy provide a superior aesthetic result because the anterior deformities as well as back and side rolls are addressed and the buttocks lifted.

- B. BREAST – Excess hanging breast tissue can be treated with reduction mammoplasty, while some women may elect breast elevation (mastopexy) and/or augmentation.
- C. ARMS – There are various surgical procedures available to treat upper arm laxity called "bat wings." The brachioplasty technique varies depending on the severity of the upper arm deformity and include liposuction, short scar brachioplasty and long-axis arm incision with axillary Z-plasty.^{9,10} Regardless of the technique, the scar placement is a high priority.
- D. THIGHS – Patients that do not lose their thigh fat may require suction assisted lipectomy before a thighplasty can be undertaken.

If possible, the integrity of the long saphenous vein should be preserved during resection.

POSTOPERATIVE CARE

The facility setting and the type of anesthesia utilized depends upon the extent of the procedure(s) performed and the patient's health and comorbidities. Extensive circumferential procedures are usually performed in the hospital setting under general anesthesia; length of stay ranges from one to four days. However some surgeons practice in localities where patients can be carefully monitored in out patient facilities for the early postoperative period and this may be an acceptable alternative. Less extensive procedures such as anterior panniculectomy/abdominoplasty, brachioplasty or thighplasty may be performed in a variety of settings including a hospital, an ambulatory surgery center or an office-based surgery facility. Regardless of the setting, the facility should be accredited and fully equipped to provide adequate monitoring and life support techniques.

In more extensive procedures, a foley catheter is utilized to monitor the patient's fluid status. Some surgeons use an epidural catheter during the first 24 to 48 hours for postoperative pain control and to aid in early ambulation. Depending on the extent of the procedure, patients may have one or several drains which may be in place for up to two months, depending on the amount of fluid draining.

Recovery time and physician follow up visits will vary depending on the extent of the procedure(s). Patients are typically seen on a weekly basis until all drains are removed and seromas are resolved, and then monthly for three months. Additional follow up visits are usually scheduled at six months and one year. Patients may be seen intermittently for one to two years as final body contour usually requires 12 to 24 months to mature.⁷ Patients that undergo extensive circumferential procedures will require on average a four to six week recovery period. Swelling above the circumferential scar persists for two to four months.

V. POSSIBLE SIDE EFFECTS

Side effects are dependent on the type and extent of the procedure. Possible side effects include:

- A. Seroma
- B. Dehiscence
- C. Infection
- D. Hematoma
- E. Skin necrosis
- F. Lymphedema
- G. Deep vein thrombosis/pulmonary embolus
- H. Psychiatric difficulty
- I. Residual localized fat and/or fat necrosis leading to contour irregularities
- J. Temporary or permanent numbness
- K. Unattractive or hypertrophic scarring
- L. Malposition of the umbilicus
- M. Relapse or recurrent laxity

VI. PROVIDER QUALIFICATIONS

The individual performing this procedure, regardless of the location of the surgical facility, should have fully approved hospital privileges for this procedure and be qualified for examination or be certified by a surgical Board recognized by the American Board of Medical Specialties, such as the American Board of Plastic Surgery.

VII. DISCLAIMER

Patient care parameters are strategies for patient management, developed to assist physicians in clinical decision making. This patient care parameter, based on a thorough evaluation of the scientific literature and relevant clinical experience, describes a range of generally acceptable approaches to diagnosis, management, or prevent specific diseases or conditions. This patient care parameter attempts to define principles of practice that should generally meet the needs of most patients in most circumstances.

However, this patient care parameter should not be construed as a rule, nor should it be deemed inclusive of all proper methods of care or exclusive of other methods of care reasonably directed at obtaining the appropriate results. It is anticipated that it will be necessary to approach some patients' needs in different ways. The ultimate judgment regarding the care of a particular patient must be made by the physician in light of all the circumstances presented by the patient, the diagnostic and treatment options available and available resources.

This patient care parameter is not intended to define or serve as the standard of medical care. Standards of medical care are determined on the basis of all the facts or circumstances involved in an individual case and are subject to change as scientific knowledge and technology advance, and as practice patterns evolve. This patient care parameter reflects the state of knowledge current at the time of publication. Given the inevitable changes in the state of scientific information and technology, periodic review, updating and revision will be done.

VIII. CODING

This coding is provided as a guideline for the physician and is not meant to be exclusive of other possible codes. Other codes may be acceptable depending on the nature of any given procedure.

