



Superior flap tuck in mastopexy—a novel technique to promote lift and volume

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Abstract: Breast ptosis develops secondary to a pathogenic triad: progressive dermal laxity, inferior displacement of the nipple-areolar complex (NAC) and loss of superior pole fullness or “bottoming out”, leading to an aged breast appearance. Surgical mastopexy producing longevity of result is challenging. This article describes a novel superiorly based middle flap mastopexy technique via a vertical scar. Using this technique for over 5 years the senior author has produced a case series with longer lasting results compared to other techniques more commonly described. The technique is designed on a standard vertical scar pattern with a superior NAC pedicle. Glandular tissue inferior to the NAC is divided into three separate flaps, without any undermining or dissection of the lateral pillars. The central superiorly based flap immediately below the NAC is preserved, divided inferiorly and rolled back, posterior to the superior pole of the breast. It is then secured to the chest wall immediately posterior to the NAC to augment projection and conification. The lateral flaps are then brought together and secured over the top of the central flap. The skin envelope is then closed over the redistributed glandular tissue. In our experience this technique, with minimal lateral undermining and disruption of the native inferior breast architecture, produces lasting superior pole fullness. Using it in his practice, the senior author has found improved reliability and longevity of result compared to previous techniques.

Keywords: Ptosis; mastopexy; vertical scar

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Introduction

Breast ptosis is a complaint that presents to plastic surgeons globally (1). Its pathogenesis is well described, yet its surgical management can be challenging. The triad of progressive dermal laxity, inferior displacement of the nipple-areolar complex (NAC) and loss of superior pole fullness (bottoming out) leads to an aged breast appearance. From the 1900s onwards dozens of techniques involving skin incision and glandular resection to address these issues have been well described (2-6). These range from a multiple variations of inferior based pedicle flaps (6) to upper pole synthetic mesh integration (7) in an attempt to provide lasting volume. Hall-Findlay produced a large volume of positive outcomes using the vertical scar technique in the

early 2000s yet the learning curve for some surgeons still dissuades them from its use (7). It is widely accepted that all techniques described suffer from their own drawbacks either through increased scar burden or bottoming out of final shape.

Native glandular tissue redistribution to correct loss of upper pole fullness is not a new technique (7). First described by Calderia in 1991 (8) the triple flap technique was designed to produce conification of the breast tissue to aid projection. Subsequently modified by Kelemen (8) the technique they describe involves shifting inferiorly based glandular tissue into a more cranial position behind the NAC. The superomedial NAC pedicle is “stacked” between the inferior flap pedicle and the nipple for further

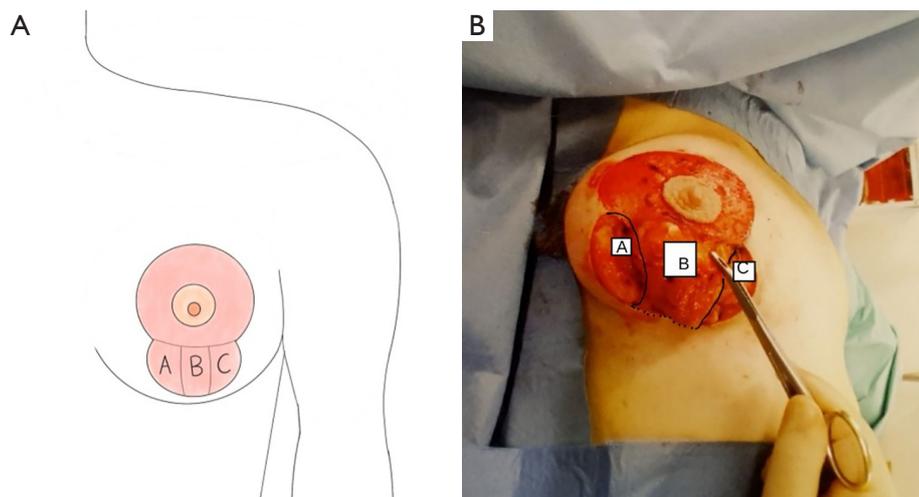


Figure 1 (A) Conceptual image, (B) intra-operative image. (A) Vertical scar outline, de-epithelisation and division of glandular tissue inferior to NAC into 3 A/B/C with a superiorly based medial flap B; (B) intraoperative flap dissection. NAC, nipple-areolar complex.

projection of the breast (9).

