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Some Problems and Solutions in Abdominoplasty

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Abstract. A review of 428 abdominoplasties performed for the correction of abdominal flaccidity emphasizes the need for a wide repertory of surgical techniques to achieve an aesthetically natural appearance of the abdomen. Six details of surgical technique have considerably improved the results of abdominoplasty performed at our institute during the past 14 years. These six technical details are easy to accomplish without prolonging the total operating time.

Key words: Abdominoplasty, refinements in

Like any other operation in aesthetic plastic surgery, abdominoplasty also presents certain technical operative problems that have been resolved in our practice with the utilization of certain maneuvers that have improved postoperative aesthetic results.

A review of the records of 478 abdominoplasties performed at the Institute of Reconstructive Plastic Surgery of Guadalajara during the period 1965-1978 revealed the following problems:

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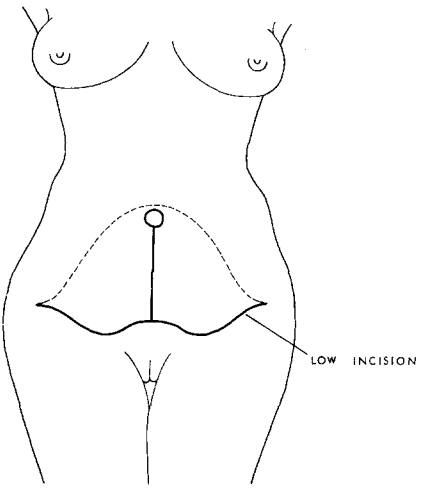

Fig. 1. To initiate the abdominoplasty we start with a low transverse incision, then an infraumbilical vertical incision, and one circular periumbilical incision. Dotted line outlines superior extent of excision of excess fat and skin

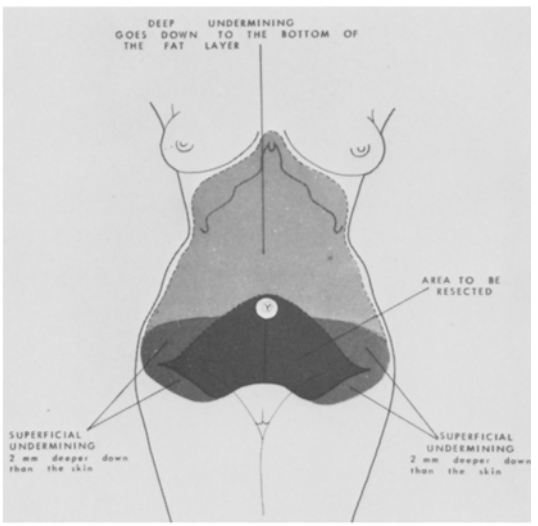

Fig. 2. In our approach we use a different standard for removal of different areas of abdominal wall. Skin in lower lateral abdominal wall, hip, and upper thigh is dissected very superficially, as in face-lift. In the rest of the abdominal wall, dissection extends deep down to bottom of fat superficial to deep fascia. Note acute angle utilized at end of area of resection

1. Difficulty in avoiding dog-ears at the extreme end of the incision suture line
2. Cutaneous folds on the lower lateral part of the abdomen and the upper part of the hip and thigh
3. Either temporary or permanent cutaneous anesthesia and/or paresthesia in the upper thigh
4. Sensitive suprapubic depression painful to pressure
5. Exaggerated raising of the hair-bearing pubic region
6. Necrosis in the lower medial portion of the flap

Fig. 3. The lower incision in inguinal region should be superficial with maximum depth of 2 mm under full thickness of skin

