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Application of Vertical Bipedicle Flap Technique in Reduction Mammaplasty of Patients with Gigantomastia and Severe Ptosis

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ABSTRACT

Gigantomastia is a rare, psychologically and physically disabling condition characterized by excessive breast growth (requires reduction of over 1500g per breast). It has traditionally been approached with breast amputation and free nipple graft. Disadvantages of free nipple grafts include loss of lactation, loss of sensation, poor projection, and uneven nipple-areolar complex pigmentation. Eighteen patients with gigantomastia and severe ptosis were operated upon them through the vertical bipedicle flap technique at Al Zahraa University Hospital and Al Hussien University Hospital (Al Azhar University) between 2010 and 2013. Patients were followed-up monthly for 1 year postoperatively. The technique, the results and complications will be presented and discussed.

INTRODUCTION

Breast hypertrophy is a benign progressive enlargement, which can occur in either breast or only in one breast. Gigantomastia is a rare medical condition in which, the breast weight exceeds approximately 3% of the total body weight **[1]**. Some resources distinguish between macromastia, where excessive tissue is less than 2.5kg, and gigantomastia, where excessive tissue is more than 2.5kg **[2]**. Hypertrophy of the breast tissues might be caused by increased sensitivity to the female hormones prolactin, estrogen, and progesterone; or an abnormally elevated hormone(s) level in the blood, or both **[3]**. The patient with gigantomastia is suffering from: Headaches, Neck pain, upper and lower back pain, Numbness or tingling in the fingers; Bra straps also can cause grooving and permanent scars in the shoulders, severe rashes beneath the breast and limitation of social activity **[4]**. Traditionally, many plastic surgeons believe that pedicle techniques should not be used when planning excision of more than 1.5kg of tissue per breast, as the complication rates are higher, and the free nipple graft technique is recommended in such cases **[5]**. In the present study, we recruited the vertical bipedicle flap technique with some modifications to reduce the huge size breasts in eighteen patients with concern to improve symptomatology and obtaining better breast shape.

