

Contouring of the Midtrunk in Overweight Patients

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Abstract. Classical abdominoplasty primarily addresses the anterior abdominal wall. It involves a low transverse incision, extensive undermining in the supra-aponeurotic plane, correction of the musculofascial flaccidity, and resection of excessive skin and fat. The introduction of suction lipectomy into the armamentarium of the plastic surgeon has allowed a more thorough, yet safer, contouring of the entire midtrunk. When used in conjunction with a modified W-type abdominoplasty, circumferential suction lipectomy has yielded excellent results in contouring the midtrunk of overweight patients. It is the purpose of this article to present our technique for this procedure.

Key words: Abdominoplasty — Body contouring — Dermatolipectomy — Suction lipectomy

Abdominal dermatolipectomy is traditionally indicated for patients with an excessive accumulation of abdominal wall fat and dermatochalasis of abdominal skin. In severe cases of adiposity there may be an abdominal apron with profound ptosis. Abdominoplasty involves not only dermatolipectomy, but a repair of the musculofascial flaccidity and diastasis of the rectus abdominis muscles.

Over the past century, there have been many surgical approaches used for abdominal dermatolipectomy. These have been reviewed by Regnault [13] and Pitanguy [10]. They are categorized into three main groups depending on the nature and direction of the incisions: vertical, horizontal, and mixed vertical and horizontal. The vertical approach is very rarely used. The mixed approach is typified in a 1967 publication by Castanares and Goethel [2]. They felt that this approach was indicated for pa-

tients with severe adiposity and the accompanying functional disturbances.

Almost all techniques used today involve a low, transversely oriented abdominal excision. The resultant scar is located at the pubic hair line and continues laterally either in a transverse and inferior fashion [10] or parallel to the inguinal creases [1, 5, 14]. Prior to the advent of suction lipectomy, suprafascial undermining to the xyphoid process and costal margins was required to adequately contour the upper abdomen. This often placed an undue stress on the most distal aspect of the resultant upper abdominal flap. In addition, even after repair of rectus abdominis diastasis and appropriate dermatolipectomy, the patient was often left with an unaesthetic contour to the midtrunk. This was particularly evident laterally where the infra-axillary and flank rolls remained insufficiently treated. Insetting of the upper abdominal flap often resulted in a depressed scar with tissue bulging below it because of the discrepancy in thickness between this flap and the suprapubic soft tissue. There was also an accentuation of the iliac prominences so frequently noted in these patients.

With the introduction of suction lipectomy in the 1970s [15], the plastic surgeon gained easy access to areas previously inaccessible for surgical treatment without the associated incisions and concomitant scarring. This technique has proved a valuable adjunct to traditional abdominal dermatolipectomy and has allowed a safer elevation of the upper abdominal flap and a more complete contouring of the midtrunk [17].

With the increasing popularity of surgery for body contouring, the plastic surgeon is seeing not only patients with a more limited deformity than those who have traditionally sought abdominoplasty [7, 19], but also those patients who are overweight and seeking a reduction and refinement in

