Aesth. Plast. Surg. 7:101–108, 1983

Aesthetic Plastic Surgery

Dermoadipose and Adenadipose Flaps in Mammoplasty

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Abstract. After the follow-up of breasts operated on using several breast reduction techniques that resect the glands removing its central section, we noted in the last postoperative period that with the passage of time, these breasts developed a depression on the upper pole causing a somewhat ungraceful profile and the visual impression that the breast was ptotic. It was noted that the techniques used were most concerned with mammary gland removal, without specific regard to the upper pole of the breast. Searching for an aesthetic solution for the construction and maintenance of the upper pole of the breast, we have developed two techniques in which fixation of mammary tissue flaps to the third costal arch assures both a graceful breast and pexis of the breasts. This report presents an analysis of the results of the author's experience.

Key words: Mastopexy — Breast reduction — Dermoadipose flap — Adenadipose flap

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Background

With Graft of Nipple-Areolar Complex

The first description dates back to 1944 (Fig. 2) when Maliniac [2] reported a technique for mammary reconstruction with a dermoadipose flap of the lower pedicle in the inframammary sulcus; following gland amputation, the same is fixed to the retromammary region. In 1952, Conway [1] described his technique consisting of lower pole decortication and removal of a medial keel from the decorticated mammary tissue. In this way a double upper pedicle flap is formed and fixed to the retromammary region so as to fill out the upper quadrants and improve breast profile. Until then, reduction mammoplasties were performed with lower pole amputation resulting in incomplete filling of the upper quadrants, an ungraceful shape, and among other complications, lesion of the mammary ducts and loss of sensibility in the nipple-areolar complex. Also in 1952, Marino [3] proposed the same procedure as Maliniac's for filling the upper quadrants and elevation of the mammary gland, employing a dermoadipose flap of the upper pedicle with its lower border corresponding to the inframammary sulcus. This flap is decorticated, folded upon itself, and fixed to the costal aponeurosis.

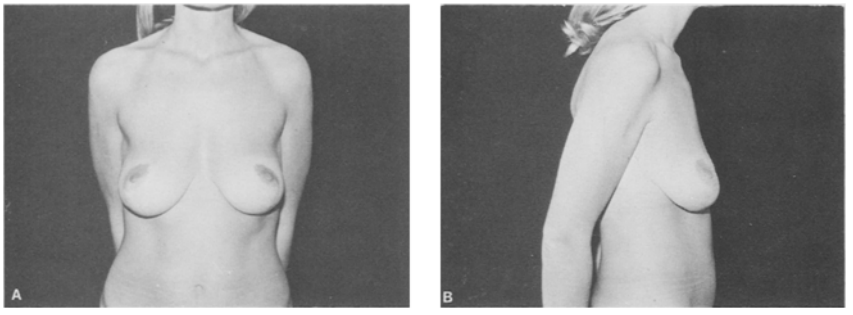

Fig. 1. (**A** and **B**) Patient showing depression on the upper pole of the breast after mammoplasty with resection of the central glands

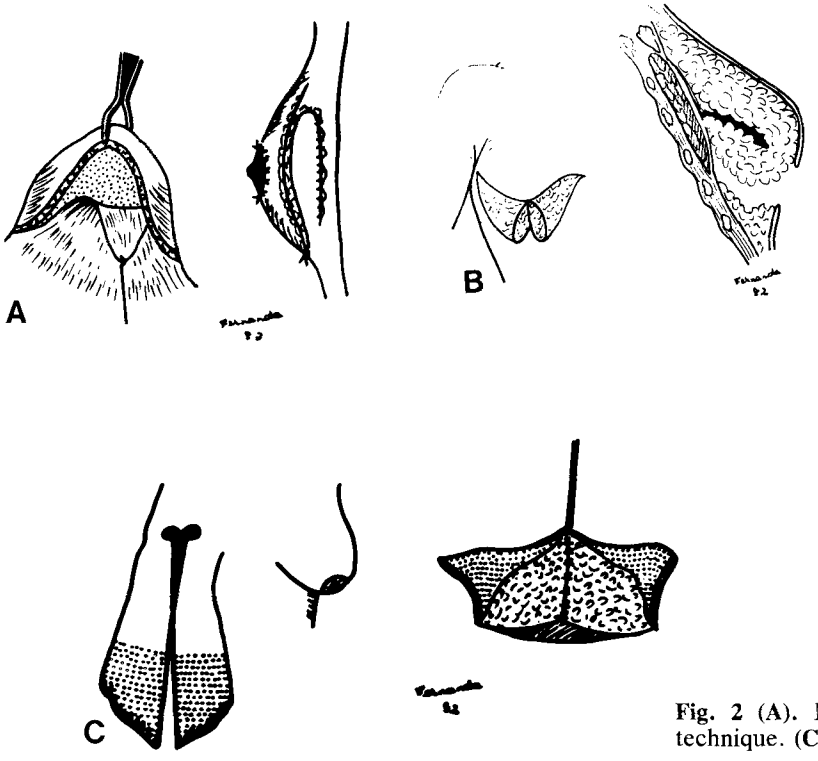

Fig. 2 (**A**). Maliniac dermoadipose flap. (**B**) Conway technique. (**C**) Marino dermoadipose flap

