Body Contouring
after Bariatric Surgery

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Obesity is growing at an alarming rate in the westernized countries throughout the world. About 65% of adults are classified as overweight, and, of these, about 30% are classified as obese.[1] The most costly and debilitating comorbidities associated with obesity are coronary artery disease, hypertension, and diabetes. More and more patients are turning toward bariatric surgery in an effort to fight this disease. According to the American Society for Bariatric Surgery, more than 140,000 weight-loss procedures were performed in 2005, up 80,000 from 2002. Although bariatric surgery allows patients to gain control of many of the stigmata of obesity, most of them believe that some persist. Patients may recognize the weight loss, but many still look in the mirror and feel overweight. A recent survey of postbariatric patients showed that 86% of them had considered plastic surgery. According to the American Society of Plastic Surgeons, 68,000 body contouring procedures were performed for massive weight loss patients in 2005, up 22% from 2004. These trends are expected to rise, parallel to those numbers seen by the bariatric surgeons.[2]

Body contouring in patients after massive weight loss is different than the traditional excisional techniques that have been taught in the past. These procedures have to consider the tremendous circumferential laxity of the trunk, extremities, head, and neck areas, as well as the redundant myofascia. Additionally, the skin has been injured permanently from the "obese state," resulting in a loss of elasticity and striae. Although great strides have been made over the past few years in the management

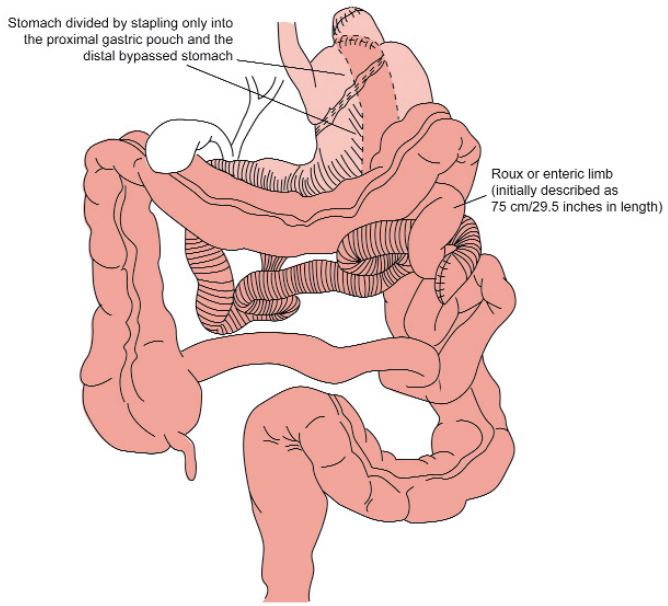

Fig. 2a

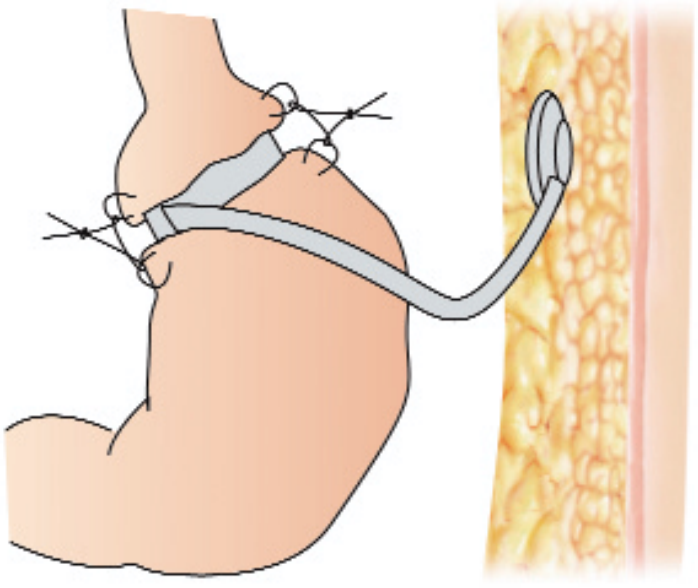

Fig. 2b

of these patients, some physicians still consider these techniques a work in progress and look forward to addressing these problems better in the future.