PATIENTS AND METHODS

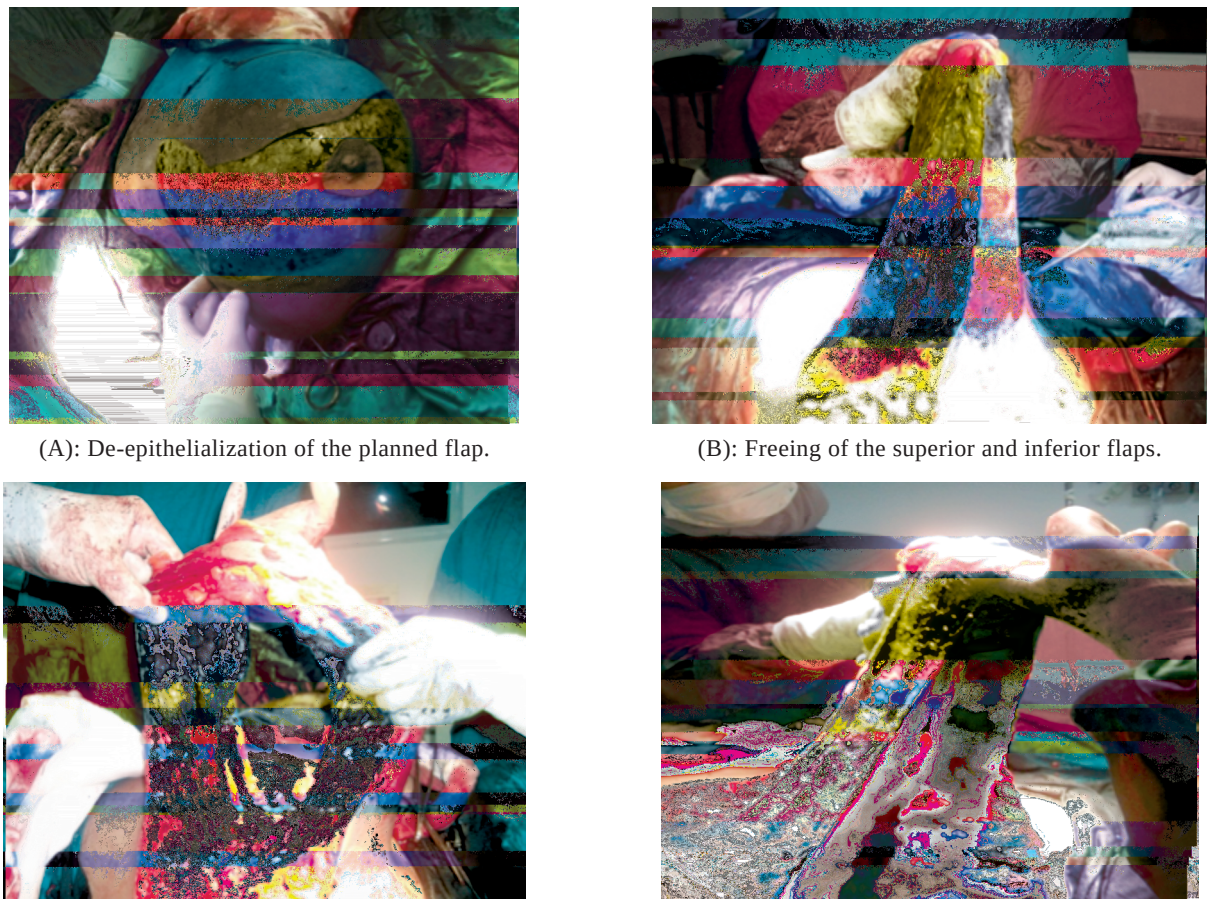
Between 2010 and 2013, eighteen patients with gigantic breasts and severe ptosis underwent reduction mammaplasty using the vertical bipedicle technique at Al Zahraa University Hospital and Al Hussien University Hospital. Their ages ranged from 21 to 45 years. All patients under the study were healthy and non-smokers. All cases offered a preoperative clinical examination, routine laboratory investigations, detailed measurements and digital photographic documentation. Physical examination confirms the diagnosis of gigantic breast and attempts to rule out the possibility of breast masses. Soft tissue mammography was done for 6 cases above the age of 35 years and ultrasonic breast examination was done for the rest of patients under the ages of 35 years. The distance from the sternal notch to the nipple was recorded. It was between 45-55cm. The site of the nipple-areola complex (NAC) was noted at the level of the umbilicus or below it by about 10cm in all cases.

Preoperative markings:

It was performed with the patient in the standing position. Each midline and breast meridian were marked. The inframammary line was determined and then transposed to the anterior surface of the breast. The new nipple position was marked one inch below the level of the transposed inframammary line, as usually the breasts are huge and severely ptotic. It is about 21-23cm from the su-

prasternal notch and midclavicular point. The areola is marked using the areola template with a diameter 4.5-5cm. The proposed vertical bipedicle flap was outlined from the new nipple site through two vertical lines drawn downward with a distance 8-11cm and ended at the inframammary fold. The proposed superior and inferior flaps were outlined with the base of the upper one was 8-10cm and the lower one was 9-11cm. The key hole wise pattern was marked with the length of each limb about 8-10cm and the angle was modified according to the breast size as shown in Fig (1).

Fig. (1): Preoperative marking of 42 year patient with gigantomastia and Severe ptosis. NAC to supra sternal notch is 49cm.



(A): De-epithelialization of the planned flap.

(B): Freeing of the superior and inferior flaps.

