

Modifications of the Vertical Mammoplasty (Findlay's Technique)

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ABSTRACT

Background: Patients with enlarged breast and or breast ptosis suffer from both physical and emotional problems, such as neck, shoulder and back pain, shoulder strap grooving, eczema, itching, dark color skin of the infra-mammary fold (IMF), intertrigo, shame and reduced self-esteem [1-3]. Many techniques had been published over years for reduction mammoplasty with better aesthetic results and longstanding lifting of the breast. Vertical scar techniques were established by many authors, but over years still has not achieved acceptance by the surgeons as they are not convinced by the technique due to its limitations.

Methods: In this study we represent our experience in using medially based dermoglandular flap with vertical scar technique (Findlay's technique) with certain modification in the technique to augment the final shape and results. The technique was applied on patients with moderate to large breasts and small to moderate breasts with breast ptosis that need augmentation. This technique was presented by Findlay in 2002 and since that time, the authors started to use this technique but they were faced by different problems when applied on the Egyptian females, hence we started to apply the technique with the modification presented in the study in the last 3 years.

Results: The method presented with our modification in details, the superomedial pedicle was done as usual and at the end of the technique, careful de-fattening of 2 triangles in the lower pole of breast for closure in the form of small (T) to avoid the puckering at the end of the vertical line, advantages and disadvantages, early and late complications. Also the early and late results with the degree of patient's satisfaction have been discussed.

Conclusion: The modification of Findlay' technique presented in this study is suitable for moderate and large sized breast with all degrees of breast ptosis, good aesthetic results as regard (breast shape, projection, size, position of NAC) were achieved with good patient's satisfaction in both the early and late postoperative period with minimal complications.

INTRODUCTION

Patients with enlarged breast and or breast ptosis suffer from both physical and emotional problems, such as neck, shoulder, back pain, shoulder strap grooving, eczema, itching, dark color skin of the infra-mammary fold (IMF), intertrigo, shame and reduced self-esteem. Breast reduction

surgery is a safe and effective treatment for these symptoms: It restores both normal function and good aesthetic achievements with improvement of quality of life and self-esteem within a few months after surgery [1-3].

The vertical scar mammoplasty was first described by Passot in 1931, proposed by Lassus in 1970, and popularized by Lejour in the early 1990s [4], has not achieved widespread acceptance and many still view it as a technique with certain limitations. Numerous modifications have been made to improve the aesthetic and functional outcomes of the procedure. Nevertheless, complications are still relatively common and patients are often less satisfied when confronted with the final results.

One such modification of the technique is described by E. Hall-Findlay [5] which is done with no fascial suspension, depending on the lateral and medial pillars in contouring the breast, no skin undermining and with minimal liposuction.

Here the authors present their experience with Findlay's technique and the problems faced them using this technique (specifically puckering at the end of the vertical lines) and their modifications on the technique to overcome these problems.

PATIENTS AND METHODS

Between May 2010 and June 2013, a total of 33 patients underwent the medial dermoglandular pedicle with vertical scar technique (Findlay's technique [5]) with the author's modification. The age was ranging from 20-68 and the mean was 44.3 years, BMI was ranging from 20-30 and the mean was of 25.4, all patients were nonsmokers, with no history of co-morbid medical conditions, and no history of previous breast surgery.

Routine preoperative investigations were done to all patients with heamoglobin (Hb) around

11gm%, normal liver and renal function tests, preoperative breast ultrasound and mammogram were done in patients above 40 years.

Preoperative markings and planning:

All patients were marked in the standing position, at the beginning, certain landmarks must be determined primarily, supra-sternal notch (SSN), midline, mid-clavicular point, infra-mammary line, breast meridian, the distance of nipple and nipple areola complex (NAC) from SSN and its new position from SSN.

Pitanguy's maneuver was used to point the nipple position; the areola was positioned 2cm above the infra-mammary line (IML) in full upper pole breasts while at the level of IML in breasts with empty upper pole so as to accommodate for skin retraction after reduction to avoid a high placed areola. The areola opening is marked as usual in Findlay's technique, using a free hand design that result in a circle when it is closed, the circumference measures from 16 to 18cm to match an areola diameter of 4.5 to 5cm (Fig. 1).