Without Graft of the Nipple-Areolar Complex

Longacre (Fig. 3) in 1953, in order to increase mammary gland volume following adenectomy or hypomastia, reported the convenience of using a dermoadipose flap of inframammary tissue with either a superior or inferior pedicle. These flaps are drawn in the shape of a half-moon so as to make the upper border correspond to the inframammary sulcus and the lower border set 4 to 5 cm below the sulcus. They are decorticated and incised in accordance with the utilization of the pedicle sutured medially and fixed in the retromammary region. After closure, there is a downward undermining of the inframammary sulcus, and depending on the amount of tissue used in the flap, a skin graft may be needed to close the donor area.

In 1976, Souza Pinto [6] published his technique of an adenadipose flap based on a superior pedicle in reduction mammoplasty and mastopexy. Robbins [5], in 1977, made known a technique with markings according to Strombeck's and construction of a lower pedicle flap about the inframammary sulcus with the nipple-areolar complex fixed on its upper extremity. Then, in 1978, Souza Pinto [7]

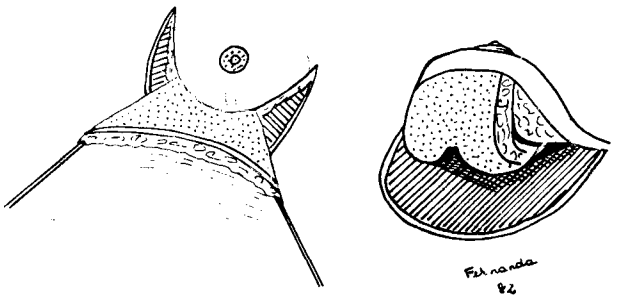

Fig. 3. Longacre dermoadipose flap

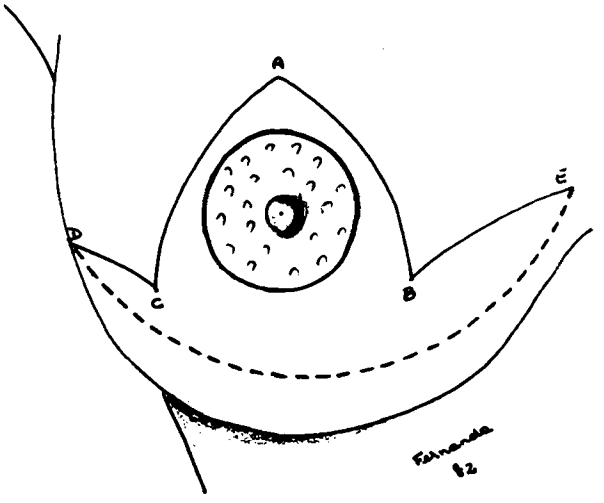

Fig. 4. The Pitanguy technique of breast reduction

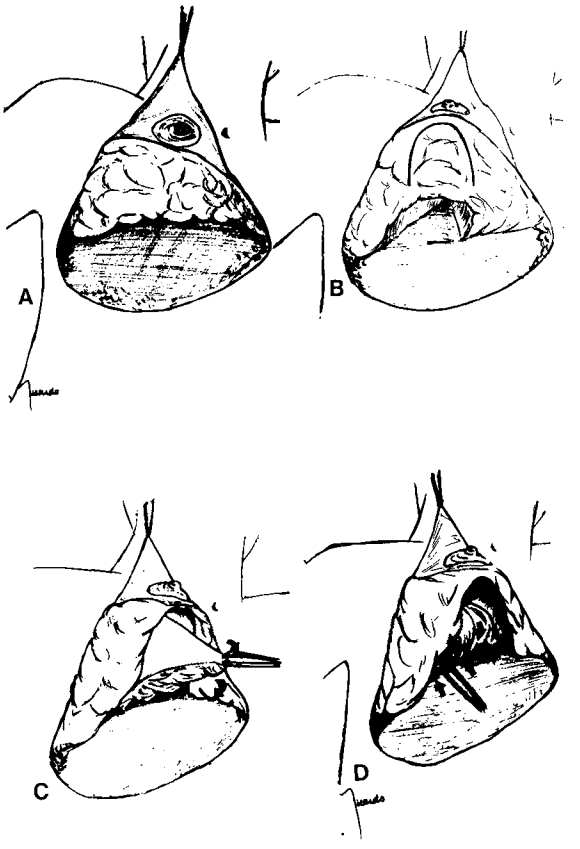

Fig. 5. Adenadipose flap. (A) The resection is made perpendicular to the thorax. (B) The drawing of the flap and the tunnel. (C) Lateral view of the flap. (D) Rotation of the flap

published a technique using a dermoadipose flap on an anterosuperior pedicle for correcting the ptotic small breast. Souza Pinto's techniques are described below.

