

Augmenting the Results of Vertical Scar Reduction Mammoplasty Using Lateral Liposuction

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ABSTRACT

Background: Reduction mammoplasty is one of the commonly used procedures to reduce the size of the breast. Traditional reduction was done by using a single pedicle to give the utmost contour, projection, shape and sensibility. Also liposuction has proven to be a safe and effective method for reducing the size of the breast but it is only applicable to a very special subset of patients who present with breast enlargement caused primarily by fibro-fatty tissue and whose nipple-areola complex is well located and not excessively enlarged. But in moderate and huge size breasts, or whose nipple areola complex exceeds 28cm, from the xiphsternal angle, liposuction alone is not enough to reach the desired result, so combination between reduction mammoplasty and liposuction of the lateral part of the breast and the axillary tail can produce the best result.

Patients and Methods: 24 patients were included in this study. All were done by medial pedicle technique with vertical scar only, together with liposuction of the lateral side of the breast and the axillary tail. Nipple vascularity, sensation, operative time, hematoma, seroma, infection, wound dehiscence, asymmetry, irregularities and shape of the breast were assessed by different methods of tests.

Results: After assessing the early and late complication we found that the combination of the two procedures have a low overall complication rate, on the contrary it has benefits as regard the aesthetic outcome.

Conclusion: We conclude that the breast reduction especially in the moderate and huge sizes should be done in companion with liposuction from the lateral part of the breast and axillary tail to produce more projecting breast and prevent the lateral bulge after breast reduction.

INTRODUCTION

The breast is a major factor in the development of a healthy self image for any woman. In any aesthetic surgery in the breast, one should handle this organ with special care to achieve not only a cosmetic result, but also a functional one [1,5]. Certain characteristics are generally considered aesthetically desirable. These characteristics include round configuration from the frontal view, conical

profile, superior fullness, firmness and nipples that point forward, slightly upward and outward [4,6].

A variety of techniques have been described for breast reduction based on the nature of the skin, parenchymal content and nipple-areola size and position. In general, they share three goals: Reducing breast volume, treating nipple-areola complex ptosis, and reducing nipple-areola size. The majorities of these methods rely on glandular resection and movement of the nipple areola complex on a local pedicle and involve periareolar and breast incisions [3,9,16]. After breast reduction many women become concerned with the fullness of the lateral side of the breast, which they did not notice before surgical reduction of their breast volume. This is especially common in obese patients. To address this concern, we use suction-assisted lipectomy (SAL) to remove extramammary fat along the lateral side of the breast and axillary region at the time of reduction mammoplasty [11,15,19]. Treatment of this area effectively removes the underlying adipose tissue and results in moderate skin retraction, especially in younger patients with good skin tone [7,9,22].

The presence of axillary or lateral chest wall fullness poses an additional aesthetic challenge that the plastic surgeon may need to address during surgery. Often, this tissue cannot be fully resected and direct excision of the additional tissue lengthens the lateral scar [10,21,25].

Breast reduction using a vertical scar was described in early 20th century. In 1970 Lassus used vertical en bloc resection with minimal undermining and no liposuction [12]. In 1994 Lejour developed and popularized the technique, superior dermoglandular pedicle, wide skin undermining, vertical scar and liposuction from the whole part of the breast and lateral chest wall [13]. In 1999 Findlay started

to use a superomedial pedicle and advocates a central vertical resection without lateral and medial skin undermining with minimal liposuction [8]. Combination between reduction mammoplasty with minimal scar (vertical scar) and liposuction from the lateral side will produce a very suitable shaped breast with satisfied results [2,12,14].

MATERIAL AND METHODS

This study was done in the plastic and reconstructive surgery department, Ain Shams University hospitals between October 2007 and October 2008. It included 24 patients divided into two groups: *Group (A)*: Includes 16 patients (mild and moderate sized breasts), the distance of the nipple-xiphsternal angle up to 33cm. *Group (B)*: Includes 8 patients (huge size), the distance of the nipple-xiphsternal angle ranges from 33-39cm.

All patients underwent reduction mammoplasty by using medial pedicle technique with vertical scar. Liposuction from the lateral part of the breast and the axillary region was done in all cases using super wet technique of liposuction.

The age of the patients ranged from twenty to fifty five years (mean 32.5 years). All patients were non smokers or stopped smoking one month at least before operation. No previous operations in the breast and chest wall to ensure that there is no interference with the viability or sensation of the breast flaps.