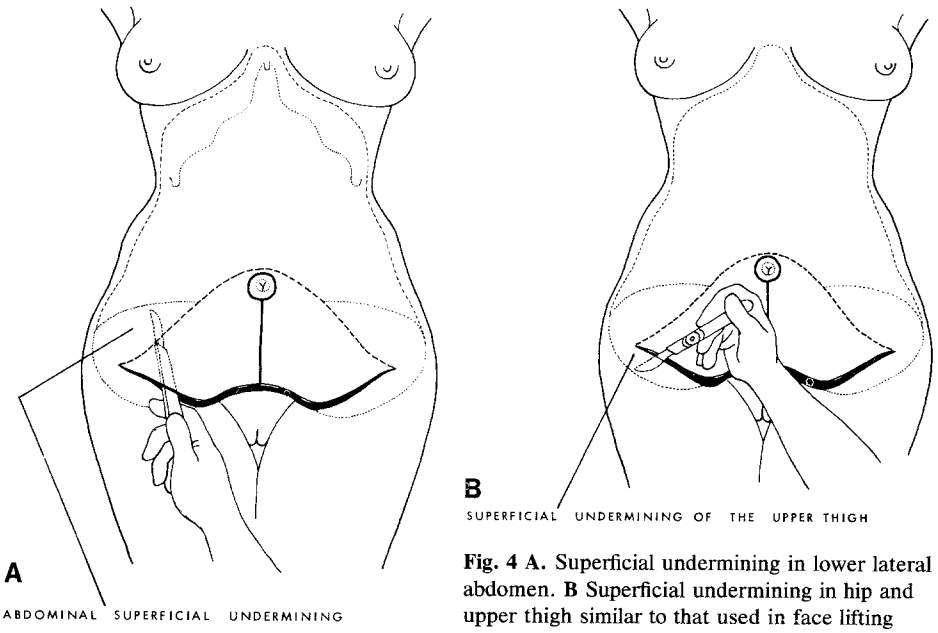

Fig. 4 A. Superficial undermining in lower lateral abdomen. **B** Superficial undermining in hip and upper thigh similar to that used in face lifting

Outline of Surgical Technique

Abdominoplasty is started by utilizing the modified incision proposed by Serson and Martins [3], first in the form of a horizontal incision, as previously