<u>Diagnosis</u>	<u>ICD-9 Code</u>
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<u>Cosmetic Procedures</u>	
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Plastic surgery for unacceptable cosmetic appearance	V50.1
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<u>Functional Diagnosis Codes</u>	
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Localized adiposity – fat pad	278.1
Lymphedema	457.1
Hypertrophy of breast	611.1
Abscess – trunk	682.2
Abscess – upper arm	682.3
Abscess – leg (thigh)	682.6
Intertrigo	695.89
Shoulder pain	719.41
Neck pain	723.1
Pain in thoracic spine	724.1
Lumbago	724.2
Diastasis recti	728.84
Panniculitis	729.39

<u>Procedure</u>	<u>CPT Code</u>
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<u>Panniculectomy (Functional or Cosmetic)</u> Excision, excessive skin and subcutaneous tissue (includes lipectomy); abdomen, infraumbilical panniculectomy	15830
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Procedure**CPT Code****Abdominoplasty (Cosmetic)**

Excision, excessive skin and subcutaneous tissue (includes lipectomy), abdomen (eg, abdominoplasty) (includes umbilical transposition and fascial plication) (List separately in addition to code for primary procedure) (Use 15847 in conjunction with 15830) (For abdominal wall hernia repair, see 49491-49587) (To report other abdominoplasty, use 17999)

+15847

Excision, excessive skin and subcutaneous tissue (includes lipectomy); thigh

15832

leg

15833

hip

15834

buttock

15835

arm

15836

forearm or hand

15837

submental fat pad

15838

other area

15839

Mastectomy for gynecomastia

19300

Mastopexy

19316

Reduction mammoplasty

19318

CODING HERNIA REPAIRS

In rare circumstances plastic surgeons may perform a hernia repair in conjunction with an abdominoplasty or panniculectomy. A true hernia repair involves opening fascia and/or dissection of a hernia sac with return of intraperitoneal contents back to the peritoneal cavity.¹¹ A true hernia repair should not be confused with diastasis recti repair, which is part of a standard abdominoplasty. When a true hernia repair is performed, the following codes may be utilized.

Diagnosis Codes**ICD-9 Code**

Umbilical hernia

553.1

Ventral, unspecified

553.20

Incisional

553.21

Procedure Codes**CPT Code**

Repair initial incisional or ventral hernia;

reducible

49560

incarcerated or strangulated

49561

Repair recurrent incisional or ventral hernia;

reducible

49565

incarcerated or strangulated

49566

Implantation of mesh or other prosthesis

for incisional or

+49568

ventral hernia repair (List separately

in addition to code for the incisional

or ventral hernia repair)

Repair epigastric hernia (eg, preperitoneal fat);

reducible

49570

incarcerated or strangulated

49572

Repair umbilical hernia, age 5 or over;

reducible

49585

incarcerated or strangulated

49587

IX. REFERENCES

1. Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults – executive summary. http://www.nhlbi.nih.gov/guidelines/obesity/sum_evid.htm. Accessed 3/17/05.
2. James, W.P. What are the health risks? The medical consequences of obesity and its health risks. *Exp. Clin. Endocrinol Diabetes*. 106:Suppl 2:1, 1998.
3. Overweight and obesity. <http://www.cdc.gov/nccdphp/dnpa/obesity/>. Accessed 3/17/05.
4. Hamad, G.G. The state of the art in bariatric surgery for weight loss in the morbidly obese patient. *Clin. Plast. Surg.* 31:591, 2004.
5. Rubin, J.P., Nguyen, V., Schwentker, A. Perioperative management of the post-gastric-bypass patient presenting for body contour surgery. *Clin. Plast. Surg.* 31:601, 2004.
6. Ellabban, M.G. and Hart, N.B. Body contouring by combined abdominoplasty and medical vertical thigh reduction; experience of 14 cases. *Br. J. Plast. Surg.* 57:222, 2004.
7. Aly, A.S., Cram, A.E., Heddens, C. Truncal body contouring surgery in the massive weight loss patient. *Clin. Plast. Surg.* 31:611, 2004.
8. Igwe, D. Jr., Stanczyk, M., Lee, H. Panniculectomy adjuvant to obesity surgery. *Obes. Surg.* 10:530, 2000.
9. Abramson, D.L. Minibrachioplasty: minimizing scars while maximizing results. *Plast. Reconstr. Surg.* 114:1631, 2004.
10. Strauch, B., Greenspun, D., Levine, et al. A technique of brachioplasty. *Plast. Reconstr. Surg.* 113:1044, 2004.
11. Janevicius, R. What's global in abdominoplasty? *CPT Corner in Plast. Surg. News.* 9b:17, July, 1997.