Male vs Female

As a general rule, men localize their fat to the trunk, sparing their extremities, while women tend to have both extremities and trunk affected. Because of this, men seek aesthetic improvement of their chest, abdomen, and flanks, while women often need their extremities treated in addition to the trunk and chest. (Fig. 1)

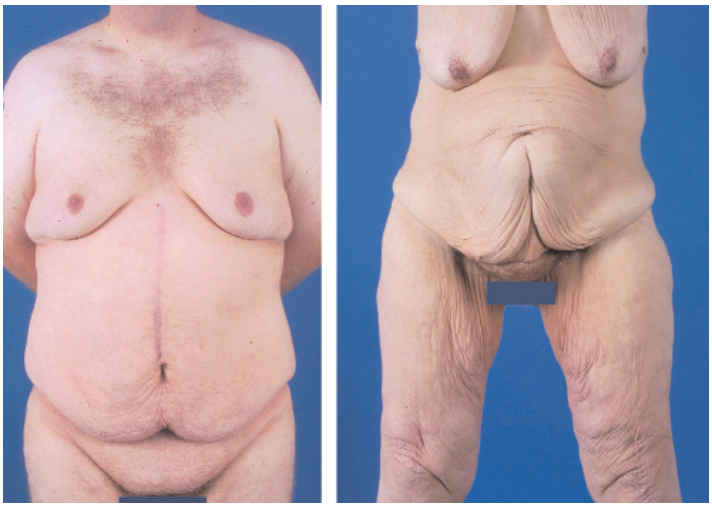

Fig. 1

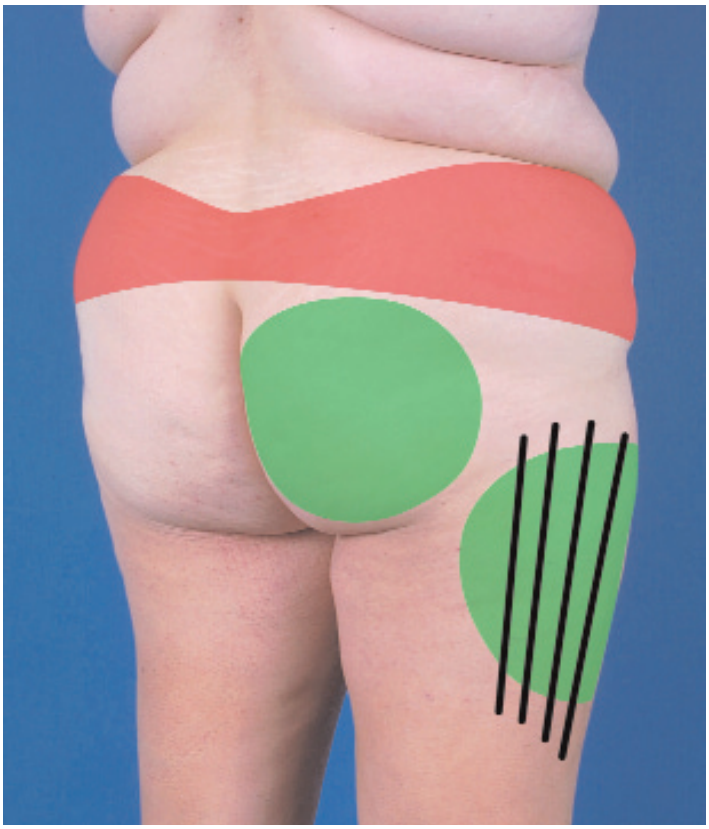

Fig. 3a

Impact of Bariatric Surgery

Physicians should consider many physiological ramifications of bariatric surgery when evaluating patients for massive weight loss surgery. For example, 50% of these patients may have an underlying anemia. Vitamin and mineral deficiencies can occur in up to 40% of the patients.[3,4,5] It is imperative that the patient has been at a stable weight for more than 3 months before surgery is performed. Roux-y bypass procedures as well as elective procedures can result in vitamin, mineral, and nutritional deficiencies. Restrictive procedures such as the lap band do not interfere with the absorption process; however, the above may be affected because of restricted intake. Fortunately, most of these patients follow a fairly regimented protocol established by their bariatric surgeon and maintain an excellent relationship and followup with their surgeon. (Fig 2a,b)

Surgical Procedures

Lower Body Lift

As one plans the plastic surgical procedures after weight loss, it is important to recognize that the quality and laxity of the skin in a massive weight loss patient is different than in a nonmassive weight loss patient. Because of this, over time, the skin will undergo a degree of relaxation, which also may result in scar migration, recurrent laxity, and loss of contour. Most patients come