The medial and lateral limbs are marked by rotating the breast respectively upward and inward and upward and outward, these lines meet in the meridian in a U shape, the point of meeting determined above IML by 4 to 6cm according to the desired amount to be excised, then, The superomedial pedicle was designed ranging from 8 to 10cm, and it is positioned one half of its base is in the areola opening and one half is along the vertical line.

After that, the authors draw a triangle on the side of the medial and lateral limbs just above the IML and on the sides of breast meridian, representing the areas removed in the inferior pedicle technique using wise pattern, those triangles are the areas expected to be evacuated surgically from its subcutaneous fat at the end of procedure (Fig. 2).

Details of the procedure:

All patients were done under general anesthesia, and prophylactic antibiotics were administered at induction. After anesthesia to place fine scratching of the marking was done to guard against removal of the markings then sterilization and taweling took place to start the procedure after that.

Creation of the pedicle:

De-epithelialization of the superomedial pedicle was done primarily using a no 15 blade, and then creation of the pedicle was done by using the electro-cautery to cut the tissues vertically down to the chest wall without undermining of the pedicle.

Tissue resection:

Breast tissue excised by cautery in a beveled way directed outward either in the lateral or medial limbs, in the superior part of the breast, the amount excised was not too much just enough to inset the pedicle easily.

Care was taken not thin out the medial and lateral pillars less than 2cm in order to be thick enough to hold the stitches and support the pedicle in its position. Then, the pedicle inseting was done in its new position using monocryl 2/0 stitches, after that gathering the medial and lateral pillars together took place with monocryl 2/0 stitches with supporting the pedicle upward by the fingers to put the stitches starting the base of the pillars.

In the Findlay's technique liposuction was used to thin the skin flaps and to achieve a better definition of IMF but in the authors' modification, thinning was done using scissors or cautery aiming to enhance dermal collagen retraction to help future retraction of the skin giving a better IML, thinning of the triangles planned primarily was done on each side in order to define IMF and facilitate the closure of the skin, then minimal skin excision was done toward the meridian of the breast, then closure took place steeling the skin toward the meridian which resulted in closure as inverted T pattern but with a very short horizontal limb not more than 6cm.

In cases of patients with breast ptosis seeking mastopexy augmentation, the authors used the lower part of the breast as a flap either centrally or laterally based to be buried under the pedicle to augment the breast and make the upper pole fullness of the breast (Fig. 2).

Finally, portovac drains were routinely used and brought out through separate stab incision and fixed to the skin. These were removed within 1 or 2 days depending on drainage, and patients were discharged to home. Skin was sutured by monocryl 3/0 stitches in a buried intradermal manner either in the vertical horizontal limbs or the NAC.

Dressings:

Breast was dressed using micropore plaster or steristrips for all the incision, then application of suitable fitting bra to support the breast.

Postoperative care:

Routinely, all patients took postoperative treatment in the form of antibiotics, anti-inflammatory, analgesics and tonics support. Usually, the patient was discharged after one or two days not more

than that, the first follow-up visit after 5 days, a week then 2 weeks, then, regular visits every one month till 6 months and then after the completion of 1 year, and all patients were advised to wear a supporting bra for 24 hours for 6 weeks.

Postoperative evaluation:

All patients were assessed clinically after 3 and 6 months for aesthetic results by photography. Objective aesthetic evaluation was performed by using the grading system as described by Strasser's [6] grading for scoring of the postoperative photographs and the photographs made at the long-term follow-up.

Scoring was performed by three plastic surgeons; criteria used were malposition, distortion, asymmetry, contour deformity and scars (perfect = 0 points, noticeable = 1 point, obvious = 5 points

and obvious and deforming = 15 points). The total score equals the sum of the scores for each of the five points. A total score of zero points represents an excellent result, a score from 1 to 4 points a good result and a score from 5 to 14 points a mediocre result. A total score of 15 points or higher is considered to be a poor result [6].

RESULTS

The surgical time was ranging from 120-180 minutes, depending on whether the size of the breasts were moderate or large, the amount of reductions was ranging between 500 to 800gm up to 1000gm per side were successfully achieved, with satisfactory postoperative healing and final breast shape. None of the patients received blood transfusion either intraoperative or in the postoperative period (Figs. 3-5).