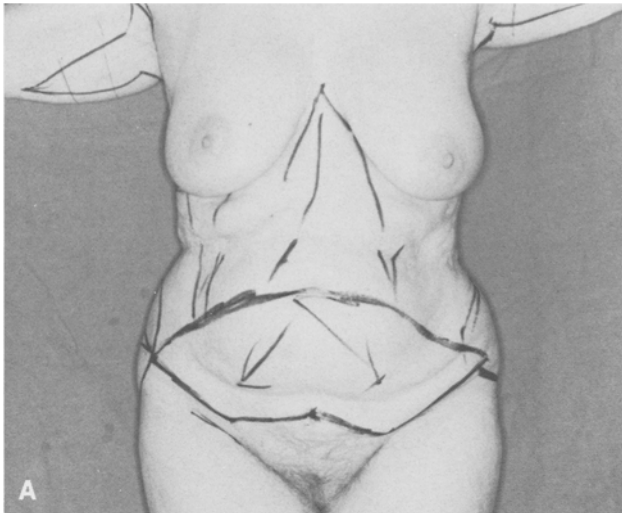


Fig. 1(A–C) Preoperative markings are placed in the standing position

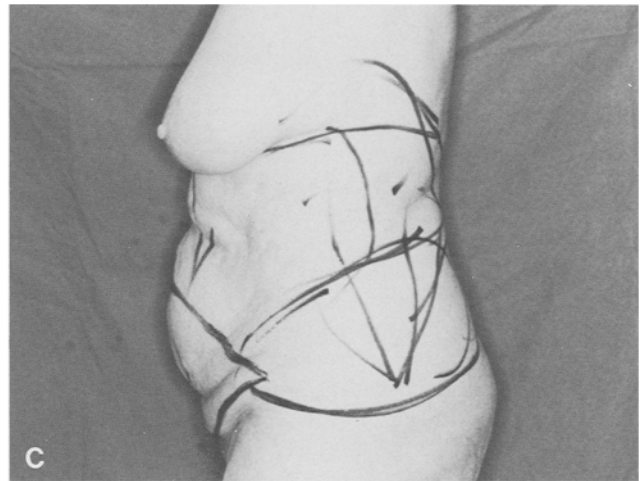
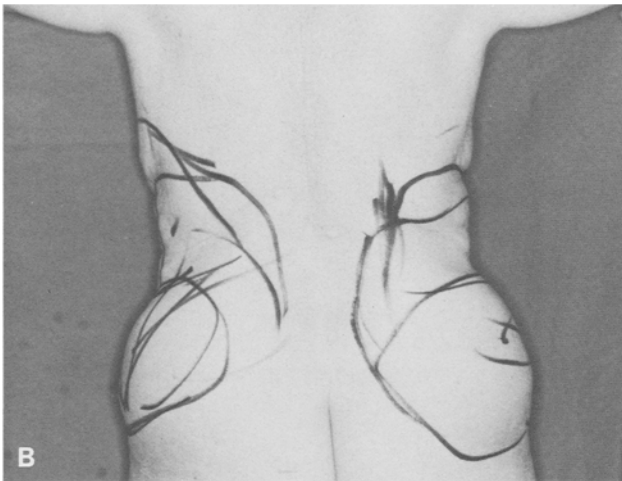


Fig. 2. Posterior portion of circumferential suction lipectomy is carried out in the lateral decubitus position

the contour of the entire midtrunk. These patients are usually 15–25% overweight according to the standard Metropolitan Life Insurance Company height and weight tables. They typically have been unsuccessful at dramatic weight reduction and the weight they have lost has only accentuated the dermatochalasis. Our technique for contouring the midtrunk involves circumferential suction lipectomy from the level of the inframammary fold (and infra-axillary area laterally) to the level of the pubis. This is followed by a modified W-type abdominoplasty and finally by suction lipectomy to refine the contour once the flap has been inset.

Technique

Pneumatic thromboembolic stockings are placed on the patient prior to surgery. The patient is marked while standing (Fig. 1A–C). Circumferential skin