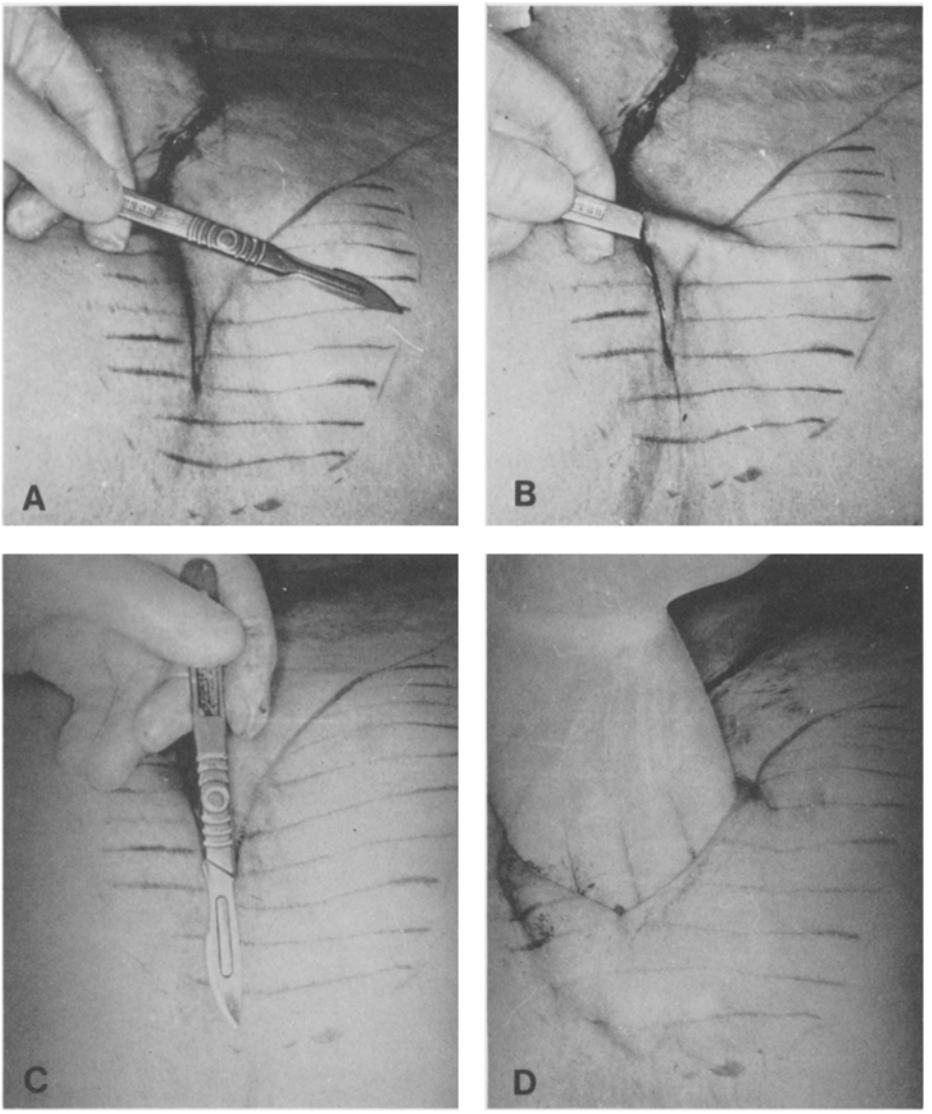

Fig. 5. **A** and **B** Superficial dissection of lower lateral abdominal wall. We usually use a No. 23 blade for this. **C** and **D** Superficial dissection of hip area

marked out (Fig. 1). When the dissection extends to the umbilicus, a vertical infraumbilical incision is added to this in the form of an inverted T. However, almost at the end of the operation, after excision of the two triangular flaps, the ultimate suture line corresponds to the original horizontal incision (see Fig. 7C) to avoid any vertical scar.

The anesthesia used is either general or spinal block, without any preference, with local infiltration of the operative area by 0.5% lidocaine with epinephrine, 1:4,000,000. Care must be taken not to exceed 100 cc total infiltration.

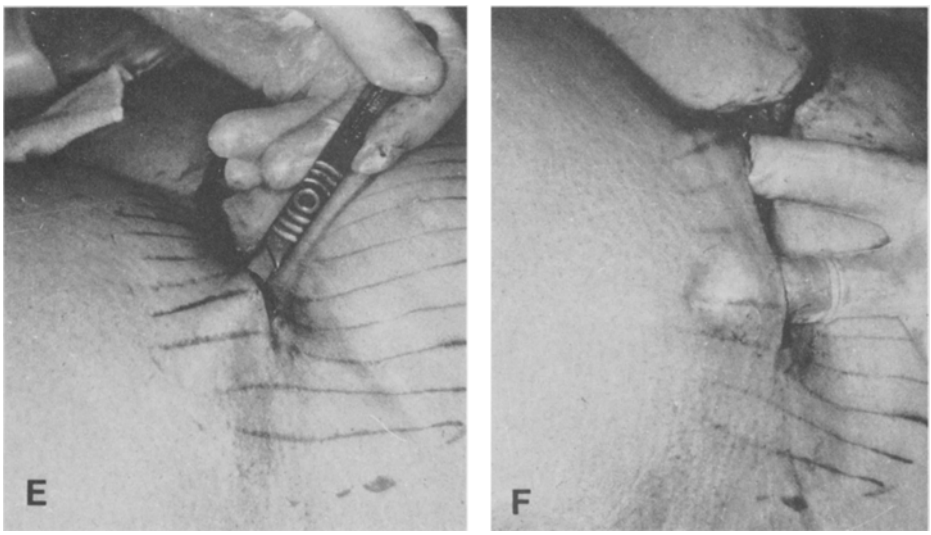

Fig. 5. E and **F** Superficial dissection of upper part of thigh. Crosshatched areas demarcate areas of superficial undermining

Fig. 6. Dotted line demarcates limit of superficial dissection, avoiding damage to the superficial nerves, lymphatics, and blood vessels. In central part, fat has been preserved by beveled cut.

Wide undermining is done superficial to the fascia, extending up to the mid-axillary line on the sides, reaching 10 cm above the costal margin upwards and laterally, and 5 cm above the xiphoid process in the midline (Fig. 2).

