

## ORIGINAL ARTICLE

# MAXIMIZING AESTHETIC RESULTS IN HUGE BREAST REDUCTION USING THE INFERIOR PEDICLE TECHNIQUE

By

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**Aim:** *Inferior pedicle reduction mammoplasty technique is a reliable technique used in reduction mammoplasty. This technique includes a well-vascularised dermalparenchymal pedicle for safe nipple-areola transposition, but it has been criticised as resulting in a flat breast with inadequate projection after long-term follow-up.*

*Various techniques in which internal shaping of the pedicle are used have demonstrated decreased secondary ptosis.*

**Methods:** *We used internal shaping sutures for the inferior pedicle flap together with lateral and medial sutures hoping for long lasting aesthetic projection and narrow base for the reduced breast.*

**Results:** *Evaluation by review of the patient charts, photographic analysis and patient-satisfaction questionnaire has revealed acceptable long term results.*

**Conclusion:** *Inferior pedicle reduction mammoplasty technique with internal shaping sutures is an easy and uncomplicated modification that provides additional advantages for prevention of the secondary ptosis of the reduced breasts in the long term.*

**Keywords:** *Ptosis, mammoplasty, inferior pedicle.*

## INTRODUCTION

Breast reduction is one of the most challenging operations in plastic surgery as it should produce a beautiful, symmetrical, and durable result with minimal scarring. It is a say that it takes five years to learn how to operate a breast properly, and five more years for the other.<sup>(9)</sup>

Reduction mammoplasty has been performed utilizing various techniques so as to achieve reduction in breast volume and to enhance aesthetic shape.<sup>(2)</sup> The conventional inverted T-scar method is the most widely used technique in breast reduction given its predictability and versatility. Nonetheless, newer surgical techniques have been developed in order to optimize outcome while minimizing associated complications.<sup>(5)</sup> Pedicle types include inferior, central, superior, lateral, and bipedicle, all of which maintain the blood supply and innervations to the nipple

and areola complex.<sup>(1,4,7,11,15)</sup> Cosmetically acceptable placement of scars, although debated has also been emphasized through additional technical modifications including short scar periareolar inferior pedicle reduction mammoplasty (SPAIR), vertical mammoplasty without inframammary scar, or no vertical scar breast reduction.<sup>(6,8,9)</sup>

Inferior pedicle breast reduction techniques, as described by Courtiss and Goldwyn [4], and later by Robbins,<sup>(14)</sup> still are used by the majority of plastic surgeons in the United States and Australia. This technique is credited with a very low risk of nipple necrosis and arguably the best sensory outcome for the nipple.

It is applicable to all breast sizes, including gigantomastia.<sup>(13)</sup>

A common problem resulting from inferior pedicle reduction mammoplasty is the amorphous breast shape and inadequate breast projection. After resection of the medial, central, and lateral breast using the traditional inferior pedicle technique, the pedicle tends to be loose and mobile, lacking any significant form or shape. In such technique, the brassiere effect depends solely on the skin envelop that may not provide adequate long lasting projection.<sup>(3)</sup>

In our study, some modifications were applied to the classic inferior pedicle technique, that to start with gland shaping (gland first technique). Then using the concept of lateral and medial pillars closure so as to minimize skin flaps tension during closure, to reduce breast base, and to maintain long lasting aesthetic projection.

## PATIENTS AND METHODS

We conducted a retrospective chart review of 30 consecutive reduction mammoplasty females over a 4-years period performed by three surgeons (the authors) at a single institution (kasr el aini hospital). The first tracked patient had surgery in December of 2003, and the last patient had surgery in February of 2007 (which allowed 20 months of follow up for the last patient when the study ended in September of 2008).

**Surgical technique:** The patient is marked preoperatively in standing position. The breast meridian through the nipple, the infra-mammary fold, and the position of the nipple following reduction is marked. The standard Wise pattern is marked around the new nipple position. The inferior pedicle is de-epithelialized to within 2 to 3 cm of the inframammary fold, leaving the original inframammary fold undisturbed.