Fig. 3. The upper abdominal flap is elevated to 5 cm above the umbilicus

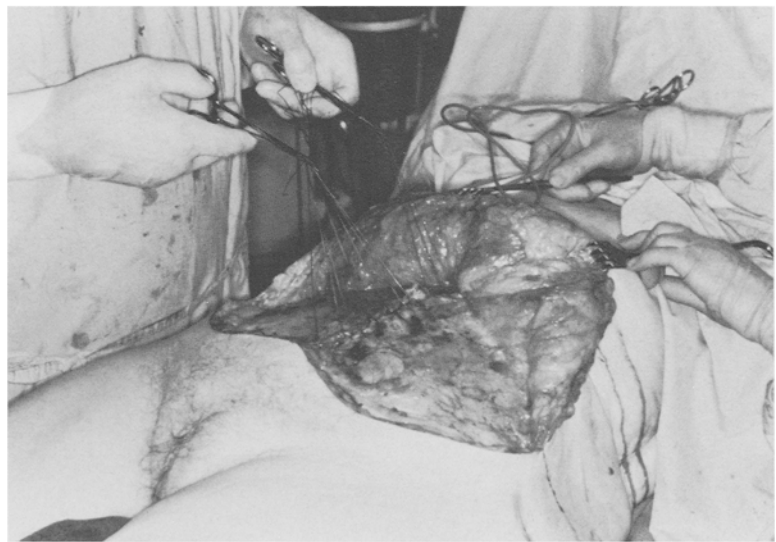


Fig. 4. Repair of rectus abdominis diastasis

preparation with povidone-iodine soap and solution is also performed with the patient standing. Since there is so much exposed body surface area during the operation, a heating blanket is used. The operating table is covered with sterile sheets because the patient will be turned to each lateral decubitus position during the procedure (Fig. 2). Sterile stockinettes are placed on each lower extremity. After induction of general endotracheal anesthesia, areas to undergo suction lipectomy are injected with 0.125% Marcaine (Breon Laboratories, Inc., New York, NY) with 1:400,000 units epinephrine. Circumferential suction lipectomy is then performed from the level of the inframammary fold to the pubis. Stab incisions are placed such that they will be concealed postoperatively; many are placed in the planned incision lines for the dermatolipectomy. Care must be taken by the anesthesiologist to

turn the upper extremities when the patient is turned from side to side in order to avoid undue strain on the back muscles.

After completion of suction lipectomy, the abdominoplasty is begun. Suprafascial undermining to no more than 5 cm above the umbilicus (Fig. 3) is carried out with relative ease because of prior flap elevation using the lipectomy cannulas. Repair of the rectus abdominis diastasis is performed with 2-0 Ethibond (Ethicon, Inc., Somerville, NJ) sutures (Fig. 4). Additional fascial plication is performed parallel to the costal margins from the midline to near each anterior superior iliac spine. With the hips flexed, the dermatolipectomy is performed and the abdominal flap is inset in the suprapubic incision. The umbilicus is inset in the midline according to its preoperative location relative to the iliac spines.

