

An Effective Technique for Upper Pole Fullness during Mastopexy

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ABSTRACT

Introduction: Mastopexy should correct all pathological components of breast ptosis. Recently, mastopexy patients seek for upper pole fullness of the breast.

Patients and Methods: Corrective mastopexies procedure were done for 22 patients with grade II and III breast ptosis. Redistribution of the dermoglandular tissues is used to correct breast ptosis. Additionally, an inferior pole dermo-glandular flap is used to enhance upper pole fullness of the breast.

Results: Durable breasts upper pole fullness were achieved. All patients showed high satisfaction.

Conclusion: Using the inferior dermo-glandular flap during mastopexy gives durable highly satisfactory results.

Key Words: Breast ptosis – Mastopexy – Upper pole breast fullness.

INTRODUCTION

The ideal mastopexy technique should address all pathological components of breast ptosis including displacement of the nipple and/or the breast parenchyma caudally with subsequent upper pole emptiness, stretched weak skin, and weak suspensory ligaments and fasciae. Regnault classified different breast ptosis in grades (Table 1) [1].

Although the diversity of Mastopexy techniques, no single technique can manage all grades of breast ptosis. Mastopexy should include cephalic transposition for the nipple areola complex (NAC) and/or breast parenchyma. On the other hand, patients demand minimal scarring, aesthetically pleasing breast, and no recurrence (bottoming out). Moreover, upper pole fullness became a common request for breast ptosis patients.

Mastopexy techniques can be classified into inverted T, periareolar, circumvertical, and vertical techniques. Some techniques rely on the skin brassiere, while others rely on parenchymal rearrangement. It is a matter of fact that, breast parenchymal rearrangement mastopexies result in more durable aesthetic outcome with less scars. Never-

theless, many techniques failed to produce long lasting upper pole fullness [2].

In 1995, Daniel et al., approach was the first to present effective method for enhancement of the mastopexy aesthetic outcome. The author presented burying an inferior pole parenchymal flap under a tunnel of pectoralis major muscle sling. This technique increases breast projection and produces long lasting upper pole fullness [3].

In our study, the authors used the extended medial pedicle with an inferior pole dermoglandular flap, as a mastopexy auto-augmentation technique for different grades of breast ptosis. The results showed durable aesthetically pleasing breast, enhanced central projection and upper pole fullness. Parenchymal excisions were done only in cases with associated breast hypertrophy or breast asymmetry. No or minimal parenchymal excision obviated the need for breast implants with their subsequent complications.

Table (1): Grades of breast ptosis according to regnault classification [1].

Grade of ptosis	Description
Grade I minor ptosis	Nipple at level of inframammary fold, above lower contour of gland.
Grade II moderate ptosis	Nipple below level of inframammary fold, above lower contour of gland.
Grade III Sever ptosis	Nipple below level of inframammary fold, at lower contour of gland.
Pseudoptosis (Glandular ptosis)	Nipple above the IMF with breast tissue hanging below the fold.

PATIENTS AND METHODS

Twenty-two patients (44 breasts) underwent mastopexy auto-augmentation during the period between 2010 until 2015. Sixteen patients with

grade II ptosis and 6 patients with grade III. Their age ranged from 24-56 years with mean age \approx 48 years). All patients signed informative consent clarifying surgical plan, expected scars, and possible complications as disruption, infection, seroma, hematoma, and disturbances in nipple areola complex (NAC) sensation and/or vascularity. Also, separate consent for pre and post-operative photography was signed by all patients.