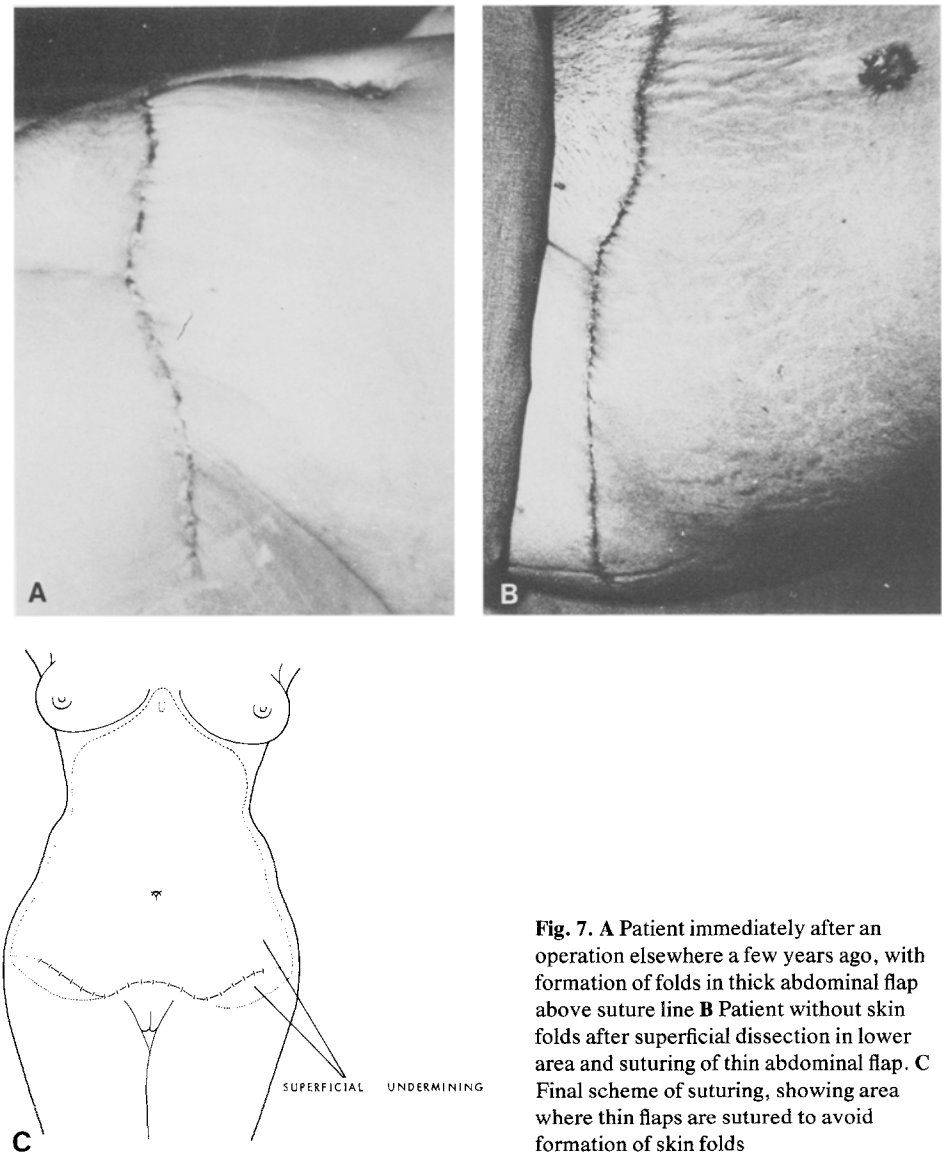

Fig. 7. A Patient immediately after an operation elsewhere a few years ago, with formation of folds in thick abdominal flap above suture line **B** Patient without skin folds after superficial dissection in lower area and suturing of thin abdominal flap. **C** Final scheme of suturing, showing area where thin flaps are sutured to avoid formation of skin folds

Technical Details of Problem Solution

The purpose of this report is to describe in detail the surgical maneuvers utilized by us in resolving and preventing the problems that have been cited since they have rendered better results without complications.

