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ORIGINAL ARTICLE

NO VERTICAL SCAR REDUCTION MAMMOPLASTY: REVISITED TECHNIQUE

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Abstract

Aim: Currently the technique adopted in our country for the reduction mammoplasty, involves the inverted T scar, which remains in the infra-areolar area.
While recently there has been a trend towards scar reduction thereby, attaining a better aesthetic outcome.

Methods: In our study a no vertical inferior pedicle reduction technique was carried out in 24 patients. Monthly follow-ups for 6 months to 1 year as well as patient and doctor satisfaction were recorded. Additionally, the most current photos of each patient were evaluated for aesthetic results.

Results: The results were all satisfactory with no major complications.

Conclusion: in conclusion it was found that the no vertical technique, showed long term patient satisfaction as well as better aesthetic outcome in terms of scar visibility.

Keywords: Reduction Mammoplasty, No vertical scar, Scar quality, Inferior pedicle.

INTRODUCTION

The goals of breast reduction are both aesthetic and functional. The ideal procedure should enhance the form of the breast. By reducing and reshaping the breast with the nipple-areola complex in the appropriate position through minimal scars and with minimal risk of nipple-areola loss.[2]

Postoperative dissatisfaction with breast reduction is not limited to scars and shape. There for greater emphasis has been placed on improvement and maintenance of shape with minimization of scars.[7]

A number of operative procedures are available for breast reduction with a variety of pedicles to maintain the nipple and areola, a variety of techniques to shape the breast, and varying lengths of incisions.

The operative technique involves the three structural components of the breast: the content, namely the mammary gland or mass, the skin, and the meeting point, namely the areola and nipple complex, which forms the keystone of the mammary vault.[10]

The current debate in reduction mammoplasty centers essentially on the scars, the most important remaining problem posed by mammoplasty, and more precisely on their position length and quality. Asymmetry due to scars is yet a problem. Minimizing the extent of the scars and making them least obvious, they must be properly

sited, as short as possible and of good quality.[4]

Skin excisions are necessary primarily to adjust the skin envelope to the reduced breast volume and secondarily for breast support. Excess skin is removed to conform to a smaller or more uplifted breast contour. Removal and tightening of the breast skin should not be done to control and shape the breast, the actual volume and contour of the breast parenchyma is more important for this function.[3]

The sub dermal pedicle techniques depend on the fact that the nipple areola complex is supplied by blood vessels that are passing circumferentially around the breast in a sub dermal position There are various techniques that utilize this principle each of them is different from the others in designing the base of the dermal flap carrying the NAC the dermal flap can be superiorly based inferiorly based or a vertically oriented bipedicled dermal flap, it can be also a horizontally bipedicled flap. The dermal flap can also be laterally oriented or supero-medially oriented[1]

Techniques that preserve the breast on its deep posterior or medial attachment usually have a predictability satisfactory nipple areola innervation. Although the sensation may be decreased in the postoperative period it often returns a few weeks later. The innervation of the skin of the upper chest comes from the cervical plexus.[3]

Although many options are available for reduction mammoplasty, scarring remains to be the keystone problem posed by the procedure, in addition to creating a perfect balance of skin and glandular volume, So it is important to reshape the breast, considering its degree of ptosis and size, with the least scar possible. In all the techniques the aesthetic concern is always a priority.[13]

This has led us to adopt a technique for reduction of large breasts where the vertical scar was eliminated, a technique that was described by Yousif et al in 1992 and later refined by Lalonde et al in 2000.[11,16]

PATIENTS AND METHODS

Between June 2007 and January 2010 we carried out a prospective study on 24 patients seeking reduction mammoplasty. Both at kasr-al-aini hospital and other hospitals.

The patients accepted surgery after an informed consent was obtained.

Any patient with previous breast reduction or mastopexys, chronic heavy smokers, high risk breast cancer patients and patients suffering from major uncontrolled medical illness were excluded from the study.