Preoperative marking:

With the patient in upright position, the mid line is marked from the suprasternal notch to the anterior abdominal wall. The inframammary folds (IMF) are marked bilaterally. Both breasts meridians are marked from the mid clavicular point to the IMF. The new nipple is marked 2cm above the forward finger projection through the lowest point of the IMF, the new nipple level is double-checked through other methods as the mid humeral level, or it is drawn 22 to 25cm from the suprasternal notch. Usually the new nipple marks the upper edge of the NAC and it is located 10-12cm from mid-line. A domed ellipse is drawn, where the dome is 16cm length planning to surround NAC of 40mm (\pm 2mm) diameter. Lateral and medial margins of the lower part of the ellipse are determined through pinch test; that estimates the amount of skin tightening needed. Lower end of the ellipse should be 2-4cm above the IMF. Medial or superiomedial pedicle is marked with 8 to 10cm base medially with lateral extension till the ellipse lateral margin. Skin of the NAC carrying pedicle (medial pedicle) is shaded for de-epithelialization. The upper pole and lower pole are shaded for de-epithelialization and/or excision if needed.

Operative technique (Figs. 1,2):

Under general anesthesia, all areas of de-epithelialization are infiltrated with (1/500000) adrenaline solution using spinal needle 14 (gauge), planes of surgical cuts are also infiltrated with same solution. Intradermal infiltration of this solution to the de-epithelialization areas hydrostatically facilitate the de-epithelialization step with minimal blood loss.

The medial or superiomedial pedicle is dissected. The inferior pole triangular flap is raised in island fashion based on the perforators of at least 2 intercostal spaces. Usually the anteriomedial perforators of the intercostal vascular system are carried through the breast fascial septum. Free mobilization of the inferior pole flap is ensured and the flap is passed upwards under the NAC area. Hemostasis is revised follow and a suction drain is inserted.

The lower pole flap de-epithelialized dermis is suspended to the pectoral fascia with 2/0 poligle-caprone 25 suture (MONOCRYL®, Ethicon). The upper pole flap is incised and tucked in as a platform for NAC carrying pedicle. The NAC transposition is followed with closure of vertical pillars. Skin closure, wound dressing, wearing of bra are done and the patient is transferred to the recovery room in semi sitting position. The drain is removed second day post-operative after checking nipple areola viability and exclusion of breast collections. The patients are discharged on broad-spectrum antibiotic and proper analgesics.

RESULTS

Three patient had mastopexy only without parenchymal excision (Fig. 3). Thirteen patients needed one side parenchymal excision to manage breast asymmetry associated with the ptosis, parenchymal excision mean was \approx 200 gm (Fig. 4). Six patients had bilateral parenchymal excision for the breast hypertrophy presented with ptosis, the excision ranged from 200 up to 400 gm (mean \approx 340 gm) (Fig. 5).

No major complications were recorded during the follow up period that dictated secondary procedure for management. Nine % was incidence of minor complication that were managed conservatively. Two patients presented with hematoma in one breast, both cases were managed conservatively. One patient had delayed wound healing at the junctional area between the NAC and vertical scar; that was managed by dressings only. One case showed bilateral depressed at the inferior part of the vertical scar, the condition resolved spontaneously in 8 weeks (Table 2).

The follow-up period ranged from 3 to 18 months (mean \approx 9 months). Fifteen days post-operative, we started scar management protocol. The patients and the medical staff evaluated the aesthetic outcome through rating system started from 0 as the worst to 10 as the best result. The used form comment on the overall result, upper pole fullness, breast projection, bilateral symmetry, and scars. Both patients and medical staff evaluations showed excellent results (Table 3).

Conclusion:

This new technique can be used successfully in management of moderate to sever grades of breast ptosis, with durable enhancement of upper pole fullness. The extended medial pedicle hand in hand with lower pole dermoglandular flap, synergistically enhance the upper pole fullness during mastopexy auto-augmentation.