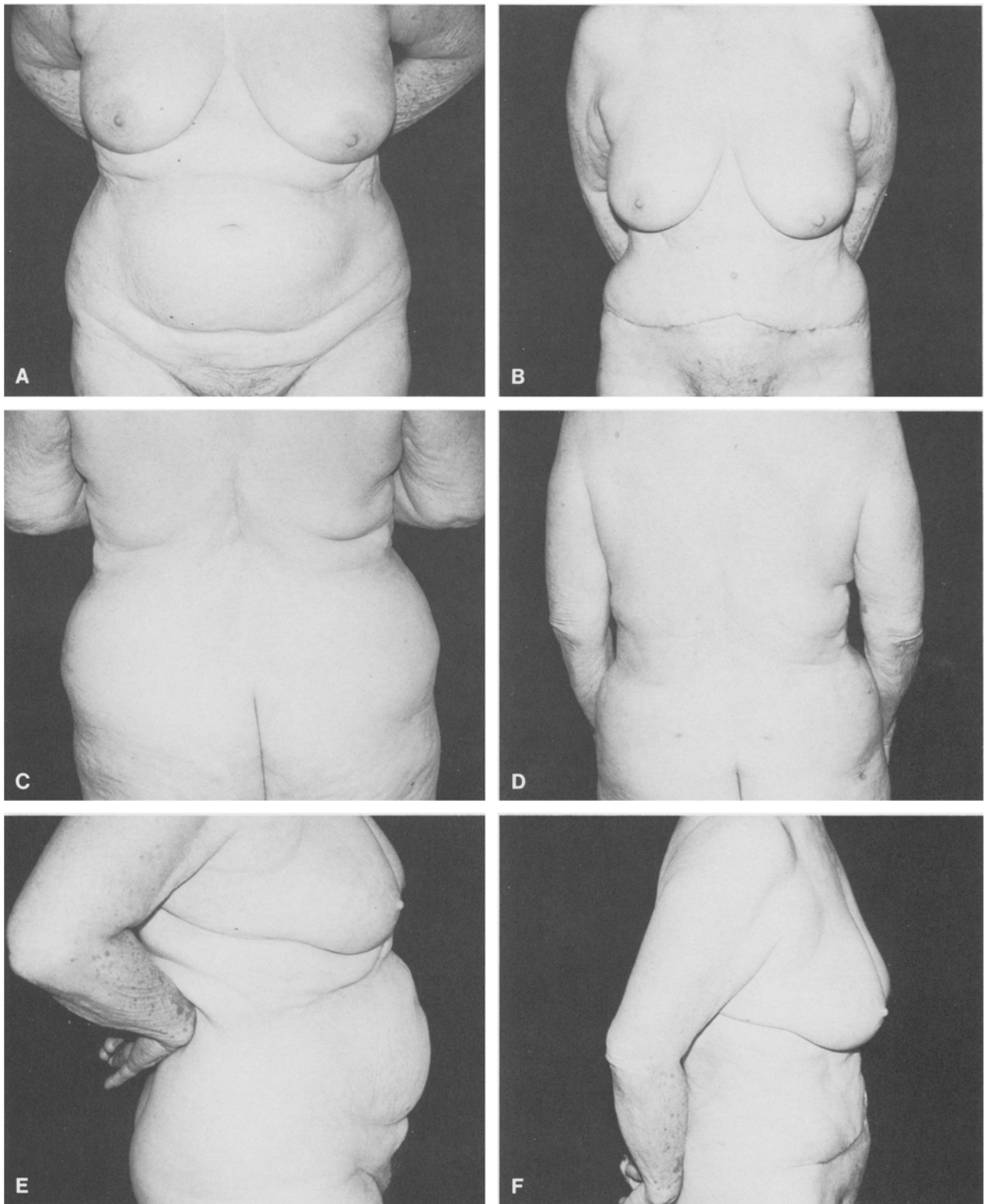


Fig. 5. Sixty-seven-year-old woman, 5'4", 165 lb, who had removal of 2000 cc with suction lipectomy and 600 g with abdominoplasty. (A,C,E) Preoperative; (B,D,F) 5 weeks postoperative

After inseting is completed, suction lipectomy is again performed as a final contouring procedure. It is used to reduce the thickness of the mons veneris, refine the iliac areas, and contour the upper abdo-

men and lateral ends of the closure. The usual combined lipectomy aspirate volume and specimen weight is in the range of 2.5–5 kg (Figs. 5–8). Two Jackson–Pratt drains are left under the abdominal