Method and Technique

Use of Flap in Large and Medium Hypertrophy

Surgery (Fig. 4) is started by breast outlining with methylene blue [4]. Incisions are made and the periareolar area is decorticated. The submammary line is incised and undermining is carried out as a tunnel in a supra-aponeurotic level as high as the second costal arch (Fig. 5). Then, the previously calculated amount of tissue is resected. Glandular resection is made perpendicular to the thorax. The flap is made larger or smaller, depending on the necessity of upper pole elevation and pexis of the mammary glands. It will have a conical shape, its base in the thorax portion of the glands and its apex in the retropapillary region. Glandular vascularization is respected in order to avoid the complications of necrosis. Once the flap is free it gyrates around its own axis and is fixed to the periosteum, about the third costal arch, with 3-0 nylon sutures (Figs. 6–8).

The areola is outlined with an acrylic pattern and methylene blue on a spot about 5 cm from the new submammary sulcus. The areola is fixed with 6-0 nylon in the following manner. A stitch pierces through the areola and then through the dermis and again back to the areola passing through it in such a way that all sutures face the areola, thus avoiding sharp pointed scars around the areola. A penrose drain is placed bilaterally, cleansing is undertaken with physiologic solution, and a dry dressing is placed. Protection is achieved with a plastered bandage held in place for 24 hours.

This procedure has been used in 341 patients (Table 1).

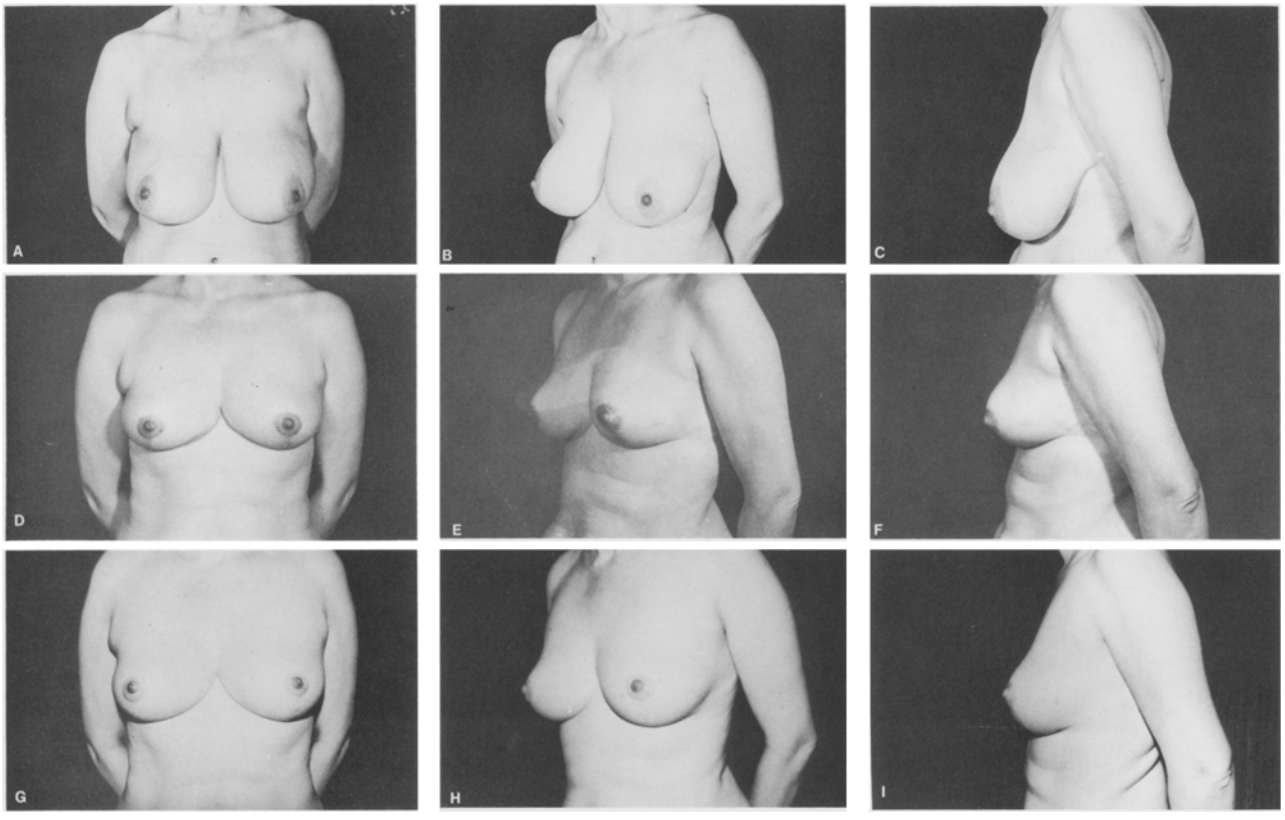

Fig. 6 (**A, B,** and **C**) Preoperative views of woman with hypertrophic breasts. (**D, E,** and **F**) Postoperative views 1 year after surgery with use of adenadipose flap. (**G, H,** and **I**) Postoperative views 5 years after surgery