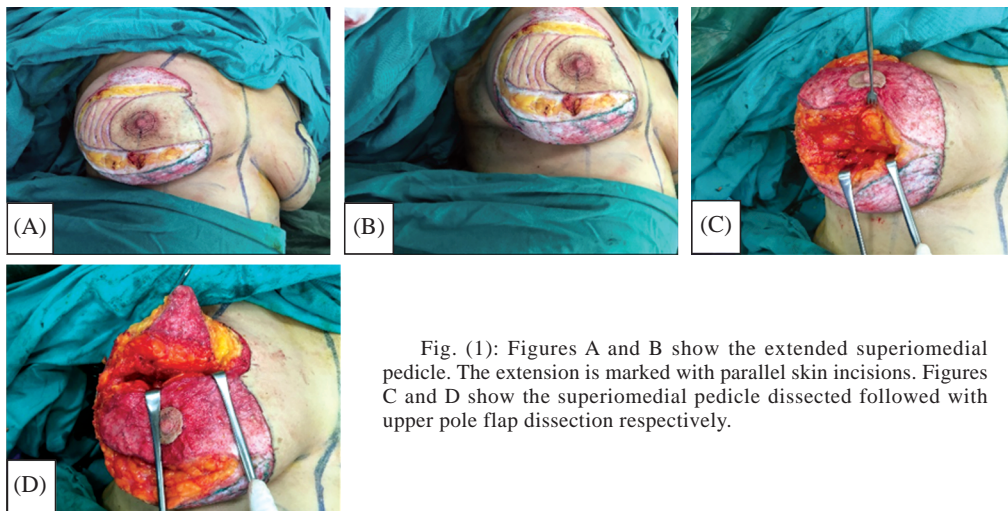


Fig. (1): Figures A and B show the extended superiomedial pedicle. The extension is marked with parallel skin incisions. Figures C and D show the superiomedial pedicle dissected followed with upper pole flap dissection respectively.

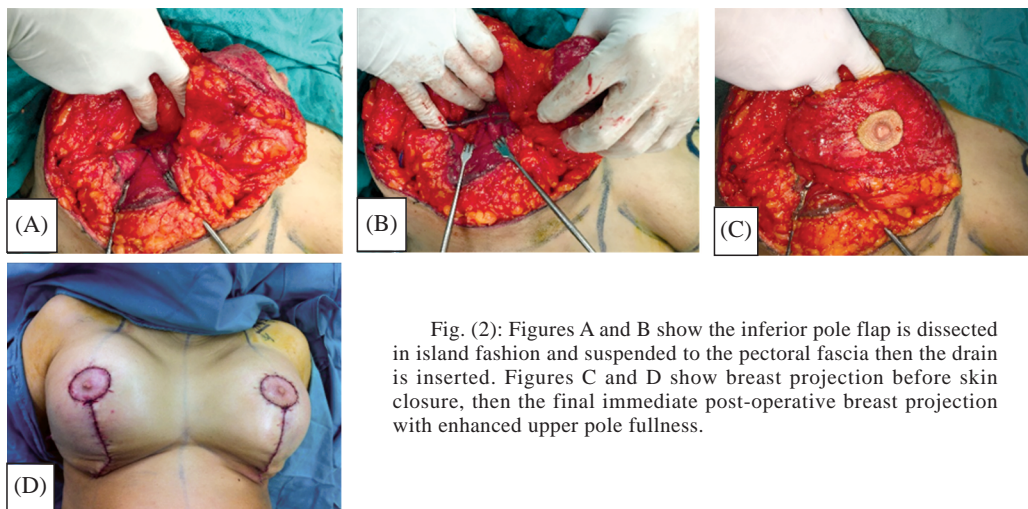


Fig. (2): Figures A and B show the inferior pole flap is dissected in island fashion and suspended to the pectoral fascia then the drain is inserted. Figures C and D show breast projection before skin closure, then the final immediate post-operative breast projection with enhanced upper pole fullness.