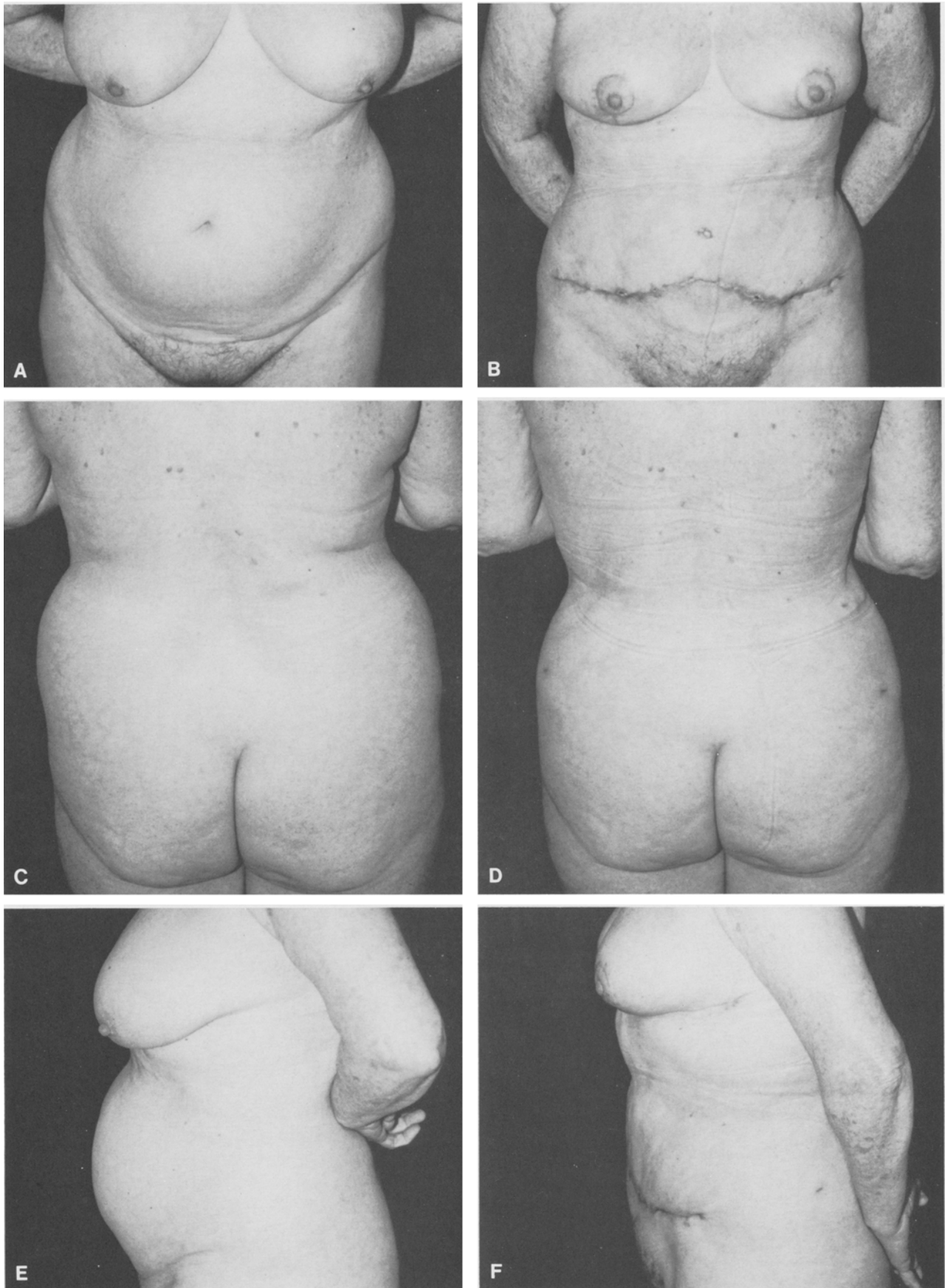


Fig. 6. Sixty-two-year-old woman, 5'4", 155 lb, who had removal of 3200 cc with suction lipectomy and 730 g with abdominoplasty. (A,C,E) Preoperative; (B,D,F) 6 weeks postoperative