Problem: Dog ears at end of incision

Solution: Acute angle at outer end of resection pattern

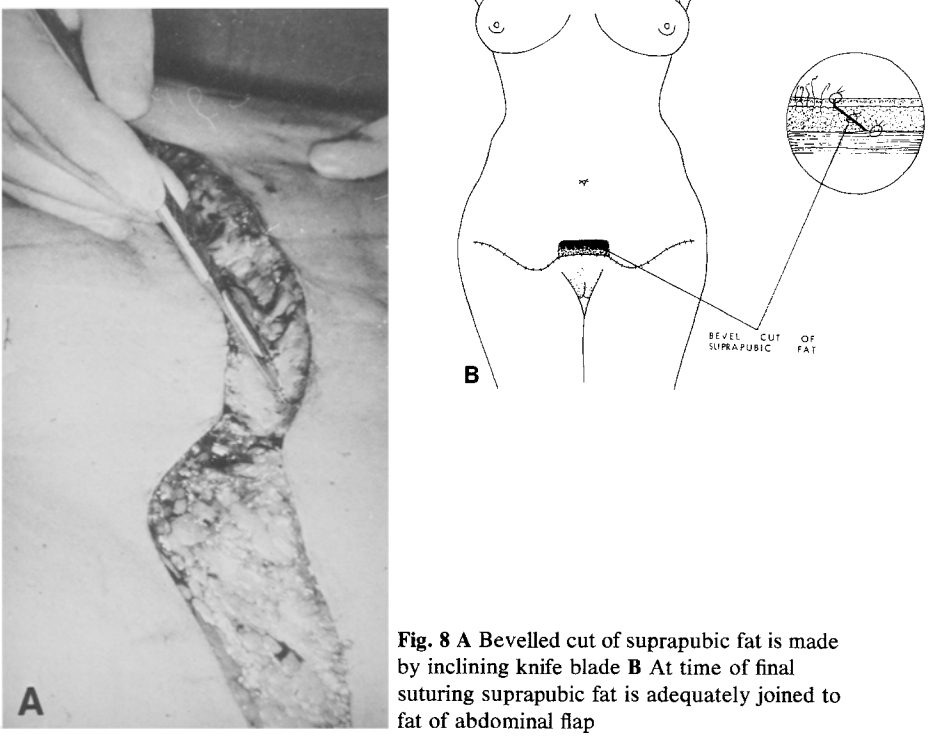

Fig. 8 A Bevelled cut of suprapubic fat is made by inclining knife blade **B** At time of final suturing suprapubic fat is adequately joined to fat of abdominal flap

The technical pattern for the resection of the skin and fatty tissue employed by us is similar to one described by Baker, Gordon, and Mosienko [1], but we have emphasized that to prevent the dog ear at the extreme outer end of the incision, the incision should terminate in an exaggerated acute angle (Fig. 2). The formation of the dog ear is further prevented by pulling medially on the abdominal flap at the time of final suturing. This should be done from the outer end, where suturing toward the midline begins.

Problem: Lower abdominal cutaneous folds

Solution: Start suturing from outer end

Starting to suture the incision from the outer end and exerting medial pull on the flap toward the midline avoids cutaneous folds.

Problem: Cutaneous anesthesia or paresthesia

Solution: Superficial inguinal incision and superficial undermining in the lower lateral abdomen and upper thigh

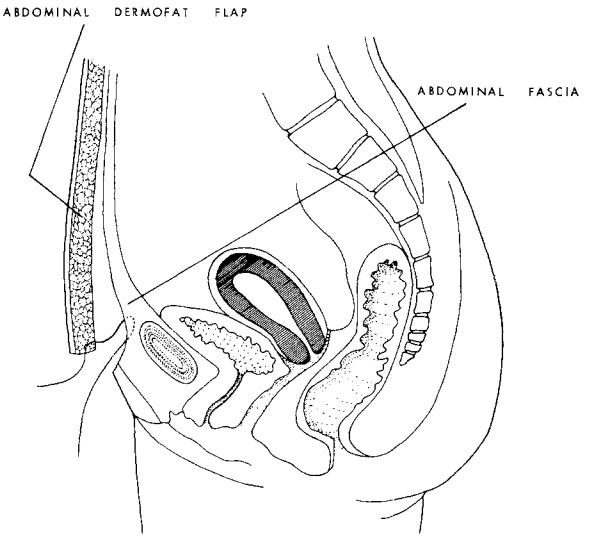

Fig 9. Fixation of fat in medial abdominal flap to deep abdominal fascia

The lower lateral incision in the inguinal region (Fig. 3) should be superficial, with the maximum depth of 2 mm under the full thickness of skin. A similar idea was suggested by Guilherme da Silveira Carvalho, Baroudi, and Keppke [2]. This precaution avoids damage to the superficial blood vessels, lymphatics, and nerves and ganglions, helping to prevent cutaneous anesthesia or paresthesia. Superficial undermining of the skin from the lower lateral abdominal region and the upper thigh region (Fig. 4 and 5) also helps prevent an anesthetic reaction. The undermining is done to the extent of 7–10 cm, leaving a 2-to-3-mm layer of fat attached to the skin, similar to the undermining in rhytidoplasty. This preserves the cutaneous nerves—namely, the ilioinguinal, the cutaneous branch of the obturator, and the anterior femoral cutaneous nerves—and avoids risk of residual lymphedema from damaged vessels and lymphatics (Fig. 6). This undermining also helps in avoiding the folding of the low abdominal region that may be caused by attaching a thick abdominal flap to non-detached thinner skin of the upper thigh (Fig. 7). The unaesthetic scar produced by the latter method is replaced by a smooth and uniform scar line with a better aesthetic result.