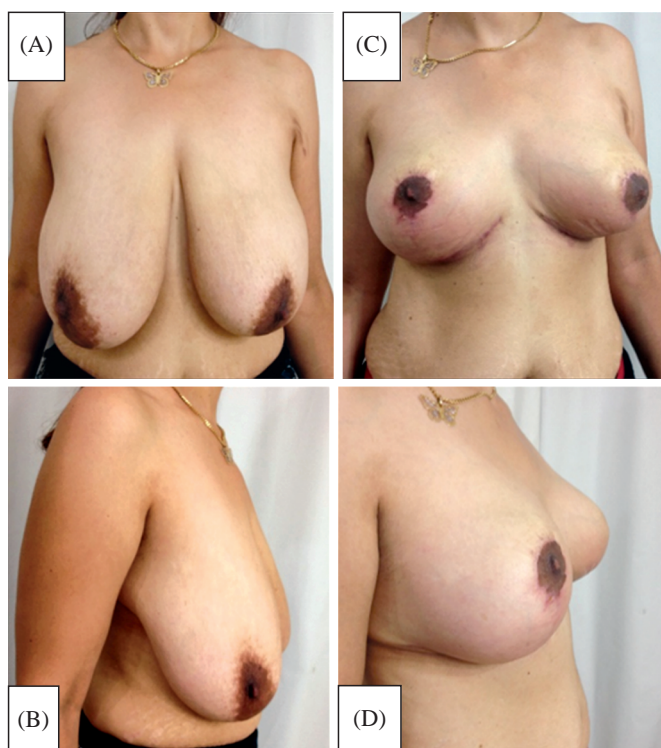


Fig. (3): (A) Frontal breast view showing breast ptosis. (B) Lateral breast view showing severe upper pole emptiness. (C & D) 1-year post-operative photos showing correction of breast ptosis and durable upper pole fullness.

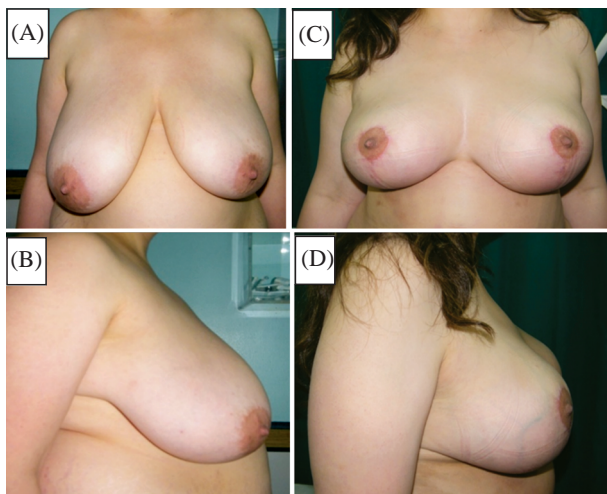


Fig. (4): (A) Frontal breast view, showing grade II breast ptosis with associated breast asymmetry. (B) Lateral breast view of breast, showing upper pole emptiness. (C & D) Six months post-operative showing correction of breast ptosis and asymmetry, and enhanced breast projection and upper pole fullness (220 gm of parenchyma was excised from the right breast).