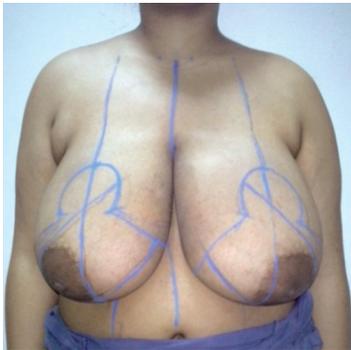


Fig. (1): A photo showing the preoperative marking.

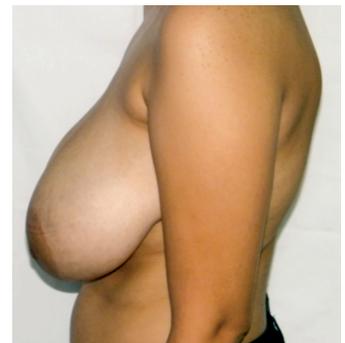


Fig. (2-A): Photo to the left, shows the triangles before defatting and excision.



Fig. (2-B): Photo to the right, shows the final result after defatting and skin excision.

Fig. (3):
Preoperative photos:



Postoperative photos:



Fig. (4):
Preoperative photos:



Postoperative photos:

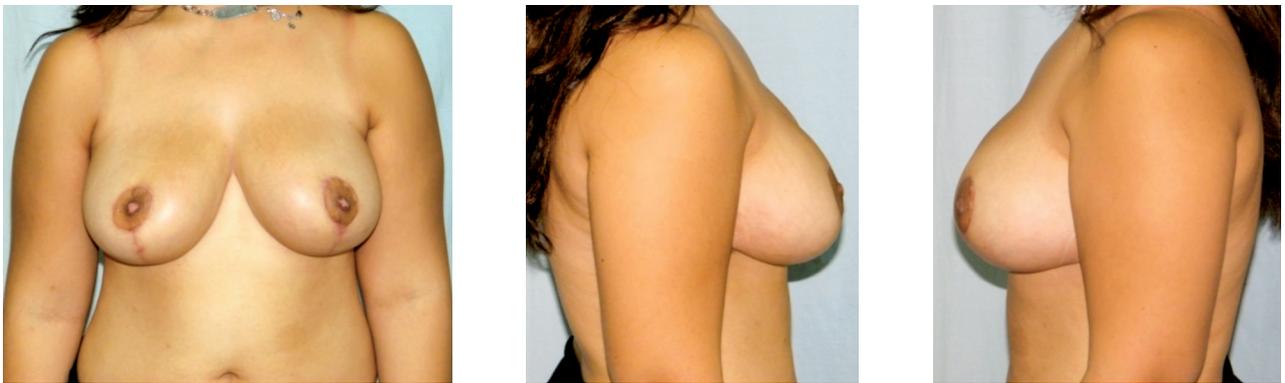
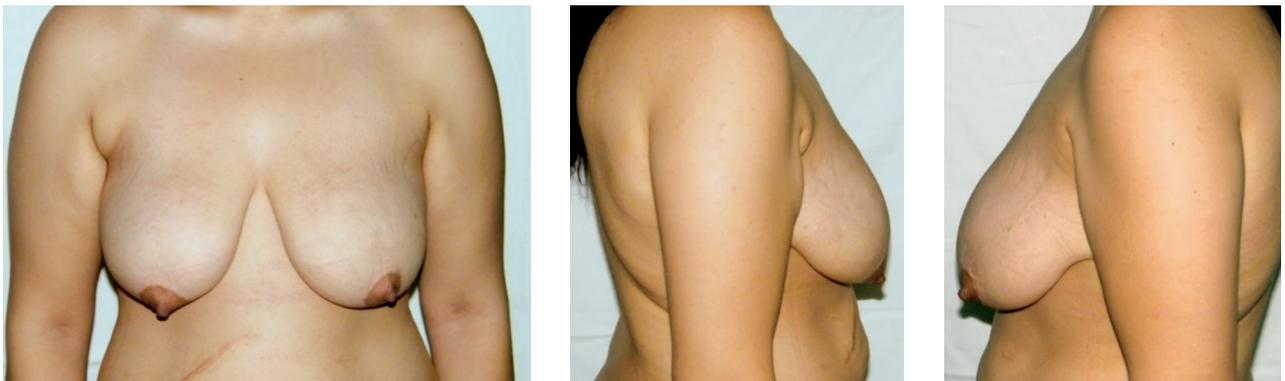
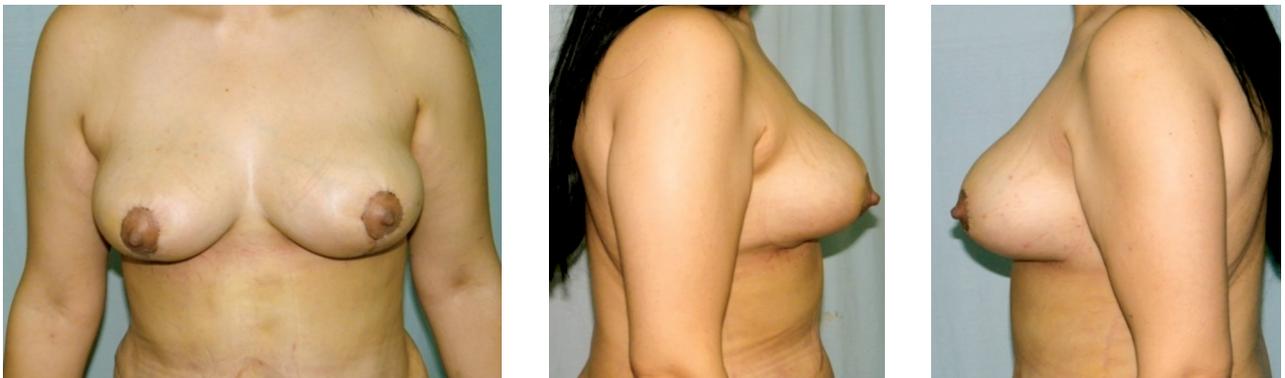