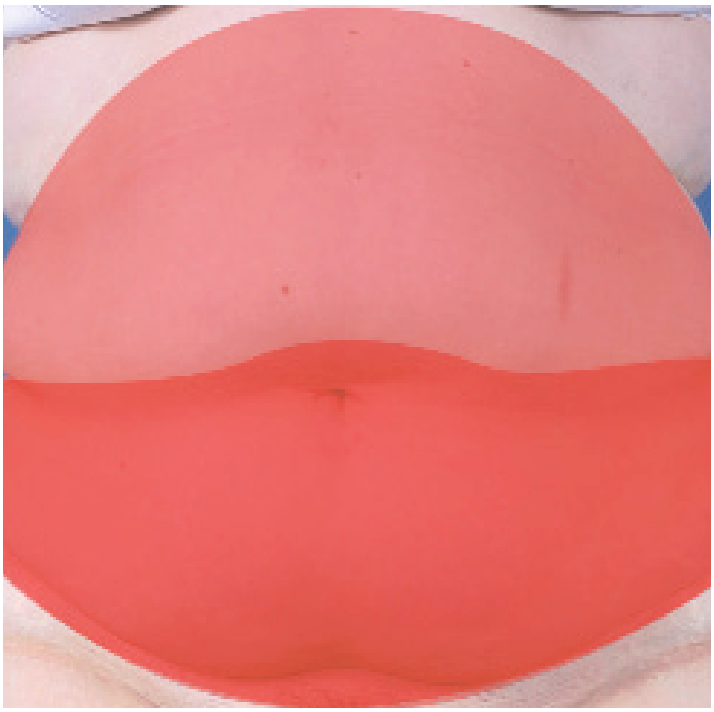

Fig. 3b

to consultation seeking improvement primarily in the abdomen/trunk. Although a lower body lift is a powerful tool in rejuvenating the trunk, it also has a positive impact on the adjacent areas of the body such as the buttocks, thighs, and chest. The trunk is approached circumferentially, resulting in a narrowing of the waist, elevation of the mons and buttock area, and lifting of the lateral and anterior thigh. (Fig 3a, 3b) This procedure is done in the prone and supine position and often takes 4–5 hours. These patients are kept in the hospital for approximately 2 days. Their drainage tubes remain between 1–3 weeks, and they may not return to work for 4 weeks. Regardless, they may not feel "normal" for 2–3 months and their results will evolve over 12 months. (Fig. 4a–4c)

Fig. 4a

Fig. 4b

Fig. 4c

Upper Trunk

The upper trunk includes the breast, lateral chest, and upper back area. This area should be done after the lower body surgery to optimize outcome. Because the arm is inter-related to this area, it often is considered concomitantly. (Fig. 5)

Fig. 5

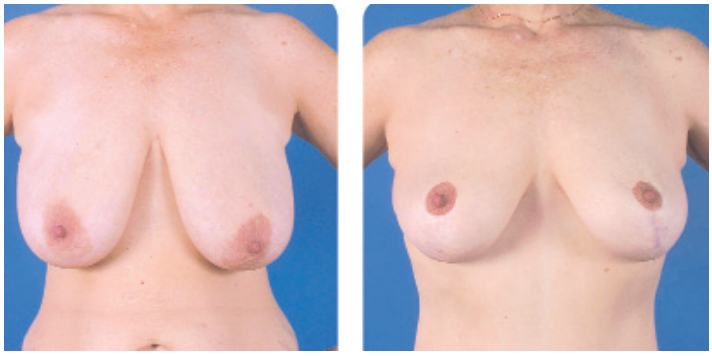

Fig. 6a

Fig. 6b

Fig. 6c

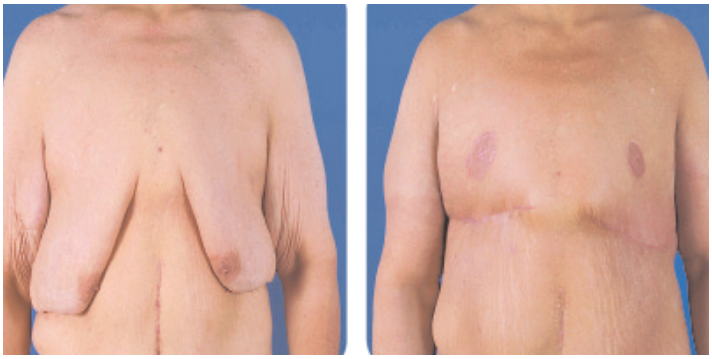

Fig. 6d

Fig. 6e

Breast

Breast reshaping in patients after massive weight loss is extremely difficult because of the severe deformity in these patients. Ptosis and deflation of the breast is common. We prefer to perform a mastopexy in combination with a lateral chest excision. If the patient desires more fullness, augmentation may be performed in a staged fashion with an implant at a later date for better control of the shape and position of the breast. (Fig. 6a-c)

The male breast is affected similarly to the female breast in that men lose fatty and glandular tissue, and develop a significant degree of ptosis. They also lose definition of their inframammary fold, particularly laterally. After massive weight loss, most men require skin and glandular resection. To address the lateral chest and back, we prefer to extend the inframammary fold incision up toward the axilla in what we term a lateral chest wall excision. This addresses two issues: 1) it removes redundant tissue in the axilla/lateral chest, and 2) it flattens any posterior back rolls. (Fig. 6d-g)