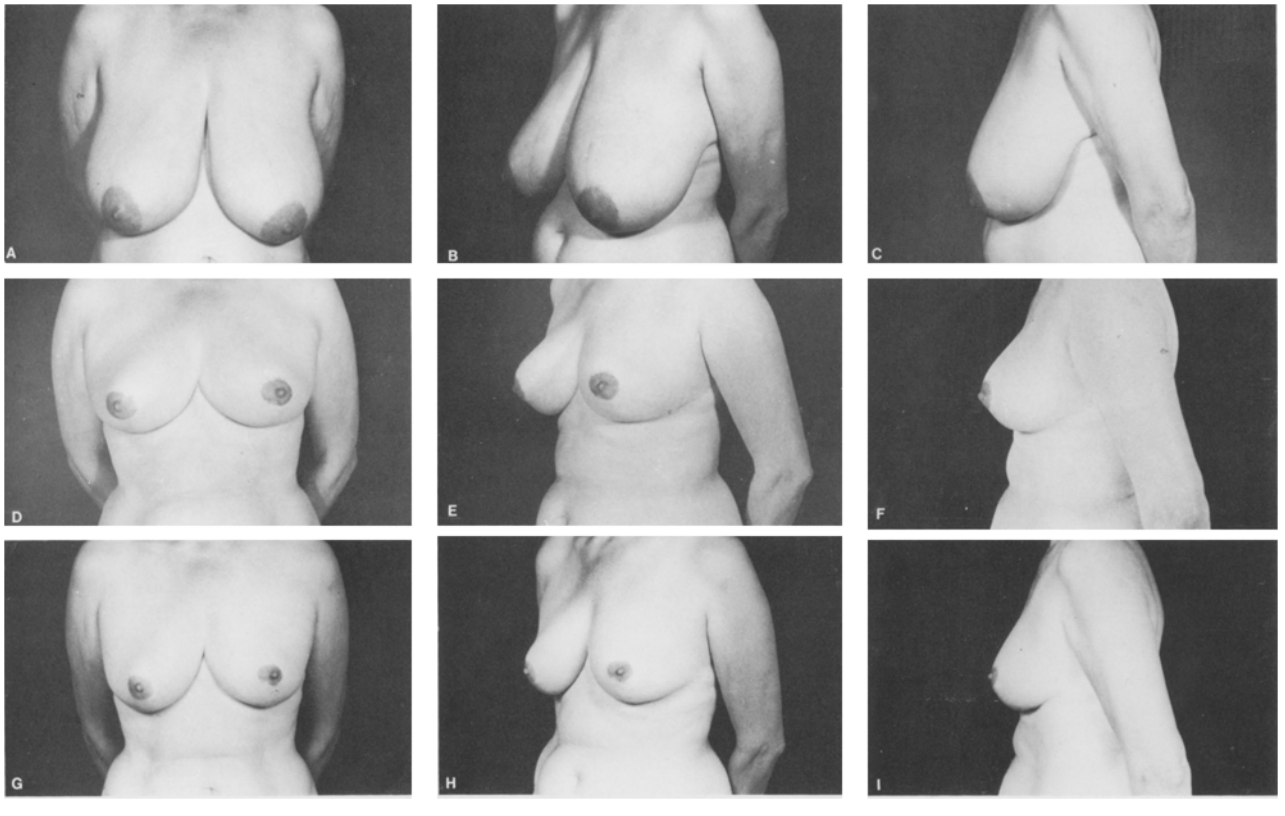

Fig. 7 (**A, B,** and **C**) Patient with large hypertrophic and ptotic breasts. (**D, E,** and **F**) Same patient 1 year after undergoing mammary reduction with use of adenadipose flap. (**G, H,** and **I**) Postoperative views 7 years later