For each patient we recorded the following:

The degree of hypertrophy of each breast is roughly estimated by the cup size that fits the breast. The degree of hypertrophy was assessed according to the following scale:

1. Mild hypertrophy with cup size B.
2. Moderate hypertrophy cup size C.
3. Major hypertrophy with cup size D.[9]
4. Gigantomastia with sizes E and above.

It was also estimated by breast volume in grams. Patients were classified according to their breast volumes as follows:

1. Mild hypertrophy: Less than 200 gm.
2. Moderate hypertrophy: 200-500 gm.
3. Major hypertrophy: 500-1500 gm.
4. Gigantomastia: More than 1500 gm.[9]

Degree of ptosis of each breast

Was estimated by the relation between the level of the nipple and IMF and classified as follows:

1. Minor if it is at or just below the IMF.
2. Moderate deformity if it is within 3cm below IMF.
3. Severe ptosis if it is more than 3cm below IMF.[14]

Linear measurements of both breasts

They include the following measurements: Sternal notch to nipple, Mid-clavicular point to nipple, Nipple to infra-mammary fold, Inter-mammary distance and Breast base diameter.

Excess skin was graded into minimal, moderate, or loose.[14]

In addition, the skin was assessed whether it was normal or inelastic as tested by stria, skin thickness and skin recoil.[14]

The relationship between the skin and breast parenchyma was assessed and classified into firmly adherent or loosely adherent.[14]

Lastly, any intertigo was treated with topical antifungal and patient should be free from the disease at least one week prior to the operation.

Time of stitch removal, development of post-operative complications or recurrence was recorded.

The cosmetic outcome was evaluated by the patient and the surgeon independently after at least 3 month from the day of the surgery and the results were divided into 3 categories, not satisfied, satisfied and good result.

All operations were performed by one surgeon who performed the follow- up. All patients received the same procedure.

Standard frontal, oblique and side views were routinely shot pre and post-operatively. These photos were

reviewed by both the surgeon and the patient in the follow-up period.

Procedure: The technique used we adopted in this study is the same technique described in details by Lalonde et al in 2003.[12]

Preoperative markings: Patient placed in the semi-sitting position or standing. The supra-sternal notch (S.S.N.), the midline and the infra-mammary fold (I.M.F.) were marked first. The breast axis is drawn from the mid-clavicular point downwards. It passes through the center of the breast's apex. It does not necessarily pass through the nipples as their position may vary and are frequently asymmetric in these big breasts. The axis is a very important landmark as we plan on it for the ideal site of the future nipple, the symmetric resection of the excessive tissues, as well as the site of the flap and its pedicle.

A point is placed, on the breast axis, at 19 cm from the supra-sternal notch which represents the upper border of the neo-areola. This procedure is applicable only to very large breasts requiring that the lower border of the new areola is 5 cm or more above the upper border of the existing areola. (Fig. 1).

When the distance between the lower border of the new areola and the upper border of the existing areola was less than 5 cm but more than 3 cm, the infra-mammary incision is marked in a curved manner so that the distance from the lower border of the new areola lies finally at 5 cm from the infra-mammary fold.

The entire skin between the new areola and the new infra-mammary sulcus is left intact, so that only one flap is harvested over the breast tissue, and the vertical infra-mammary scar is eliminated;

The site of the flap is marked. It begins inside the circle of the new areola and goes for about 4cm proximal to the nipple. Its width should be, around 10 cm. centered on the breast meridian.

All patients operated upon under general anesthesia and received prophylactic broad-spectrum antibiotics at the beginning of the procedure.

The patient is placed in the semi sitting position on the operating table.

A very superficial ring incision (epidermal) around the nipple is made with a diameter of 3.8 to 4.2 cm marking the size of the new areola. A superficial incision of the epidermis made, not to interrupt the sub-dermal plexus coming from above.

The dermo-glandular flap carrying the nipple-areola complex is de-epethelialized according to the tracings.

The flap carrying the nipple-areola complex is then separated from the surrounding breast tissue using the electrocautary.