These commonly described inferiorly based glandular flaps however suffer from the drawbacks of eventual migration of the inferior breast tissue to its original position. Additionally, in our practice we have found inferiorly based flaps folded up lack volume in the most distal aspect reducing total tissue volume available directly behind the NAC. In this article we describe a novel superiorly based triple flap mastopexy technique via a vertical scar skin resection that maximizes projection via autologous breast tissue redistribution.

Case presentation

Skin markings are drawn preoperatively with the patient in a sitting position. The patient is marked as usual for mastopexy using the vertical technique. The breast meridian is marked, and the new nipple positions are set at the level of the inframammary fold (IMF). A 4-cm areolar diameter is planned, with the nipple kept on a superomedial pedicle and modified as required intraoperatively.

Surgery commences with an incision via a standard vertical scar pattern. The inferior boundary of the incision is kept above the IMF—an important structure to preserve for lasting breast architectural integrity. A superior pedicle is then outlined and de-epithelized as per standard reduction mastopexy approach. Following this the inferior glandular tissue is then divided into a triple flap design—A/B/C (*Figure 1*). A and C are cut down to fascia to isolate B similar

to Lassus technique but without skin undermining (9). The medial (superiorly based) glandular flap B is dissected out, divided inferiorly then tucked back and secured to itself and the prepectoral fascia with 3.0 monocryl interrupted sutures (*Figure 2*), immediately posterior to the NAC. This location is similar to the placement position of a prosthesis if augmentation mastopexy were simultaneously being carried out but negates the need for such an intervention. The lateral flaps A + C are then brought together and secured over the top of A again with a 3.0 monocryl suture (*Figure 3*). Minimal dissection of flaps A + C is carried out. Hemostasis is ensured then the skin envelope is then closed with 3.0 monocryl deep dermal sutures. To address the dog ear at the terminal aspect of the vertical limb a modified deep dermal gathering suture is used which loops under the last stitch to gather redundant tissue.

Final layer closure is then completed with a standard 3.0 monocryl subcutaneous. Glue and steristrips are used to cover the suture lines and the nipple. The patient is placed in a soft bra and left undisturbed until a wound check at day 7. No drains are used.

Comments

The senior author has moved to this technique as his standard approach for mastopexy surgery not requiring co-current reduction. We find that although the breast does, “settle”, into its final position approximately 6 months postoperatively NAC position and upper pole fullness