Fig. (5):
Preoperative photos:



Postoperative photos:



The postoperative course for most of the patients passed uneventful except for some patients as regard early and late complications, the mean time for discharging the patients was 2 days (range: 1-4), follow-up was up to 1 year.

Thirty three patients could be scored by the grading scale according to Strasser score:

At 3 months: The result was "good" in twenty patients (60.6%), while in 9 patients the result was "mediocre" (27.27%) and in 4 patients (12.12%) the result was "poor".

After 6 months: Good result in 27 of the patients (81.81%), "mediocre" in 4 patients (12.12%), and 'poor' result obtained in 2 patients (6%) (Table 1).

Table (1): Subjective assessment of the aesthetic results by 3 independent plastic surgeons using Strasser's grading.

Grade	3 months follow-up	6 months follow-up
Excellent (0 points)	0	0
Good (1-4 points)	20 pt (60.6%)	27 pt (81.81%)
Mediocre (5-14 points)	9 pt (27.27%)	4 pt (12.12%)
Poor (>15 points)	4 pt (12.12%)	2 pt (6%)

pt: Patients.

The Strasser's scores were significantly better at the long term follow-up as compared to 3-months follow-up.

Complications:

Early complications: There was no hematoma, seroma or infection, no NAC complications (nipple areola necrosis or sloughing).

In three patients (9%), there were wound disruption in the junction between the vertical and horizontal limb (at the junction of inverted T) which treated conservatively by daily dressing without need for surgical intervention.

Late complications: One patient (3%) suffered from high position of NAC, another one (3%) had wound widening in the vertical limb.

DISCUSSION

Reduction mammoplasty is one of the most frequently performed plastic surgery operations. The goals of the procedure is to transferee the NAC to its previously anatomic position safely with proper reduction of breast to give the patient an aesthetically pleasing breasts with proper size and long lasting results, in addition to preservation of the nipple-areola complex's sensibility [4].

The reliability and safety of the superomedial dermoglandular pedicle in breast reduction is well documented and established [7]. As opposed to an inferior pedicle, it preserves the medial and central breast tissue in continuity and contributes towards esthetically pleasing medial fullness. Its safety with different patterns of skin excision has also been established making it a safe versatile, quick, and effective way of achieving breast reduction [7].