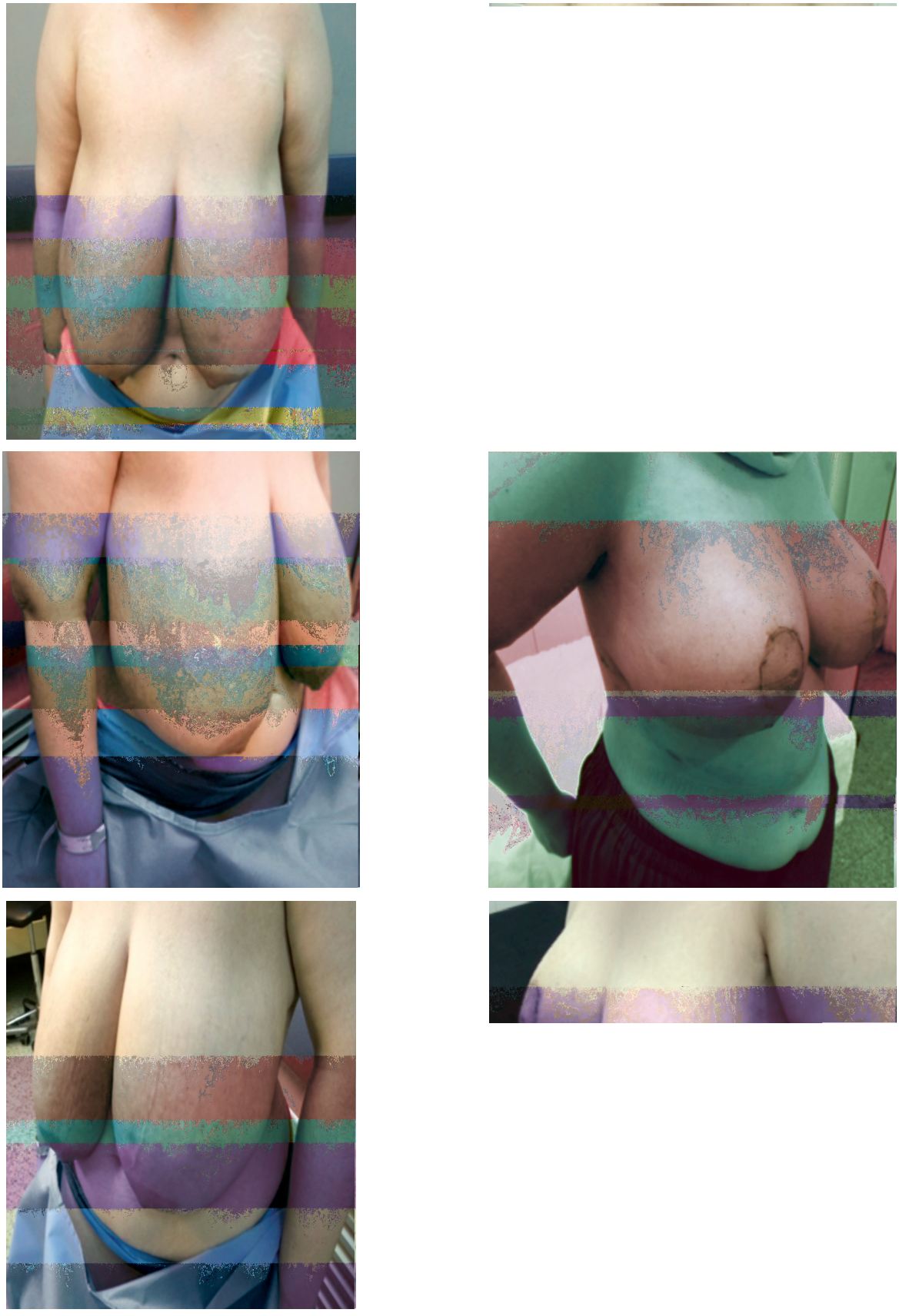
(C): Hole creation between the two flaps.

(D): Viability of the NAC before pedicle folding

Fig. (2): Intraoperative view of the vertical bipedicle flap technique.