Then the breast tissue is excised medially, laterally, and superiorly. After developing the inferior pedicle, which usually measures 8 cm in width at the chest wall base, internal absorbable sutures are utilized to position and shape the pedicle. Using 3-0 Monocryl sutures, the medial and lateral dermal or fibroadenotic edges of the pedicle are secured to the pectoral fascia in a manner of 3 sutures each side shifting the flap medially to add medial fullness to the reduced breast. Cranial sutures may be added to suspend the flap in a supero-medial position. Finally, the pedicle stands up in its own much like a shaped breast implant. (Fig. 1).

The vertical fibroglandular lateral and medial pillars are then approximated crossing over the shaped pedicle using 3-0 Monocryl sutures (3 to 4 sutures are enough) (Fig. 2). The skin envelope is then draped over the shaped central breast mound requiring much less flap suture line tension than is traditionally seen in standard reduction mammoplasty. Symmetry is insured by evaluating the breast shape in upright position. Tension free closure of the

vertical and inframammary fold incision is achieved with 3-0 Monocryl sutures. The periareolar closure is performed with 4-0 Monocryl suture in a running fashion (Fig. 3). A number 18 F vacuum drain is placed in each side through the axilla. All incisions are dressed with Steristrips, and a light dressing is applied followed by a compression medical bra. Drains are usually removed on post-operative day 4 to 5.

**Post operative chart:** every patient had a chart including visits data, recorded complications either minor (hematoma, seroma, wound dehiscence, minor nipple or skin necrosis) or major (major nipple or skin necrosis). Preoperative and post operative photographs were included.

We used a questionnaire similar to those used in numerous studies to determine patient satisfaction and aesthetic results. All of the patients were asked to fill in the questionnaire during their follow-up period. Patients were asked whether they were satisfied with the results. Regarding the patients satisfaction after surgery, as reducing breast size (big, normal, small), breast shape and symmetry (very well, good, acceptable, poor), nipple-areola complex position (upper, normal, lower), nipple-areola complex sensory changes (sensitive, diminished, insensitive, painful) and postoperative scar formations (obvious, acceptable, not noticeable, perfect) were evaluated.

## RESULTS

We retrospectively reviewed the charts of 30 patients who underwent breast reduction mammoplasty with the above mentioned modification between the years 2004 and 2008.

The patient criteria are shown in Table 1.

**Table 1. Patient characteristics.**

Patient Data	Values
No. of patients	30
Age (yr)	32.6 ± 7.3
Weight (kg)	68.0 ± 7.6
Height (cm)	167.5 ± 3.2
Body mass index (BMI)	24.2 ± 2.6
Time of assessment (weeks postoperatively)	73.9 ± 16.6
Notch nipple distance (preoperatively) (cm)	36.5 ± 4.2
Notch nipple distance (postoperatively)(cm)	20.0 ± 1.2
Nipple fold distance (preoperative)(cm)	23 ± 3.5
Nipple fold distance (postoperative)(cm)	5 ± 0.6
Weight of breast tissue excised (gm)	906 ± 253
Smoking (no. of women)	9

In the series there were no major complications such as NAC total necrosis or major skin flap necrosis. Two patients (13%) suffered from minor complications. The type and the number of the minor complications are listed in Table 2. Most of the patients who suffered from minor complications had more than one complication. These minor complications were managed with daily dressing and left to secondary healing or resutured under local anesthesia. Three patients were re-operated on under local anesthesia for either scar revision or dog-ear excision.

Table 2. Minor complications seen in 4 of 30 patients.

Minor complications	Number
Hematoma-seroma	1
Wound dehiscence	1
Partial skin necrosis	2
Partial areola necrosis	1

All the patients who underwent the described modification were satisfied with their breast shape, size, symmetry and scar formation

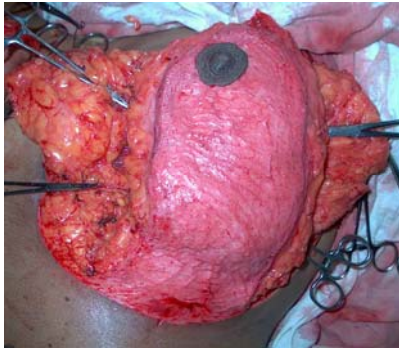


Fig 1. The formed breast mound by lateral and medial sutures.