The following measurements were used pre and post-operatively; the distance from nipple to xiphsternal angle and from the nipple to the infra mammary line, the circumference of the areola, nipple projection and Nipple areola sensation.

Preoperative:

We discussed the risks and complications of the proposed procedure and the patients were willing to accept the variable nature of scarring involved in breast surgery. Routine preoperative investigations were done (complete blood picture, PT, PTT, sugar, liver, kidney function, ECG, Breast ultrasound). Preoperative photos were taken (ant, lateral and oblique lateral views).

Measurement of the breast was taken and the lines were drawn (Aufrecht maneuver). The outlines of the axilla were defined (anterior, middle and posterior axillary lines). The final breast size and shape was determined in conjunction with the patient's wishes and the limitations of their morphology.

Operative:

The lateral part of the breast (from the anterior axillary line anteriorly to the posterior axillary line posteriorly, middle part of the axilla up to the sixth rib down) was injected using super wet technique (500cc saline or lactated ringer, 1ml adrenaline and 5cc xylocane). In one side, the medial pedicle breast reduction was done. Stay sutures were taken then liposuction from this side was done. Suction is performed using either a 3.7-mm or a 4.2-mm three-holed (Mercedes type) metal cannula connected to any pump that will deliver close to 1 bar of negative pressure. The same steps were done in the opposite side.

After closure of the wound on both sides, the patient is elevated to a semi-sitting position to evaluate symmetry then refinement liposuction was done to ensure the equality in shape and projection of both sides.

Postoperative:

The traditional dressings were used in the breast, in addition adhesive pressure band were applied to compress the lateral part and the axillary tail of the breast where it was changed after three days, together with application of tight medical bra with high lateral sides. Stitches were removed after 10 and 21 days while the bra was continuously worn for at least three months.

RESULTS

This study included 24 patients, their preoperative labs were normal. Except for two patients (8.3%) suffered from mild hypochromic microcytic anemia and were treated with intravenous iron injection until the anemia improved. The preoperative ultra sound was not significant in both groups with wide range of changes between glandular, fibrous and fatty content. We excluded smokers, diabetics, hypertensives and patients with previous operation in the breast or in the chest wall. The operation time ranges from 2 hours to 2 hours and 40 minutes, mean 2 hours and 25 minutes).

Five patients (20.7%) took regional anesthesia (xylocaine® injection in the root of the intercostals nerves threw the posterior aspect of second, third, fourth, fifth and sixth nerves to block both anterior and lateral intercostal branches. Dormecum® or fentanyl® was taken as sedation. The previous cases were from the group one (moderate sized breast). The amount of excised breast tissue ranges from 700gm to 1400gm (mean 950gm). While the amount of aspirated fat ranges from 100cc to 450cc from each side (mean 220cc).

Early complications: Wound dehiscence occurred in two patients (8.3%). Hematoma and Seroma occurred in one patient (4.15%). No infection, fat necrosis, partial or complete necrosis in the areola and nipple. The overall rate of early complications was (12.45%). The previous complications healed spontaneously by use of normal dressing and antimicrobial local ointment with no need for secondary intervention (See in Chart 1).

Late complications: Asymmetry occurred in two patients (8.3%). Shape (high nipple areola in

occurred in one patient (4.15%). Wide vertical scar occurs in one patient (4.15%). Irregularities in the lateral side of the breast occur in one patient (4.15%). Nipple areola sensation was affected in three patients (ranging from mild hypoesthesia to complete anesthesia). The three patients improved after 9 months from the operation. Second intervention was done to reduce the size of the larger breast to correct the breast asymmetry and lateral irregularities in two patients (8.3%) (See in Chart 2).

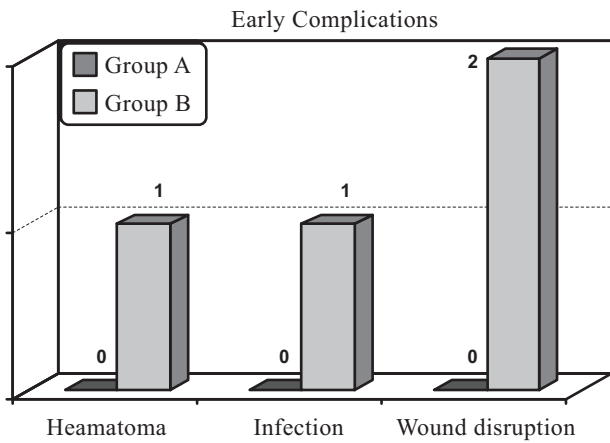


Chart (1): Early postoperative complication in the two groups.