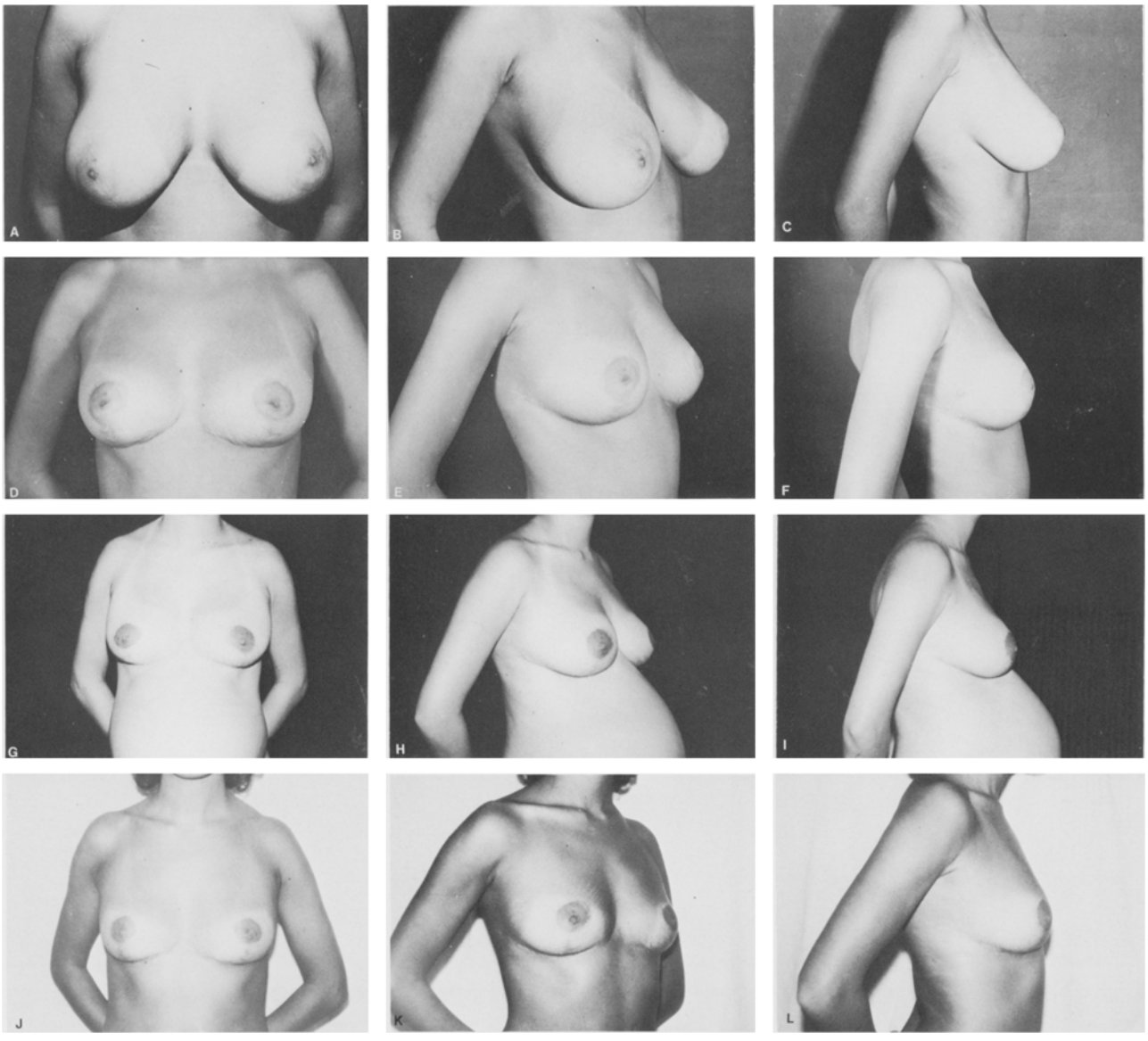

Fig. 8 (**A, B,** and **C**) Young woman 18 years old with hypertrophic breasts. (**D, E,** and **F**) Views 1 year after surgery. (**G, H,** and **I**) Views after 3 years, during pregnancy. (**J, K,** and **L**) Postoperative views 5 years after mammoplasty with use of adenadipose flap. The patient had breast-fed a child

Table 1. Classification by age and condition being corrected in 441 patients undergoing mammoplasty.

Age (Range in years)	Hypertrophic breast		Ptotic breast	
	No.	%	No.	%
11–20	59	17.3	4	4
21–30	70	20.5	42	42
31–40	75	22.0	36	36
41–50	72	21.2	16	16
51–60	53	15.5	2	2
61–70	12	3.5	0	0
Total	341		100	

The Use of Flap in Small Ptosed Breast

In the small ptosed breast, another technique is used (Fig. 9). Mammary tissue is decorticated and serves as support to the newly formed breast. A supra-aponeurotic tunnel-shaped undermining is done up to the second intercostal arch. Continuing, a subareolar partial-thickness incision and 2 parallel full-thickness incisions are made, dividing the breast into 3 portions. In this technique, the areola must be liberated inferiorly so as to free the upper portion of the flap. If it is not done, when the middle