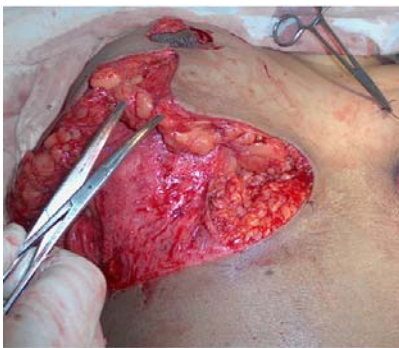


Fig 2. The plicated lateral and medial pillars.



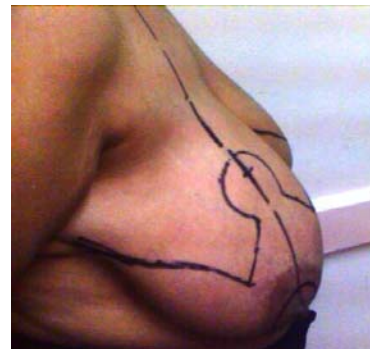
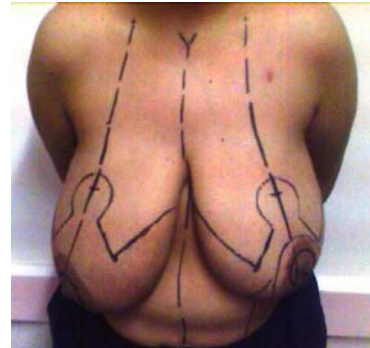
Fig 3. Tension free closure of the reduced breast.



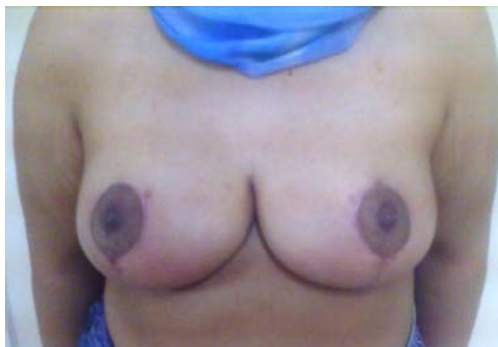
Fig 4a. Pre-operative photo of case 1, Lateral and AP views.



*Fig 4b. Postoperative photos case 1; lateral and AP views.*



*Fig 5a. Preoperative photos case 2; AP and lateral.*



*Fig 5b. Postoperative view case 2; AP and lateral views.*

## DISCUSSION

The original Wise pattern technique, which was the mainstay of breast reduction for a number of years, especially in North America, relied on the skin brassiere to maintain shape. This inevitably led to the all too familiar wide, non projecting, "bottomed out" appearance. We no longer rely on a skin brassiere to shape or maintain the shape of the breast. Our priority now is to reduce the breast parenchyma, shape the new breast tissue, and then manage the excess skin. Such a concept has improved breast shape, also yielded longer lasting results.<sup>(12)</sup>

The internal breast-shaping sutures are utilized to position the inferior pedicle, which forms the central breast mound of the reduced breast, onto the chest wall medially and laterally. By the time the absorbable sutures have dissolved, the lateral skin pocket has scarred to the chest wall, and the pedicle has scarred to its desired medial position. While the lateral to medial pillars sutures had many advantages; narrowing the breast base, facilitating skin closure without tension, and maintaining the vector of flap push upward hence maintaining long lasting breast projection.

The undisturbed dermis and breast tissue at and above the inframammary fold is believed to resist the stretching that the vertical scar in the T-scar reduction routinely undergoes. Also, the presence of an undisturbed inframammary fold is thought to be largely responsible for the prevention of pseudoptosis.