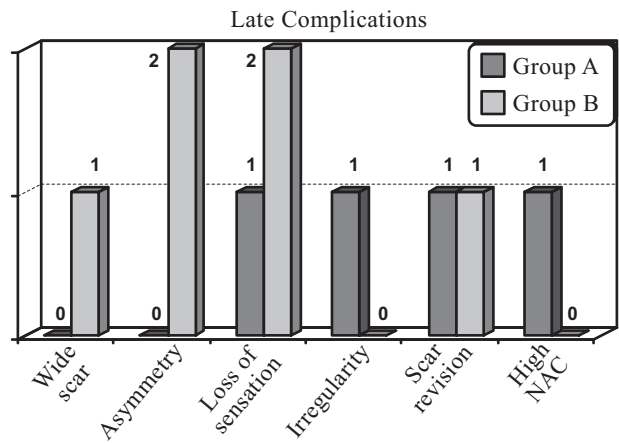


Chart (2): Late postoperative complication in the two groups.

Fig. (1): Pre-operative markings for the technique of breast reduction and area of liposuction.

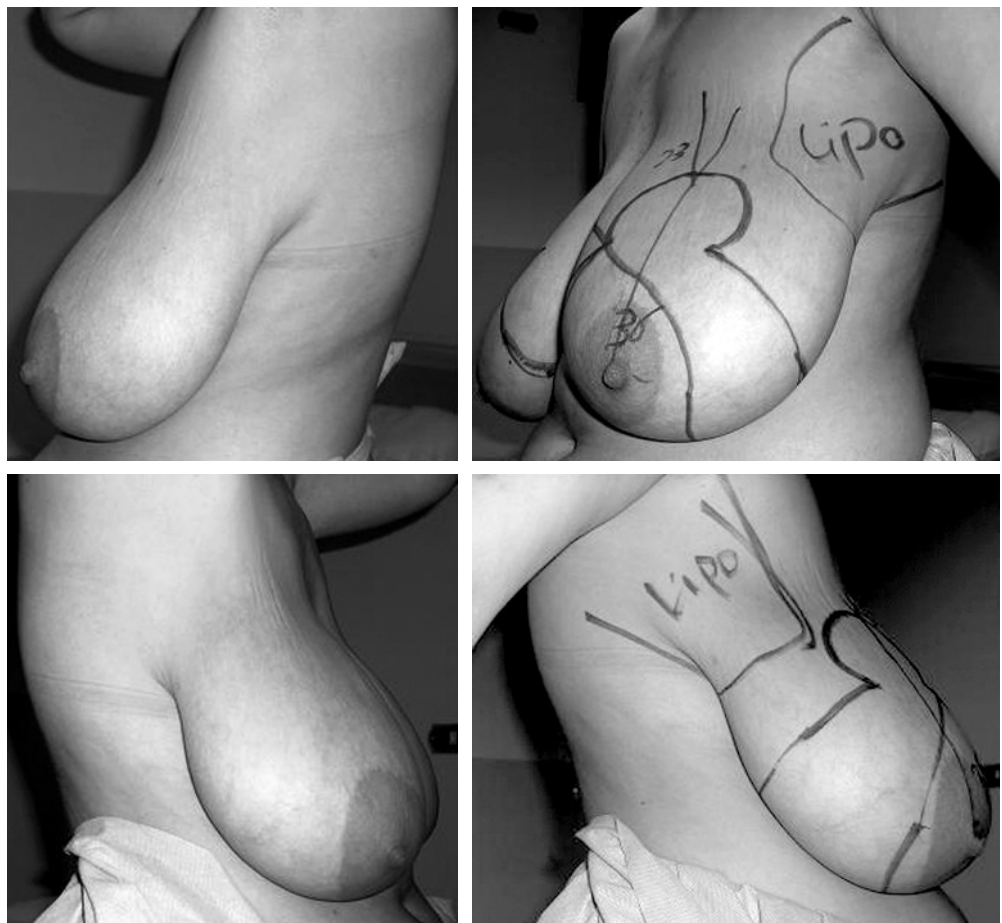




Fig. (2): Intra-operative procedure for breast reduction.