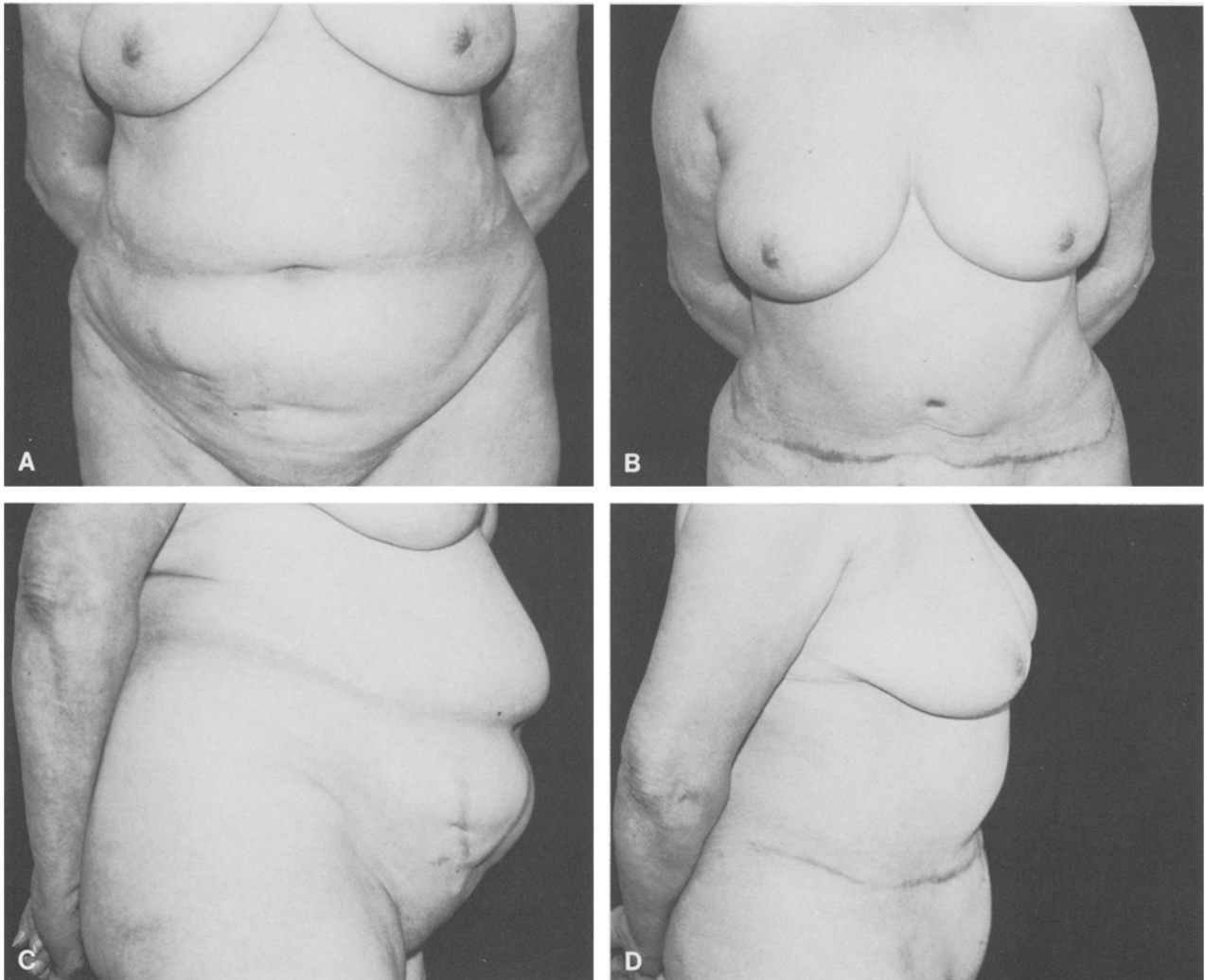


Fig. 7. Sixty-one-year-old woman, 5'5", 168 lb, who had removal of 3000 cc with suction lipectomy and 1100 g with abdominoplasty. (A,C) Preoperative; (B,D) 6 months postoperative

flap and multiple $\frac{1}{4}$ -in. penrose drains are used to drain the flaps elevated by the lipectomy cannulas. Dressings consist of a padded abdominal binder or circumferential ace bandages.

Postoperative care consists of early ambulation, frequent use of incentive spirometry, and intermittent positive pressure breathing or ultrasonic nebulization with saline. As there may be an ileus for 24–36 hours, the patients are not hastily advanced into their diets. The pneumatic thromboembolic stockings are not removed until the patients are ambulating well and near discharge. Penrose drains are not advanced; they are removed the first or second day after surgery. The Jackson–Pratt drains are removed when the serous drainage has slowed sufficiently.

Discussion

Classical abdominoplasty, including repair of musculofascial flaccidity and abdominal dermatolipec-

tomy, primarily treats the anterior abdominal wall. Several problems ensue, especially in the overweight patient, when the entire midtrunk is not treated circumferentially. The lateral chest and flank rolls are not addressed, the iliac prominences are accentuated, and there is often a depressed scar with bulging of tissue below when a standard abdominoplasty is performed. Considering the midtrunk as a single unit, our technique combining a modified W-type abdominoplasty *preceded* by circumferential suction lipectomy has yielded excellent results in body sculpturing. This latter point deserves some emphasis, however, for while Greminger [8], for example, elevates his upper abdominal flap prior to suctioning, we would agree with Grazer [6] that suctioning should be performed before the panniculus is raised. In addition, suctioning before the flap is elevated allows an easier dissection as much of the work has already been completed.