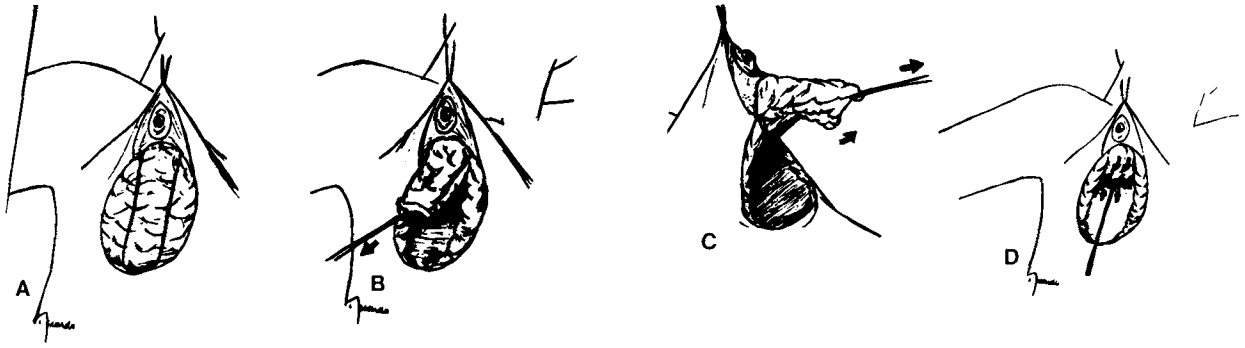

Fig. 9. Dermoadipose flap: **(A)** Drawing of the flap. **(B)** A front view of the flap. **(C)** A lateral view of the flap. **(D)** Rotation of the flap

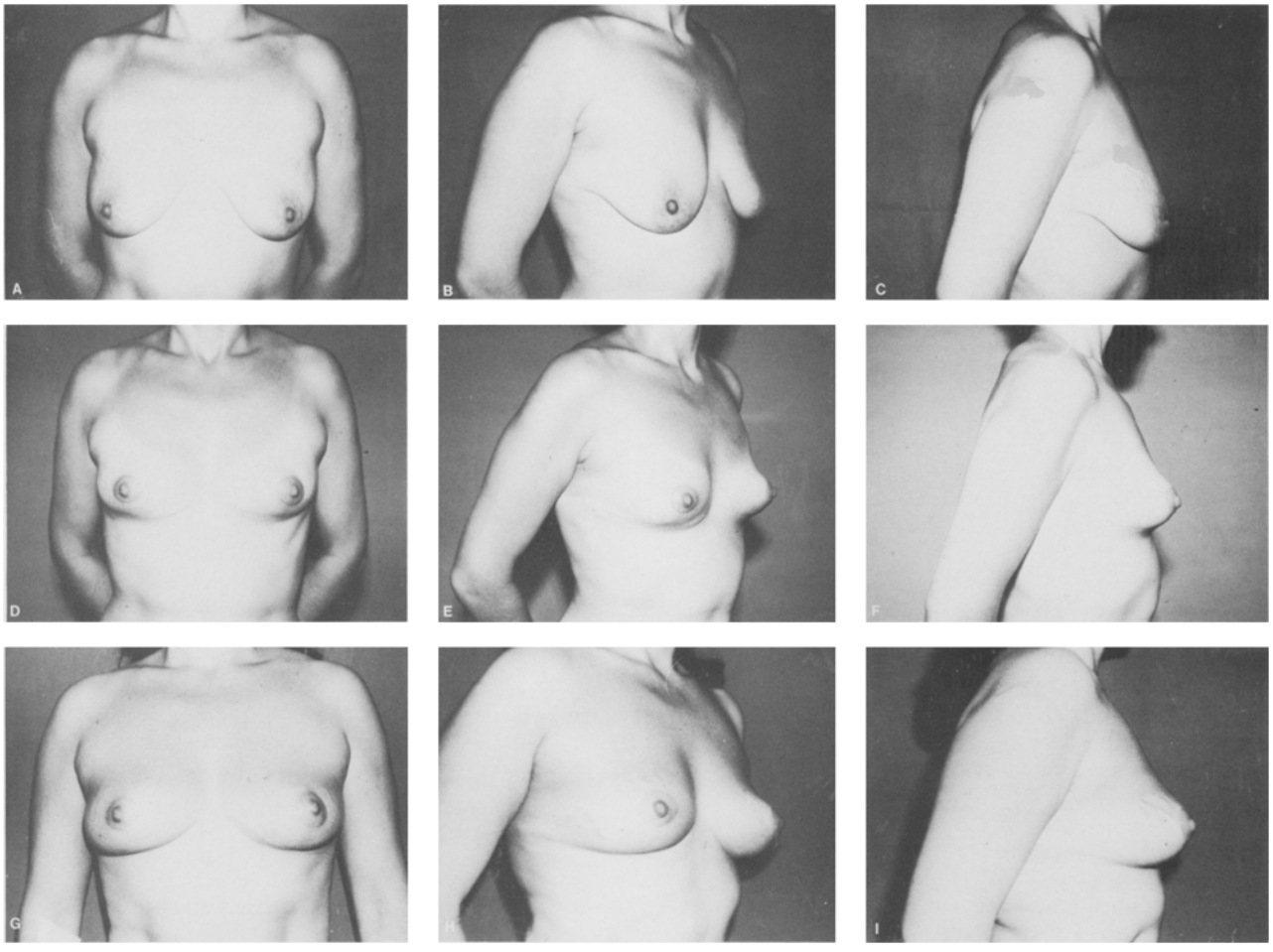

Fig. 10 (A, B, and **C).** A patient with ptotic breasts and stretched skin who underwent mammoplasty with use of dermoadipose flap. **(D, E,** and **F)** One year after surgery. **(G, H,** and **I)** Postoperative views 5 years later