Fig. (3): Preoperative marking of the intercostal nerves.

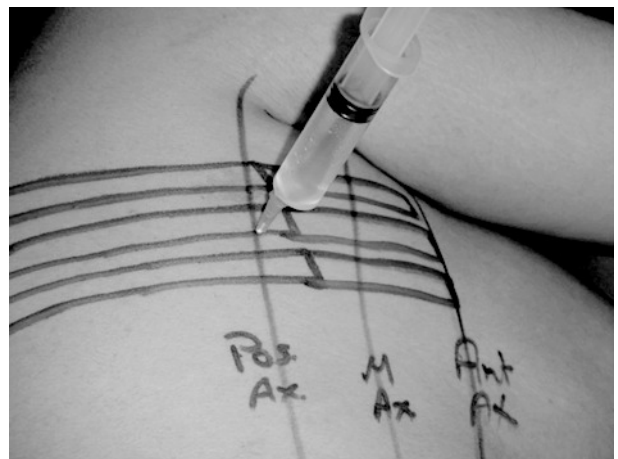
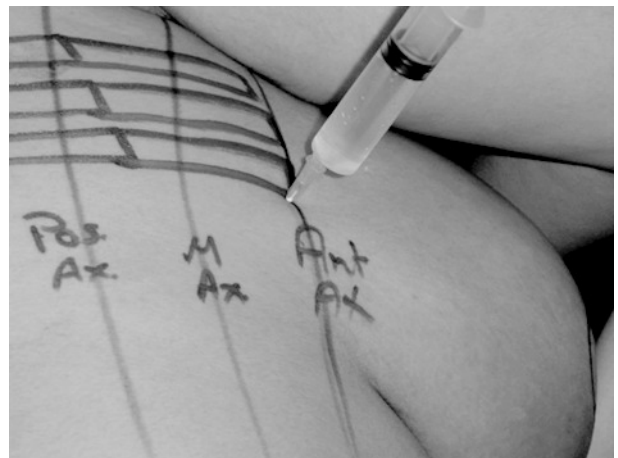


Fig. (4): (On left side) injection of anaesthesia in the anterior axillary line, while (on the right side) injection of anaesthesia in the posterior axillary line.



Fig. (5): Postoperative results in patient with liposuction.



Fig. (6): (On left side) Preoperative marking before liposuction, while (on the right side) the patient postoperatively after liposuction.

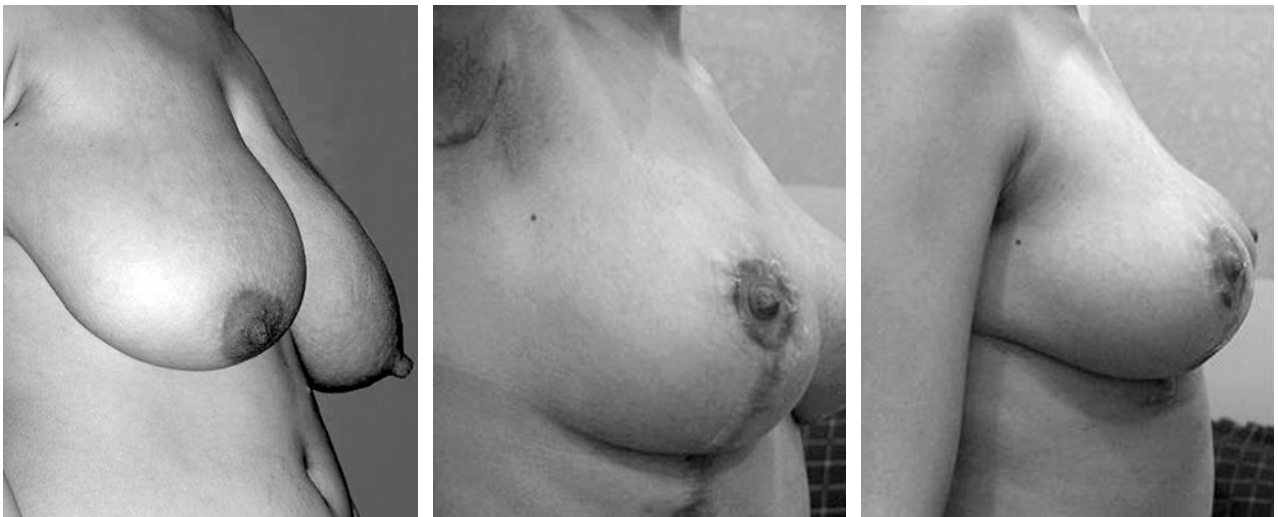


Fig. (7): Lateral view of a patient before operation in the first picture (up and down) and after operation in the second and third pictures (up and down).