The upper flap is elevated carefully to preserve its vascularity in the sub-dermal plexus. The palm and the fingers of the left hand serve as a monitor for the thickness of the flap which should be about 2cm. The uppermost part of the breast above the markings should be subcutaneously dissected to fashion the new skin envelope encasing the gland.

A circular 2.5 to 3 cm in diameter skin is removed at the new nipple and areola complex site. Now with the flap elevated, an inverted U shaped breast tissue is removed in a monoblock fashion leaving a central pyramidal cone of breast tissue beneath the nipple-areola complex thus achieving an amputation of the upper, medial and lateral parts of the gland. This monoblock resection achieves better symmetry of the breasts, less blood loss, shorter operating time and less complications. That created space behind the site of the new areola will accommodate the flap carrying the nipple-areola complex without compression.

The upper flap (skin envelope) is brought over the reduced mammary tissue and the nipple-areola complex is delivered through its new opening at the flap and fixed at its new location.

The lateral and medial borders of the dermo-glandular inferior pedicle are then fixed by 2 or 3 stitches of absorbable sutures on each side to the muscle fascia to help support the breast from future ptosis.

The areola is closed with continuous buried 4–0 absorbable suture.

The upper flap is sutured to the inferior incision, advancing the excess skin and any dog-ears toward the cancer.

Closed suction drains are used routinely and closure is completed in two layers subcutaneously with absorbable 2/0 and 3/0 sutures, then the skin is closed using 3/0 continuous subcuticular polypropylene suture.

Dressings and follow-up: After dressing the wounds a special supporting bra is worn for 2 to 3 weeks post-operatively. Antibiotics and anti-inflammatory drugs are prescribed to the patient for 5 days.

The polypropylene stitches are removed after 10 to 14 days.

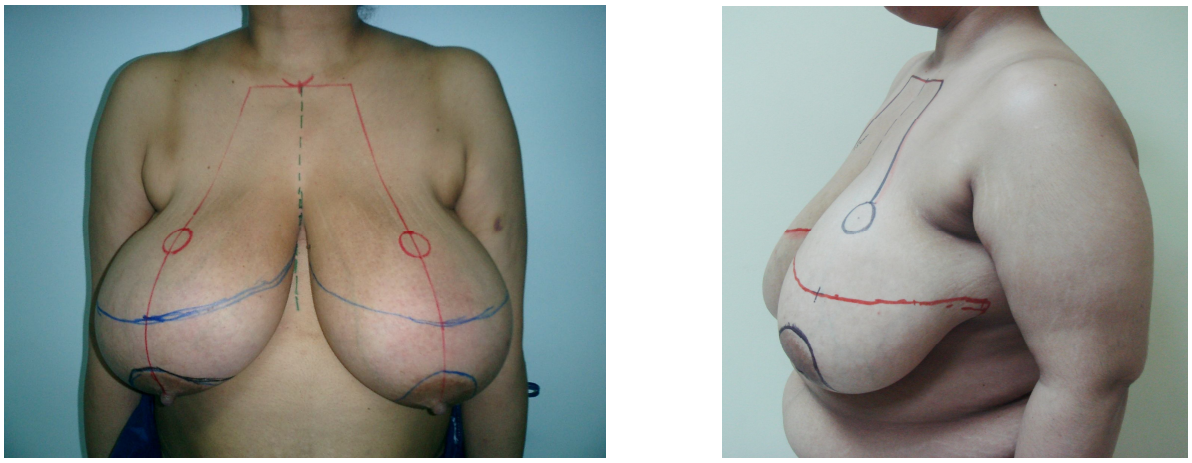


Fig 1. Showing the pre-operative markings.

A B C

Fig 2. (a, b, c) Showing the fashioned skin envelope and inferior pedicle and nipple-areola complex delivered through its new opening at the flap and fixed at its new location.