flap gyrates around its own axis and is fixed to the periosteum of the third costal arch, it will bring together both areola and papilla, thus preventing it from staying in its normal position at the end of surgery.

The fixation is done in the following way. First, a suture passes through the flap, then through the third rib periosteum without a knot, using 3-0 nylon. By means of this technique, the upper pole is fashioned and the pexis of the mammary gland is made acquiring a graceful shape for the breast. (Figs. 10–12)

This technique has been used on 100 patients (Table 1).

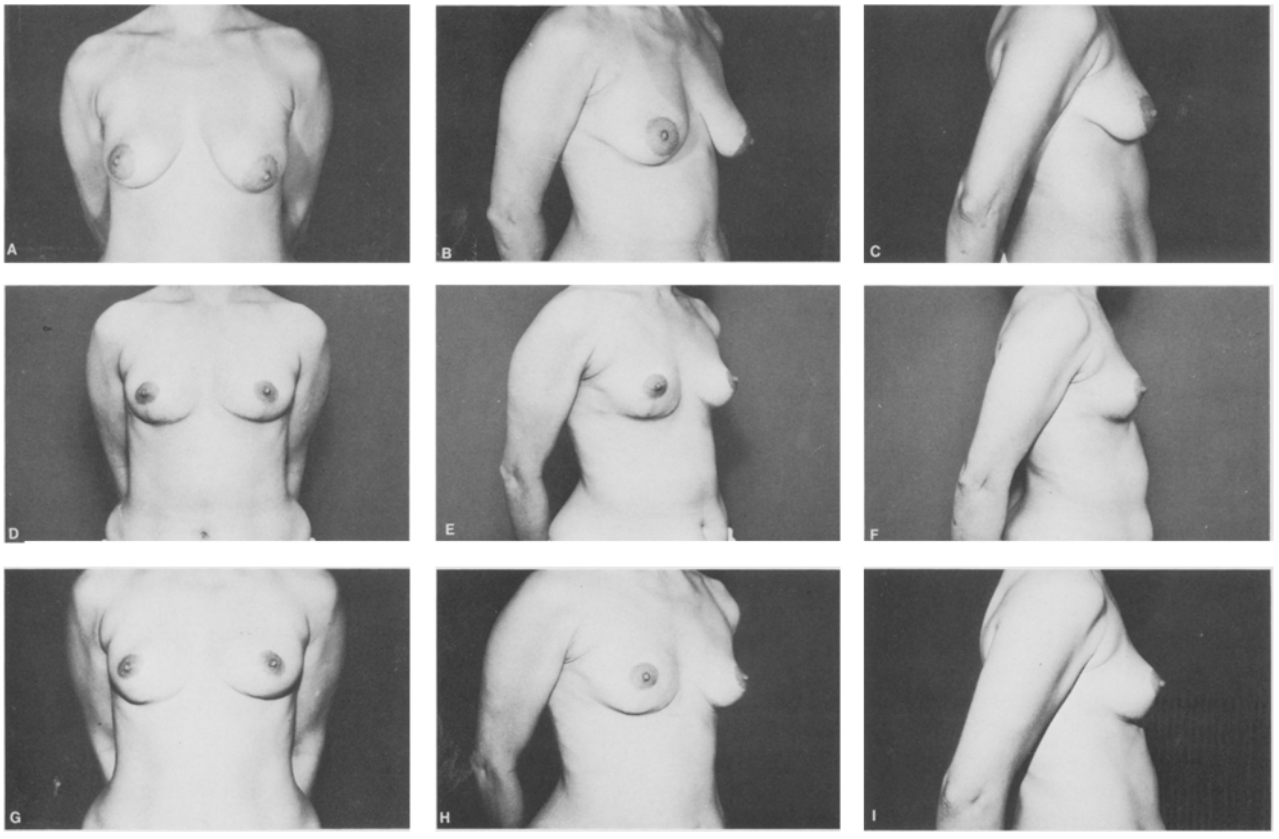

Fig. 11 (**A, B,** and **C**) Preoperative views of patient showing ptotic breasts. (**D, E,** and **F**) Postoperative views after mammoplasty with use of dermoadipose flap. (**G, H,** and **I**) The breasts present a graceful contour after 5 years