The Hall-Findlay's technique for breast reduction is very reliable and consistently produces good results and high patient satisfaction rate. Additional advantages have been a shorter operative and recovery time, narrower width of the breast, a good breast shape, and a better projection.

But when practicing Findlay' technique, the authors faced certain problem which was the puckering in the end of the vertical scar, and despite of performing evacuation of this part to become adherent at the level of IMF and steeling of this puckering as in the original technique, still persisted for at least 3 months and in many patient did not resolve, the patients did not accept the end result and the idea of performing additional surgery to correct this puckering was unacceptable by many patients. So, the authors started to think that if they could do the transverse excision in the primary session that will results in a better and early satisfaction for the patients and better cosmetic results.

This excision was done after careful and proper defattening of 2 triangles on each side of the breast meridian in the lower part of the vertical line near the infra-mammary line, then followed by limited excision of the skin, that will results in a very short scar beneath the breast (about 5cm long not exceeding 8cm in large breasts) not reaching either the midline or anterior axillary line.

Defattening was done in the whole lower pole of the breast just above IMF and along its length (12-14cm) which lead to pliable skin especially on either side of the breast meridian that facilitate

limited excision of the skin on either side of the breast meridian. This procedure resulted in short transverse scar at the level of IMF (5-8cm), on contrary to Findlay's technique, liposuction of the lower pole is done with puckering of the lower end of the vertical line, puckering was so irritating for the patients, short transverse scar much preferable and accepted by the patients. Also, this procedure resulted in some shorting of the vertical scar and smooth contouring of the breast.

The authors used superomedial technique in ptotic breast as a mastopexy procedure, in those patients with small ptotic breasts, the authors preserved the lower part of breast parenchyma (which planned to excised) as augmenting tissues to give the breast a satisfactory volume and shape, this part either based laterally opposite to the pedicle base or centrally based.

In cases of asymmetric breast and different NAC levels, the authors noticed that retraction of NAC to higher level, so different NAC levels persist. The authors avoided this problem by placing the NAC in the higher side 1cm lower than the other side as with time and retraction of NAC to a higher level, the NAC became at the same level and symmetric breasts.

The complication rate in Findlay's technique was low and the main problem faced the author was healing problem, also, in the current technique, only 3 out of 33 patients suffered of dehiscence of suture line in the junction of the vertical and horizontal limb, none of the patients experienced major complications as seroma, infection, hematoma or blood transfusion either intraoperative or postoperative, also, there was no NAC related complications either partial or complete loss and this was due to careful dissection of the pedicle and avoidance of undermining.

As regard the satisfaction rate, in 1998, Godwin et al., [8] were the first to perform a long-term evaluation (mean follow-up time of 79 weeks) of three different types of breast reduction techniques in 34 patients which was focused on both patient satisfaction and aesthetic outcome. They reported that 79% of their patients showed excellent or good results regarding patients' opinion versus 42% regarding consultant opinion. In 2001, Chalekson et al., [9] reported long-term (mean follow-up time 4.7 years) results of 17 patients with the modified Robertson (no-vertical-scar) technique. They achieved a high patient satisfactory rate with 94% of the patients being very satisfied or satisfied. The

aesthetic result, as evaluated by plastic surgeons was excellent or good in 79% of the patients. In 2005, Hosnuter et al., [10] reported an excellent to good general aesthetic appearance in over 96% of 53 patients who had either a McKissock procedure or a no-vertical-scar procedure, as rated by physicians and students at a mean follow-up term of 73.9-76.7 weeks, Bouwer et al., 2012 [11], they reported good satisfaction rate of 80% of their patients, in the current technique especially in the long term follow up (more than 6 months), aesthetic satisfaction was good in 81.81% of patients and by comparison to other literature it was one of the high satisfaction rate.

Finally, Hall-Findlay [5] reported that the rate of revision procedures in her technique was 7% due to puckering and dog ears, fortunately here, the authors did not need any revision procedures or additional surgical intervention.

Conclusion:

In conclusion, among numerous techniques of reduction mammoplasty the authors present a simple, reliable and safe modification of the superomedial reduction technique, which is easy to perform and produce aesthetically pleasant breasts with minimal complication and long term results.

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