Problem: Painful suprapubic depression

Solution: Bevel cut of suprapubic fat

When an incision is made in the suprapubic region, the knife is tilted upward, leaving fat in place. The same is done in resecting suprapubic fat above that area (Fig. 8A). The fat left behind in this region aids in the final suturing of the abdominal flap, which is not cut on a bevel and which inclines because of post-suture traction. The fat also helps to obliterate the dead space in the area, thus facilitating better healing (Fig. 8B).

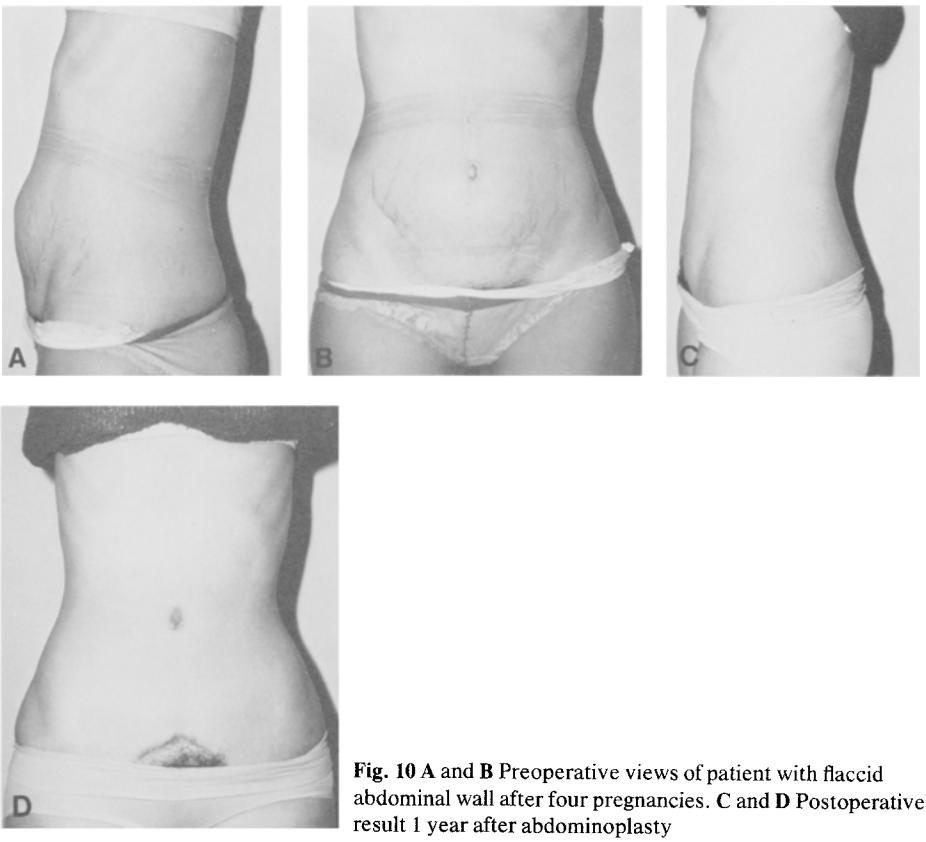

Fig. 10 A and **B** Preoperative views of patient with flaccid abdominal wall after four pregnancies. **C** and **D** Postoperative result 1 year after abdominoplasty

Problem: Exaggerated raising of pilose suprapubic region

Solution: Fixation of the fat of the abdominal flap to the abdominal fascia in its media point

The exaggerated lift of the pilose pubic region by traction on the abdominal flap, although desirable in some patients with flaccid abdominal wall, usually causes discomfort and pain in others. This can be avoided by suturing the fat of the midabdominal flap to the underlined abdominal fascia and anchoring it firmly (Fig. 9). This anchoring places the traction on the fascia rather than on the pubic hair-bearing areas.