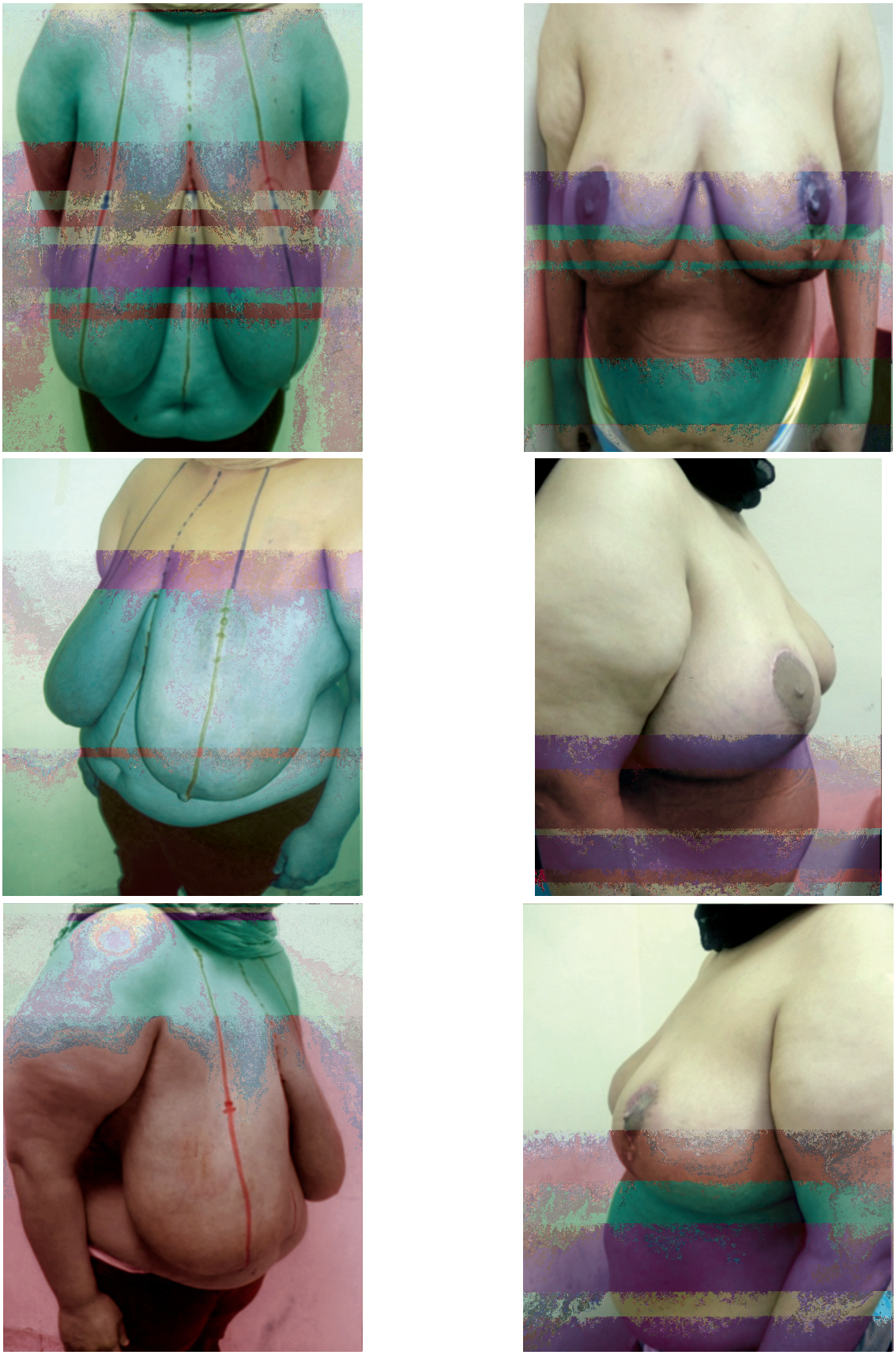
Operative technique:

With the patient in the supine position, the patient was widely prepped and draped. The skin of the pedicle was subsequently de-epithelialized (Fig. 2-A). The medial and lateral borders of the pedicle were incised at both ends down to the pectoral fascia, with caution to avoid undermining the pedicle. The inframammary fold was incised medially and laterally from the base of the inferior pedicle. The adipocutaneous flaps was then elevated off the chest wall medially and laterally. A layer of adipose tissue is maintained on the pectoral fascia in an attempt to preserve nerve supply. The vertical flap is freed out from the adjacent tissue (Fig. 2-B). A hole was done in the center of the flap leaving about 3-5cm thick flap and about 3cm adipofascial tissue connecting the superior and inferior flap at the pectoral fascia (mesentry of the breast) was preserved (Fig. 2-C). Viability of the NAC was reassessed before pedicle folding inside the newly tailored skin envelope (Fig. 2-D). The



(A): Preoperative front, right lateral, and left lateral views. **(B):** Postoperative front, right lateral, and left lateral views.

Fig. (3): Vertical bipedicle mammaplasty of 32 year patient with gigantomastia and severe ptosis. NAC to supra sternal notch is 55cm.



(A): Preoperative front, left lateral, and right lateral views **(B):** Postoperative front, left lateral, and right lateral views.

Fig. (4): Vertical bipedicle mammaplasty of 42 years patient with gigantomastia and severe ptosis. NAC to supra sternal notch is 49cm.

DISCUSSION

Maybe no other plastic surgical procedure has been studied as strictly as reduction mammaplasty regarding patient outcomes. More than 30 studies have demonstrated that breast reduction results in significant improvement in a lot of patient macromastia or gigantomastia-related symptoms and other macromastia or gigantomastia-related quality of life factors **[6]**.

The goals of reduction mammaplasty include minimizing scars, stabilizing results, achieving good projection of the reshaped breasts, minimizing complications and ensuring blood supply and innervations to the nipple-areola complex. Many reduction mammaplasty techniques can produce a good result but few make it possible to prevent secondary ptosis and obtain an excellent projection of the assembled breasts.

Presently the inferior pedicle technique is quite popular, and it is still used for relieving breast hypertrophy and ptosis but has the disadvantages of flattened upper quadrants, disturbed sensation of the nipple areola complex and breast bottoming out. However, a substantial number of plastic surgeons still perform the McKissock technique because they believe that it is superior to the inferior pedicle technique in terms of aesthetic results and complication rates **[7]**. Traditionally, many plastic surgeons believe that pedicle techniques should not be used when planning excision of more than 1.5kg of tissue per breast, because the complication rate is higher, particularly ischemia of the NAC. Rather, the free nipple graft technique is recommended for large-volume reductions as being safer and having lower morbidity. Free NAC has the advantage of rapid operative time and little blood loss but, unfortunately, leads to; loss of sensation, nipple-areolar complex pigmentation, loss of lactation, a flat breast with poor projection, which is aesthetically unpleasing. Free nipple grafting today is reserved for specific indications. These include older, high-risk patients with expected resection of more than 2kg per breast **[8]**.

McKissock, adapted the bipedicle principle expounded by Strombeck has remained popular and has stood the test of time **[9,10]**. Its major advantages are that it has a safe blood supply to the NAC and that it retains tissue in the most needed portion of the breast superiorly and allows for removal of a large portion of the tissue in the heavier part of the breast inferiorly **[11]**. Complications after breast reduction usually result from errors in judgment, planning, or technique. Complication rates are directly correlated with the amount of tissue resected and the distance of transposition of nipple and areola complex. A complication rate is recorded in 0.5% with reduction of 250gm and rose to 15% with reduction of greater than 1000gm **[12]**.

We had applied the vertical bipedicle flap for those patients of gigantic breast with severe ptosis. The base of the superior and inferior flaps is much wider and preserving a continuity of pectoral adipofascial considerable layer between the superior and inferior pedicles contribute to the increased viability of the nipple-areolar complex.

Conclusion:

The vertical pedicle technique can be successfully performed in patients of gigantic breast with severe ptosis. Serving a wider pedicle base and meticulous handling of the pedicle with preservation of continuity of pectoral fascia between the superior and inferior pedicles contribute to the increased viability of the nipple-areolar complex during these patients.

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