Many of these overweight patients who seek con-

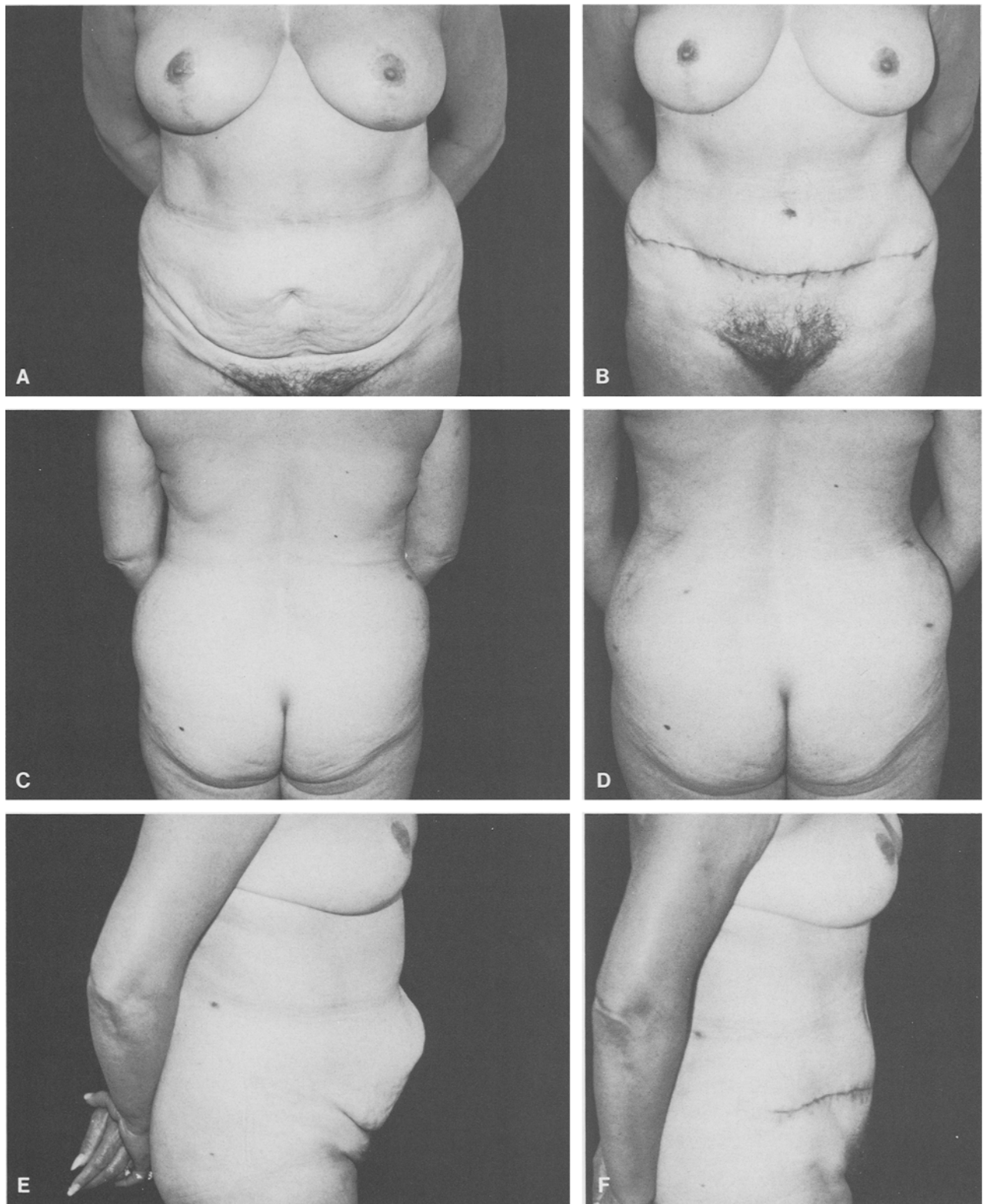


Fig. 8. Forty-seven-year-old woman, 5'6", 162 lb, who had removal of 1700 cc with suction lipectomy and 840 g with abdominoplasty. (A,C,E) Preoperative; (B,D,F) 8 weeks postoperative