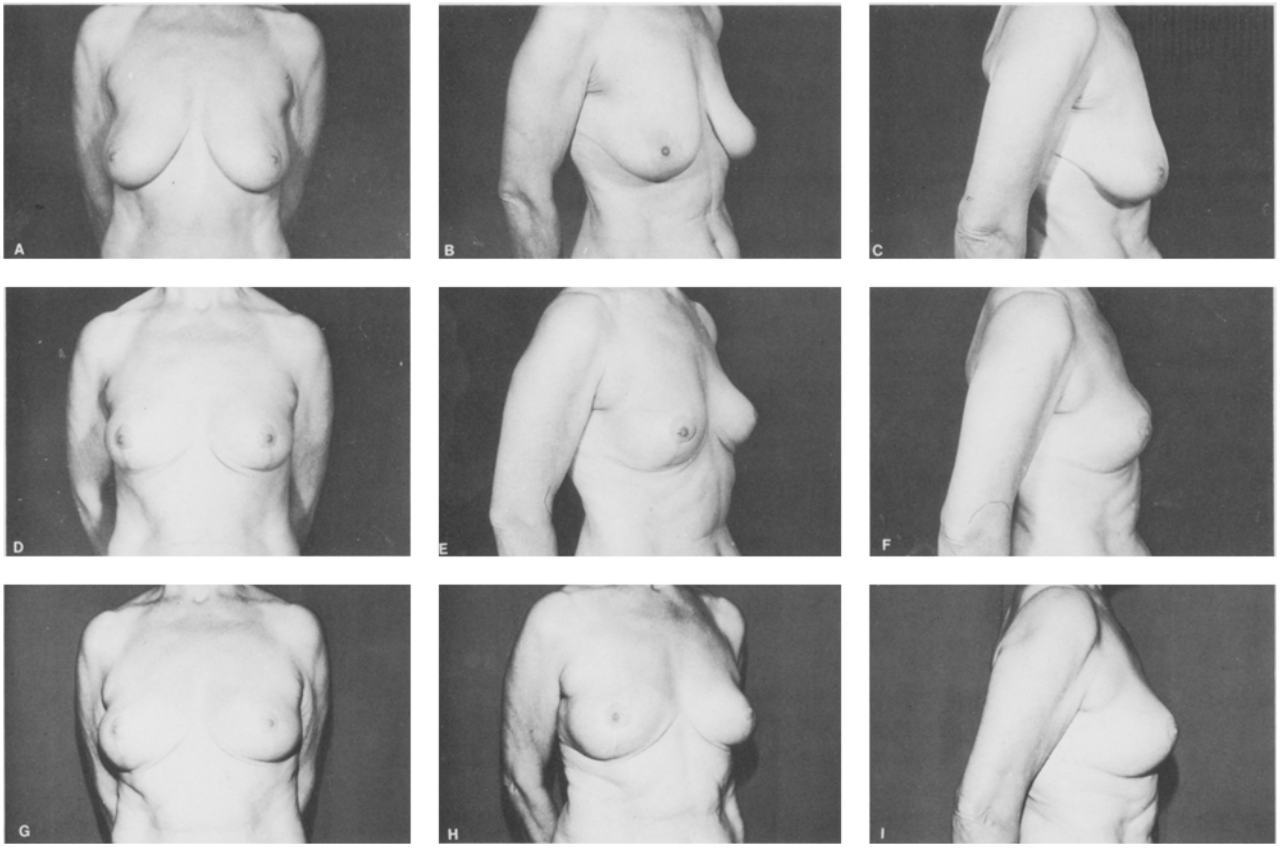

Fig. 12 (**A, B,** and **C**) Preoperative views of a 57-year-old woman presenting breast ptosis. (**D, E,** and **F**) Views after 1 year. (**G, H,** and **I**) The same patient 5 years older still showing graceful breasts with maintenance of the upper pole

Discussion

The techniques proposed are easy to carry out, allow good surgical results, and meet aesthetic requirements. The breast is fashioned into a shape that tends to remain because when the tunnel is made and the prepared flap is placed at the third costal arch level, substance is being taken to this point (upper pole) and at the same time supporting the mammary glands as a ligament. During the performance of both surgical procedures, flap vascularization is assured since, when a reduction is necessary or, even as a test, the distal extremity is cut and the flap bleeds, proving the viability of the flap.

Reviewing 441 of our cases from 1973 to 1981 [8], we conclude that the use of flaps gives a better result, similar to that of a virgin, non-ptosed breast. The results retain pleasant contours; the shape of the newly formed breast is conical and graceful. We think these flaps can avoid the fall of mammary glands by acting as a new ligament that, besides filling out the upper pole and accomplishing the pexis of the mammary glands, fixes them to the third rib periosteum. These flaps can be used not only in the central part of the upper pole but also to fill in any gaps, either in the external upper part or internal upper part.

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