RESULTS

We reviewed 24 patients who underwent breast reduction mammoplasty with the No vertical scar technique between June 2007 and January 2010. The age distribution of the patients ranged between 18 and 60 years with an average age of 34.6 years. The preoperative mean distance from supra-sternal notch to nipple was 32.7 cm (27– 43 cm). The preoperative mean distance from the nipple to infra-mammary fold was 18.9 cm. The average weight of breast tissue excised was 820 g per side (range = 480–1560 g).

In our series there were no major complications such as total necrosis of the nipple-areola complex or major skin flap necrosis. Two patients (8.3%) suffered from minor wound dehiscence of the infra-mammary wound. These minor dehiscence were managed with daily dressing and left to secondary healing and did not require resuturing or scar revision. There were no cases of partial areola necrosis.

The degree of patient satisfaction was recorded and the results were divided into 3 categories, not satisfied, satisfied and good result.

Table 1. The degree of patient satisfaction.

Degree of satisfaction	Not Satisfied	Satisfied	Good
Personal satisfaction with shape	1	9	14
Personal satisfaction with size	2	9	13
Satisfaction with scar appearance	1	8	15
Satisfaction with symmetry	2	10	12
Satisfaction with nipple position	—	4	20
Satisfaction with degree of ptosis	—	13	11
Relief of physical symptoms	—	9	15

DISCUSSION

The most important goals for reduction mammoplasty are to improve the uncomfortable symptoms of macromastia and to provide the best cosmetic result.

Once the uncomfortable symptoms have resolved, cosmetic complaints such as poor scars or asymmetries become the main factors in postoperative patient satisfaction. For this reason, many surgical techniques have been proposed to lessen the infra-areolar vertical scar in reduction mammoplasty.[4,6]

Unfortunately none of these have eliminated the vertical scar totally.

Recently, Yousif et al, reported a new approach that totally eliminated the vertical scar of mammoplasty. These authors primarily used the inferior pedicle technique.[16]

Later, Savaci reported a series of patients who successfully underwent reduction mammoplasty with the no-vertical-scar technique using a central pedicle.[15]

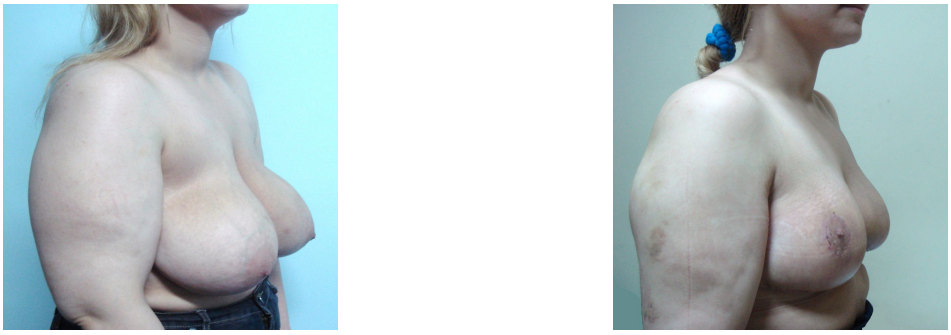
Lalonde et al. 7 years later published their experiences on no-vertical scar breast reduction in detail.[12]

Adopting the technique described by Lalonde in 2003 confirmed that it works especially well in breast reduction cases where large mass excision is required and where marked ptosis exists. This is extremely important in young girls with virginal hypertrophy. It can be performed rapidly and provides freedom in contouring the underlying breast. In addition, this allows us to reduce the size of the mass no matter how big it is, avoiding the use of a free nipple technique. When the general aesthetic success and the ratio of complications were evaluated, the no-vertical-scar technique was found to be just as successful as the T-scar technique, which is practiced widely.

The no-vertical-scar technique leaves no scars in the infra-areolar area thus gives the impression of a breast that has not undergone surgery because by eliminating the vertical scar the reduction procedure ends with a more unoperated look. With respect to the patient, this improves the degree of satisfaction in the postoperative period.[8] The only visible scar is around the areola. However, this scar is also much more invisible or unnoticeable than that in other reduction techniques. This is because there is no risk of destroying the circular feature of the areola, which is pulled inferiorly by the vertical scar in the other techniques.