Mathes, Nahai, and Hester reported a technique of folding the inferior dermal breast flap and suturing it to the chest wall so as to increase the projection and to prevent latter flat breast appearance.<sup>(10)</sup>

Reus and Mathes showed that their suturing technique of the inferior pedicle to the chest wall still doesn't prevent long-term inferior migration of breast parenchyma. Similarly, the long-term benefits of pedicle-shaping remain uncertain, and the evaluation of long term results with controls will need to be performed to determine the effects of time and gravity on reduction mammoplasty using internal breast shaping sutures.<sup>(13)</sup>

Lalonde also described the use of breast shaping sutures to improve breast shape and projection in his no vertical scar technique.<sup>(8)</sup>

Chun et al., suggested the effect of formed scarring to maintain long-term shape compared to using skin-only shaping techniques.<sup>(3)</sup>

Our study hopes that the results of the described

modification will help maintaining breast shape, form, and projection.

**In conclusion:** The modified inferior pedicle reduction mammoplasty using authors modification; gland first closure, provides several advantages: (1) Long lasting aesthetic projection as achieved by suturing the pedicle to its ideal position. (2) Easy closure of the draped skin over the formed breast mound that prevent early wound dehiscence or later wound stretching and ugly scarring.

## REFERENCES

1. Balch CR. The central mound technique for reduction mammoplasty. *Plast Reconstr Surg.* 1981;67:305-11.
2. Ceydeli A, Gamboa M. Dermafascial fixation suture: a technique for a more durable projection with short-scar (vertical) reduction mammoplasty. *Aesthetic Plast Surg.* 2006;30:592-4.
3. Chun YS, Lalonde DH, May JW, Jr. Internal pedicle shaping to improve aesthetic results in reduction mammoplasty. *Plast Reconstr Surg.* 2007;119:1183-9.
4. Courtiss EH, Goldwyn RM. Reduction mammoplasty by the inferior pedicle technique. *Plast Reconstr Surg.* 1977;59:500-7.
5. Gorgu M, Ayhan M, Aytug Z, Aksungur E, Demirdover C. Maximizing breast projection with combined free nipple graft reduction mammoplasty and back-folded dermaglandular inferior pedicle. *Breast J.* 2007;13:226-32.
6. Hammond DC. Short scar periareolar inferior pedicle reduction (SPAIR) mammoplasty. *Plast Reconstr Surg.* 1999;103:890-901.
7. Hugo NE, McClellan RM. Reduction mammoplasty with a single superiorly based pedicle. *Plast Reconstr Surg.* 1979;63:230-4.
8. Lalonde DH, Lalonde j, French R. The no vertical scar breast reduction: a minor variation that allows you to remove vertical scar portion of the inferior pedicle wise pattern T scar. *Aesthetic Plast Surg.* 2003;27:335-344.
9. Lejour M. Vertical mammoplasty and liposuction of the breast. *Plast Reconstr Surg.* 1994;94:100-114
10. Mathes SJ, Nahai F, Hester TR. Avoiding the flat breast in reduction mammoplasty. *Plast Reconstr Surg.* 1980;66:63-70.
11. McKissock PK. Reduction mammoplasty with a vertical dermal flap. *Plast Reconstr Surg.* 1972;49:245-52.
12. Nahai F. The art of aesthetic surgery: principles and techniques. *Quality Medical Inc.* 2005;5:1837.

13. Reus WF, Mathes SJ. Preservation of projection after reduction mammoplasty: long term follow up of the inferior pedicle technique. *Plast Reconstr Surg.* 1988;82:644-52.
14. Robbins TH. A reduction mammoplasty with the areola and nipple based on an inferior dermal pedicle. *Plast Reconstr Surg.* 1977;59-64.
15. Strauch B, Elkowitz M, Baum T, Herman C. Superolateral pedicle for breast surgery: an operation for all reasons. *Plast Reconstr Surg.* 2005;115:1296-1277.