Fig. (8): Front view of a patient before operation (up and left) and after operation (up and right) and front view of the patient before operation (down and left) and after operation (down and right).

DISCUSSION

Breast reduction using a vertical scar was described in 1925 by Dartigues. In 1970 Lassus introduced and later refined the technique of a vertical en bloc resection. He used a superiorly based dermoglandular flap allowing closure of the lateral and medial pillars and gathering of the lower skin of the vertical scar without undermining and liposuction [12]. Lejour 1994 developed and popularized the technique using superior dermoglandular pedicle with wide skin undermining together with liposuction from the whole part of the breast and lateral chest wall [14]. Hall-Findlay in 1999 described a superomedial dermoglandular pedicle and advocates a central vertical resection without lateral and medial skin undermining; she used liposuction from the lateral side of the breast in huge size only [8]. Berthe et al., in 2003 stated that in obese patients liposuction was used only to reduce lateral fullness along the chest wall and axillary areas when needed [3].

In our study, we used the vertical technique, in which the breast tissue is coned bringing in breast tissue from the lateral and medial areas with or without minimal undermining, resulting in improved breast projection and disappearance of dog ears laterally and medially. Parenchymal resection only determines the breast shape and prevents pseudoptosis with time. Avoidance of the horizontal inframammary scar was taken into consideration, as it is more problematic than the vertical scar; it tends to result in scar widening especially when wound closure is done under tension and causes the breast to appear flatter with minimal projection.

In this study we discuss the uses of liposuction from the lateral part of the breast and the axillary tail with reduction mammoplasty in the same session, using the super wet tumescent technique as a hemostatic, thus reducing ecchymosis and edema.

The analysis of the complications in this technique showed that; the time of the operation does not increase (not more than ten minutes). The extension of the scar and additional scars are preventable. The disturbance of blood supply and nerve supply to the NAC can be avoided, thereby minimizing vascular compromise and preserving the existing sensation, there is no disturbance in the supporting dermal or parenchymal structures.

Seroma is probably a complication associated with those techniques of vertical reduction that use adjuvant liposuction and undermining of the breast. Lejour herself reports a 5% rate of seromas [13,14]; Menke found a rate of 7.8% [17]. Fiendlay reports 3.7% in her series (8); Lassus reported that the seroma occurs in 4% of his study [12]. In this study the rate of seroma is 4.15% in all patients. The low rates of necrosis, both of fat and of the wound edges, is also attributable to the central tissue resection en bloc with no undermining of the breast and liposuction is concised to the lateral wall of the breast and axilla.

There were no systemic complications found in our patients (i.e. major fluid shifts, pulmonary fat embolism syndrome (PFES) or pulmonary embolism), only two patients had asymmetry in the size of the breast one patient suffered from irregularities in the axilla and lateral part of the breast and need secondary intervention to correct it (this

occurred in the beginning of using this technique but later on there were no further similar complications) [18,24].

This has been a frequent complication in those series using adjuvant liposuction routinely, up to 27% in one series and has shown significant reduction in incidence when the use of liposuction was stopped (27% to 21%). In this study, the overall complication rate is 16.6% [20,23].

Liposuction here aimed towards reducing lateral breast fullness in addition to lateral breast contouring, the authors [3,13,16,20], believed that lateral chest wall liposuction should be applied routinely in order to shape lateral breast curvature in cases where vertical mammoplasty is performed. Enhancement of lateral breast countouring was found to occur with liposuction in cases of mild enlargement. As morbidity is not increased with the introduction of lateral chest wall liposuction, we believe it to be an integral step in reduction mammoplasty.

So the use of adjunctive lipoplasty in reduction mammoplasty has improved the aesthetic results and allowed for reduction of what seems to be an extension of the macromastia into the anterior axillary region or lateral chest wall but without additional scarring.

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