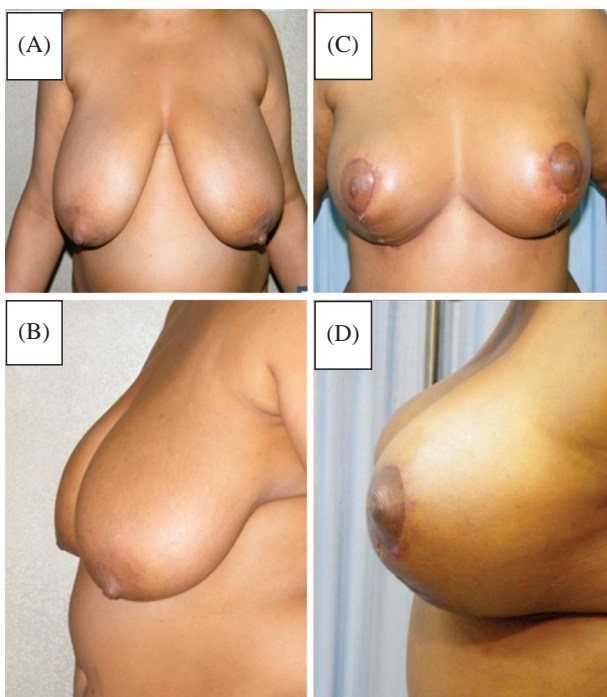


Fig. (5): (A) Breast frontal view showing breast ptosis grade III with element of hypertrophy, (B) Lateral breast view showing severe breast ptosis with upper pole emptiness. (C & D) Four months post-operative breast (frontal and lateral views) showing successful upwards transposition of the NAC, well defined breast margins, and enhanced breast projection and upper pole fullness (390 gm of parenchyma was excised bilaterally).

Table (2): Incidence of minor complications.

Minor complications	Number of breasts	Percentage
Hematoma	2	4.5
Delayed wound healing	1	2.2
Breast inferior pole depressions	1	2.2
Total number	4	≈9

Table (3): Patients and medical staff evaluation for our technique in correction of different grades of breast ptosis.

Point of comment	Patient evaluation	Medical staff evaluation	Average
Overall result	8.9	9.2	9.05
Upper pole fullness	9.3	9.4	9.35
Breast projection	9.1	8.7	8.9
Symmetry	8.8	8.5	8.65
Scarring	8.5	9.0	8.75

DISCUSSION

Patients seeking for breast ptosis correction demand youthful breast with stretched skin, high projection of the breast mound especially the upper pole, with the least scarring. This makes mastopexy a challenging procedure for plastic surgeons [4].

Mastopexy depend on either the skin brassiere effect or the parenchymal rearrangement and suspension approaches. The skin or dermal support techniques started early with the beginning of the wise pattern technique in 1956 [5]. In 1971, the Goulian technique addressed the breast ptosis only through skin excision without any undermining. Later on, many techniques tried to increase the aesthetic outcome though addition of adjusting sutures or suspension techniques [6,7,8,9].

Mastopexy and breast reduction surgeries have interconnected steps of evolution [10,11,12]. The inferior pedicle reduction carried the idea of upwards transposition of the lower pole parenchyma. This turned attention to the fruitful effect of parenchymal rearrangement [13,14,15]. Later on, many inferior pedicle modifications were proposed to maintain breast projection and decrease the bottoming out complication [16-19]. Inferior pedicle with inverted T scar was successful in management of moderate to sever grades of breast ptosis. However, patients especially with mild ptosis did not accept long scars [2].

Since Bartels and his colleagues implemented periareolar mastopexy for correction of mild to moderate ptosis, periareolar mastopexies gained wide popularity. Certainly as they present minimal scarring especially with burse string techniques [2]. On the other hand, the periareolar mastopexies resulted in widening of the areola, ugly scars, and flattening of the breast projection at the areola level. In addition, skin only tightening techniques did not manage pooling of the breast parenchyma to the lower pole [21-25]. Benelli applied concepts of parenchymal rearrangement hand in hand with the periareolar approach. Benelli minimized scar

widening through the round block periareolar technique [26]. Goes used mesh in attempt to increase the durability of the breast projection [27]. Finally, periareolar techniques was not the ideal techniques for management of higher grades of ptosis, where more scars had to be added to promote skin tightening.

Circumvertical and vertical techniques added to the advancement of mastopexy. Since the sixties, Vertical mastopexy started early by the efforts of Lassus and Le jour. Lassus simply manipulated the breast through oval shaped incision, that resulted in a periareolar incision with the addition of vertical scar as much as needed. This vertical scar permitted tailoring of excess skin, glandular reshaping, decreased tension in the periareolar area. The vertical scar added was obscured in erect position and covered with swimming suits [28,29,30]. Le jour used domed ellipse and focused on pillar closure with suspension to the pectoral fascia, in effort to enhance the breast projection and upper pole in particular [31,32,33].