So in conclusion the no-vertical-scar technique has the ability to eliminate the vertical scar in selected patients. The skin excess on the infra-mammary fold is rapidly incorporated, resulting in very satisfying aesthetic outcomes, especially in young girls suffering from virginal hypertrophy and are always happy with the unoperated look of this technique.

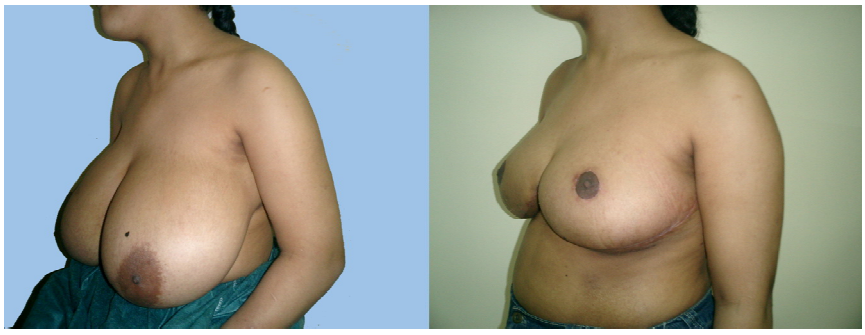
A



B

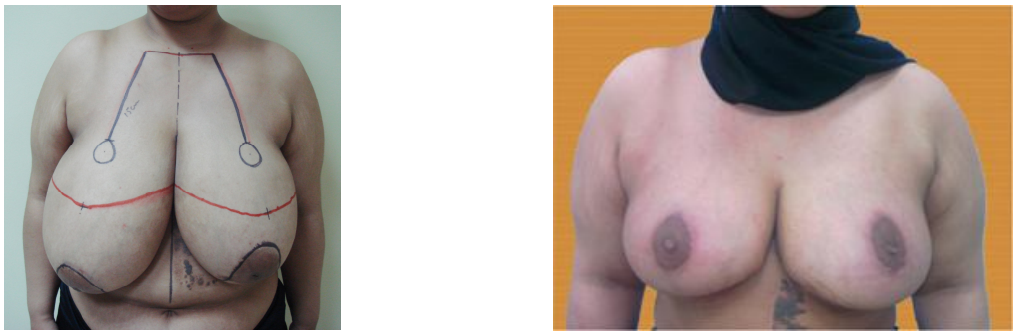
Fig 3. Front (a) and oblique (b) views of both pre and 3 months postoperative outcome of a 24 years old patient after no vertical scar inferior pedicle reduction

A

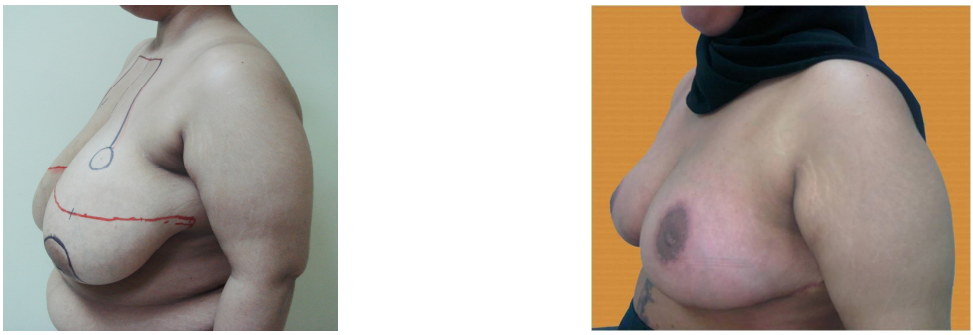


B

Fig 4. Front and oblique views of both pre and 6 months postoperative outcome of a 18 years old patient after no vertical scar inferior pedicle reduction.



A



B

Fig 5. Front (a) and oblique (b) views of both pre and 3 months postoperative outcome of a 34 years old patient after no vertical scar inferior pedicle reduction.

Clinical Cases

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