touring of the midtrunk are in their fourth to sixth decade of life. They typically are beyond the child-bearing years and many have had previous abdominal operations. An upper abdominal scar, particu-

larly in the right subcostal area, is not an uncommon finding in this population. Because of the lack of sharp undermining of the upper abdomen, this technique can be used safely with one or

more upper abdominal scars. Abdominal flap viability is maintained as it has been well demonstrated that suction lipectomy preserves the fibrous septae and associated neurovascular bundles [16].

The complications occurring after combined suction lipectomy and abdominoplasty can be divided into two main categories: medical and aesthetic. These have been reviewed by Teimourian [17]. In evaluating the medical complications, two potentially fatal problems require comment: venous thromboembolism and the fat embolism syndrome. Both have been reported after combined suction lipectomy–abdominoplasty procedures [3, 12, 17]. While most of the complications occurring after suction lipectomy have not been of a serious nature, deaths have been reported both in the medical literature and the lay press [3, 12, 17, 18].

In the senior author's experience of over 800 cases since he began performing combined circumferential suction lipectomy and abdominoplasty for contouring of the midtrunk, there have been two patients with nonfatal deep venous thrombosis and associated pulmonary embolism. One case occurred within the first 24 hours and the second occurred three weeks postoperatively—even with the use of minidose heparin and pneumatic stockings. Both were treated effectively with heparin and warfarin without untoward sequelae. Patients at high risk for the development of postoperative venous thromboembolism are started on minidose heparin preoperatively; this is in addition to the aforementioned pneumatic stockings and early postoperative ambulation. A higher incidence of venous thromboembolic phenomena associated with the combined suction lipectomy–abdominoplasty procedure has been alluded to, but never proven. Although there is much speculation about the reason for this, the exact explanation remains obscure.

The fat embolism syndrome is a complex clinicopathologic entity encountered more frequently in association with orthopedic surgery than with suction lipectomy or abdominoplasty. In 12 years and over 5000 cases of suction lipectomy and/or abdominoplasty procedures, the senior author has had five cases of pulmonary embolism, but not one instance of fat embolism has occurred. While the treatment of fat embolism continues to be high-dose steroids and aggressive physiologic support [9], the prophylaxis or need for such prophylaxis remains controversial. Grazer and Mathews [7] use intravenous ethyl alcohol, after preloading with crystalloids, for the prevention of the fat embolism syndrome. In over 2000 patients since 1975, they report not a single occurrence of fat embolism or venous thromboembolic disease. That ethyl alcohol enhances production and secretion of tissue plasminogen activator and induces synthesis of prostacyclin is, indeed, intriguing; the former increases fibrinoly-

sis and the latter inhibits platelet aggregation and is a potent vasodilator. More rigorous, controlled investigation would be justified in this area since combined suction lipectomy–abdominoplasty is a procedure not without potential significant risk. In good hands, however, the complications are, for the most part, quite minor and it is unlikely that there are many unreported serious complications [4].

Summary

Suction lipectomy provides an invaluable adjunct to traditional abdominoplasty and allows the plastic surgeon to treat the entire midtrunk as a single "aesthetic" unit. With the increasing popularity of aesthetic surgery, many overweight patients are seeking our help for improvement in the contour of the midtrunk. In most of these patients, simple dermatolipectomy with plication of the anterior rectus sheath, usually will not yield an acceptable result. It is wise to address the entire midtrunk as a circumferential aesthetic unit and treat it accordingly.

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