With preservation of the vertical mastopexy concepts, Findlay in 2002 introduced the medial pedicle that permitted more rounding of the breast mound through recruitment of the lateral pillar to meet the medial pillar formed by the inferior edge of the medial pedicle. The two pillars construct medial, inferior, lateral, and upper poles fullness. Furthermore, Findlay used lateral breast liposuction for more pleasing contour, reduction, and skin redraping [34].

Hammond did great refinements to the circumvertical techniques; using short scar periareolar inferior pedicle reduction (SPAIR) mastopexy facilitated lower pole cephalic transposition [35-42]. Circumvertical and vertical techniques faced difficulties in managing sever degrees of ptosis. Particularly, in patients with empty upper pole and bad skin quality, which paved the way for introduction of the augmentation and auto-augmentation concepts. Auto-augmentation if feasible, avoid using implants with its subsequent possible complications. Moreover, parenchymal rearrangement enhances upper pole fullness achieved with vertical techniques [4].

In attempt to construct upper pole fullness during mastopexy; Daniel in 1995 was the first to present lower pole chest base demoglandular flap [3]. Graf and Biggs published his technique later, as they buried lower pole flap under a tunnel of pectoralis major muscle sling [43,44]. Despite the excellent results of this technique, it did not gain

popularity. It was accused for hindering the breast cancer screening tools and violating tissue spaces, which can open spread channels for cancer breast if occurred [45].

The brilliance of the upper pole fullness obtained from the lower pole flap auto-augmentation; persuaded many authors to modify the Graf and Biggs technique. Botti [46] and Hasselberg [47] advocated suspension to the pectoralis fascia; but Ritz and his coworkers added pectoralis fascial sling to produce more durable upper pole fullness [48]. Many authors proposed addition of superior or inferior based dermoglandular flaps for auto-augmentation [49,50].

In 2005, La Plaza introduced inferior extension of the superior pedicle used in mastopexy that was suspended to the pectoralis fascia. This Hammock flap exaggerated the upper pole fullness [51]. In 2013, Gümüs published his experience in extension modification of the original Hammock flap [52]. Recently, Hammond added the Lower Island Flap Transposition (LIFT) technique to the armamentarium of mastopexy. He successfully managed the moderate to sever grades of breast ptosis, especially patients with upper pole emptiness [4].

The senior author prefers the extended medial pedicle with super added inferiorly based island flap, as an efficient technique for management of moderate to sever grades of breast ptosis. This technique is tackling pathological components of breast ptosis, including skin excess, weak ligaments, lower pole parenchymal and NAC migration, and upper pole emptiness. Results showed excellent aesthetic outcome with durable upper pole fullness.

Unlike the superiorly based flaps, the medial pedicle can achieve cephalic transposition of the NAC with no pedicle kink upon itself. Using a separate flap other than the NAC carrying pedicle has many advantages. Free mobilization of the NAC carrying flap (medial or superiomedial pedicle) independent to the auto-augmentation inferior pole flap. This allows different vector mobilization of both flaps; helping in breast reshaping and recruitment of medial, lateral, and inferior parenchyma to the central part of the breast mound.

In addition, the inferior auto-augmentation pedicle has separate blood supply; and not carried as a parasitic tissue overloading the NAC carrying pedicle. The presence of highly reliable inferior pole pedicle diminishes the incidence of fat necrosis and firm masses formation as seen during the follow-up period.

Furthermore, using the medial pedicle fashion creates another upper pole island that is de-epithelialized and buried under the NAC. This is the third partner in enhancement of the upper pole fullness.

According to the Findlay drawing, there is a strip of skin and parenchyma laying between the lateral edge of the drawing and the lateral edge of the medial pedicle. This strip should be excised after execution of pedicle cuts. In our technique, we keep this strip as lateral extension of the medial pedicle. This decrease the surgical steps and subsequent blood loss of two parallel cuts. Lateral extension of the medial pedicle has a synergistic effect in creation of firm rounded upper pole fullness. In addition, it carries lateral parenchymal tissue that encourage lateral skin re-draping to the vertical scar during closure.

Diclosure:

There is no conflict of interest.

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