Problem: Necrosis in the lower medial portion of the abdominal flap

Solution: Maintenance of semiflexed posture; avoidance of vertical suprapubic incision; use of umbilical transplantation

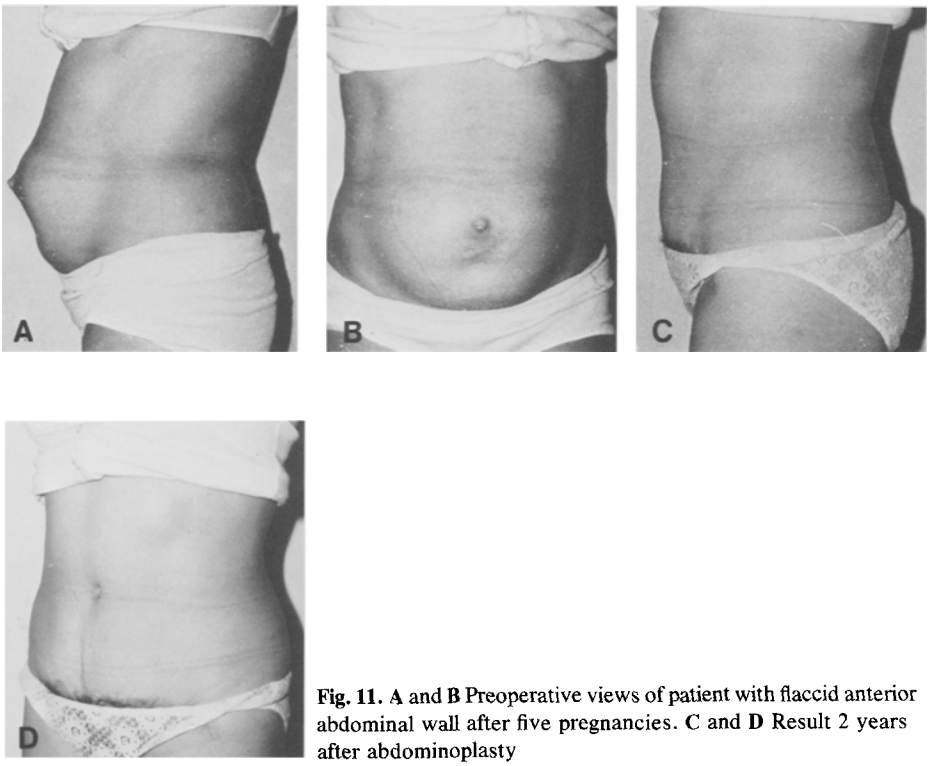

Fig. 11. **A** and **B** Preoperative views of patient with flaccid anterior abdominal wall after five pregnancies. **C** and **D** Result 2 years after abdominoplasty

In our series three patients presented with deep necrosis of the lower midportion of the abdominal flap. In one the necrosis was due to a nursing error when the patient was straightened in bed in the early postoperative period, embarrasing the circulation in the distal central portion of the flap, with ultimate necrosis. In the other two patients, the vascular embarrassment was caused by final vertical suturing in the form of an inverted T in the suprapubic region. Therefore, in order to prevent necrosis in this highly precarious area, we advocate the following precautions:

1. Maintain the patient in a semiflexed position constantly for a minimum of 4 days after the operation, both in bed and during ambulation. Constant vigilance is necessary and cannot be overemphasized.
2. Avoid the use of a vertical suprapubic incision toward the end of the operation.
3. In patients in whom the vertical distance between the upper limit of the pubic hair and the lower margin of the umbilicus exceeds 13 cm, the entire umbilicus should be transplanted to a new site below. This is done by sectioning the umbilical pedicle with the abdominal wall, without isolating it or transposing it. Later, during the operation, it is lowered and placed at the transiliac crest line in its natural anatomic position.

Discussion

The utilization of the techniques described have considerably improved the aesthetic results in our patients with abdominoplasty. The main bothersome area in this procedure is confined to the region of the incision producing dog ears, vertical folds, parasthesia, anesthesia and painful, high-riding scars with occasional slough. Simple solutions to most of these problems are suggested, with careful outlining of the incision prior to surgery and sophisticated combination of upper thigh and lower abdominal rhytidoplasty. Leaving ample fat on the bony areas of the iliac and suprapubic regions maintains a more physiologic anatomic relationship, which leads to better aesthetic results, with minimal debilitating cicatrix, more gratifying results, and avoidance of bothersome complications (Fig. 10 and 11). The need to revise the incisions in our institute has been minimized greatly as a result of these techniques, which are followed religiously in every case. Finally, that formidable complication—the necrosis, which we all dread—has been prevented successfully in all but three patients.

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