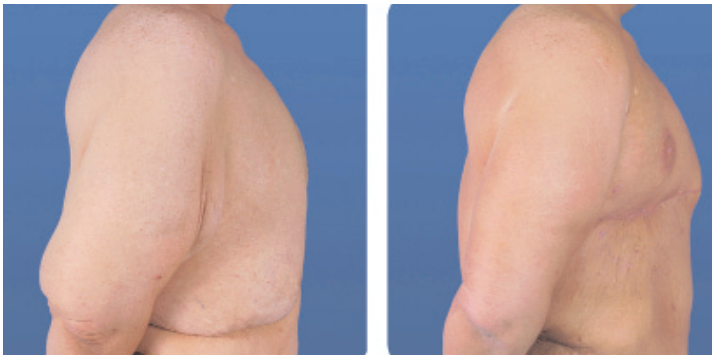

Fig. 6f

Fig. 6g

Arms

Scar quality and perception combine to challenge plastic surgeons contouring the upper extremity. Patients must be educated about the length of these scars, which often extend down to and below the elbow, and that the healing time can be several years. Reviewing patient photos with patients is imperative. Skin not only presents around the arms but extends posteriorly on to the chest wall and into the breast. (Fig. 7)

Thighs

In no area has our concepts changed more than in the thighs. Because these patients have skin redundancy that extends down to and below the knee, the procedure must address the shape and contour of the entire thigh. Prior techniques incorporated a horizontal excision in the groin crease and sufficiently addressed the deformity of the typical body contour patient. (Fig. 8a) After massive weight loss, most patients require a vertical scar that extends down to and often below the knee. (Fig. 8b) Extremity contouring can result in unsatisfactory scarring in addition to persistent and prolonged edema. (Fig. 8c,d)

Fig. 7

Fig. 7

Safety Concerns in the Massive Weight Loss Patient

A preoperative thorough evaluation is mandatory to ensure that the patient is healthy enough to undergo these large procedures. Blood work is performed to evaluate electrolytes and to provide a complete blood count

Fig. 8a

Fig. 8b


Fig. 8c


Fig. 8e


Fig. 8d

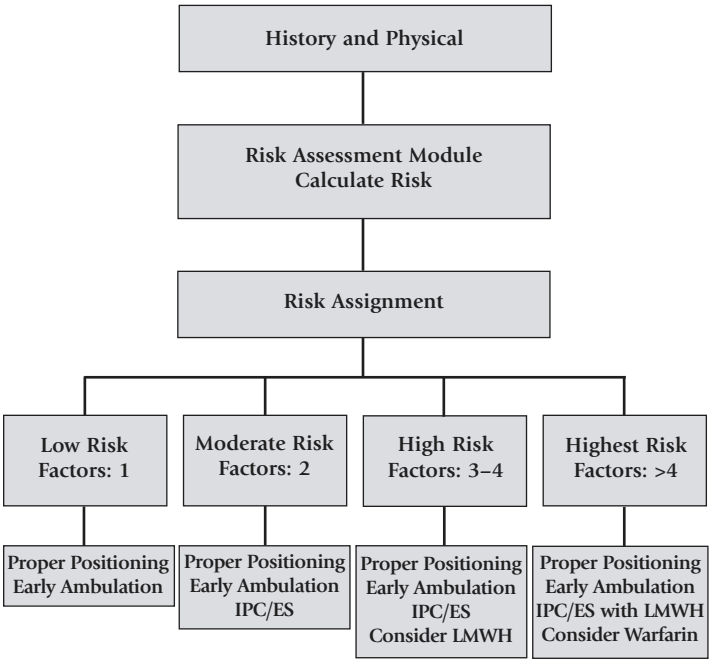

Table 1: Algorithm for venous thromboembolism prevention in plastic surgery patients. IPC, intermittent pneumatic compression stockings; ES, elastic compression stockings; LMWH, low-molecular weight heparin.[6]

and protein levels. Intubations in patients after massive weight loss may be difficult, given their history of obstructive sleep apnea. Precautions must be taken to address hypothermia because a large percentage of the patient's body surface area may be exposed during these procedures. Body temperature is maintained using forced air, warming blankets, warmed infiltration fluid, and increase in the operating room temperature.

Complications

Appropriate precautions must be taken to help prevent thromboembolic phenomenon in these patients. Pedal or calf depression devices are used in every case. Some physicians add heparin or low-molecular weight products in these patients. (Fig. 9)

Complications after massive weight loss can include wound dehiscence, seromas, lymphoceles, suture extrusion, and relapse of the loose skin. Recurrent laxity is common and should be expected in patients who have sustained significant injury to their skin after weight loss.

Conclusion

Surgery after body contouring surgery post massive weight loss is a new and rapidly growing field in plastic surgery. Plastic surgeons are working on new ways to address some of the problems created when patients lose extreme amounts of weight. In some instances, these procedures allow the patient to visualize the reality of the weight loss culminating their transformation from obesity. DMJ