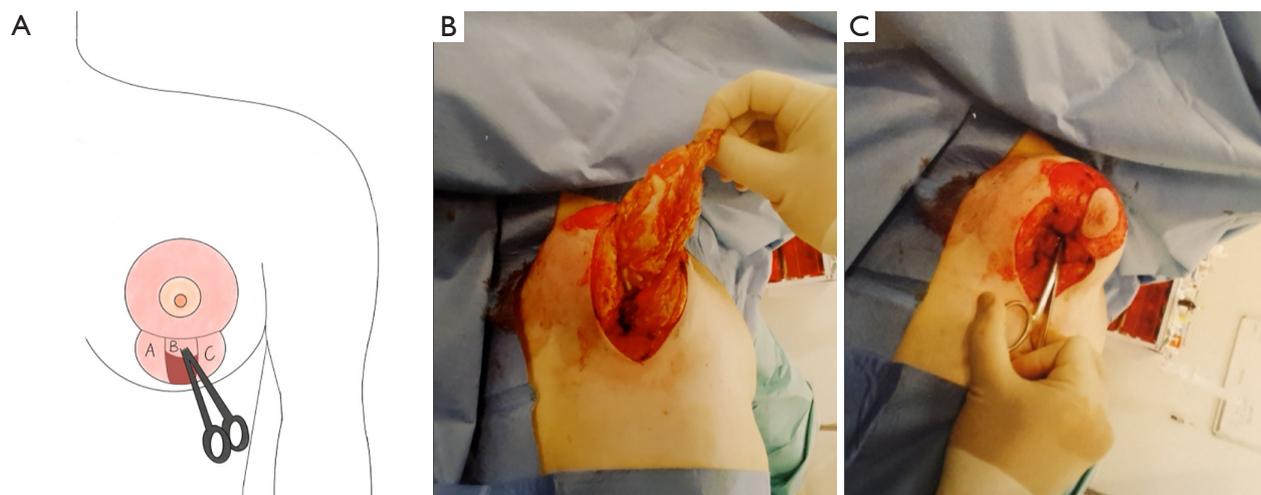


Figure 2 (A) Conceptual drawing, (B,C) intraoperative demonstration. (A) The central superiorly based flap immediately below the NAC B is divided inferiorly, rolled back and secured to the chest wall posterior to the NAC; (B) flap B divided inferiorly intraoperatively and mobilised from lateral flaps A + C; (C) flap B then tucked back and secured to chest wall intraoperatively. NAC, nipple-areolar complex.

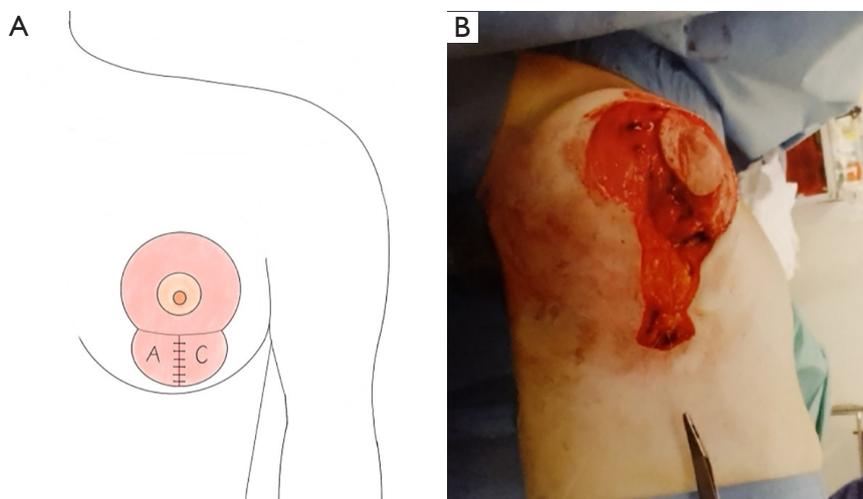


Figure 3 (A) Conceptual, (B) intraoperative. (A) The lateral flaps A + C are then brought together and secured over the top of flap A—now secured to pre-pectoral fascia directly posterior to NAC; (B) intraoperative view. NAC, nipple-areolar complex.

is maintained (*Figures 4,5*). We believe this is due to the transposition of the superiorly based autologous tissue providing structured projection. To date nipple sensation has remained in all patients and no revisional surgery has been required.

The use of blocking sutures as originally described by Benelli (10) identified the crucial keystone area around the NAC supporting the mammary cone. It was initially felt that securing this area with a blocking suture could

address inferior displacement of the complex and overall breast shape. With increasing ptosis and larger breasts however, this approach is rarely sufficient to produce lasting outcomes.

Redistribution of glandular breast tissue was thus identified as a further critical element in further correcting the factors that create an aged breast appearance, especially the loss of upper pole volume that occurs with time (11-13). Volume can be addressed with simultaneous



Figure 4 Preoperative view.



Figure 5 Postoperative view demonstrating retained upper pole volume and projection (the same patient as *Figure 4*).

augmentation (14) however this is not without risk, increasing the complexity of the surgery and reticence of some patients given the emerging risk of breast implant associated-anaplastic large cell lymphoma (BIA-ALCL) with textured implants can dissuade use. Thus, use of autologous tissue to address volume is the ideal, with multiple techniques as above already described. These techniques however all rely on stacking or redistribution of glandular tissue that is inferiorly based either in the breast or on the chest wall (8). The inherent issue with this is that although the tissue is secured with non-absorbable sutures, with time and the effects of gravity the glandular tissue migrates to its original position inferiorly.

The use of superiorly based glandular tissue redistribution as described in our technique reduces the risk of this. The anatomic union between the NAC and superiorly based medial flap B means that when the flap is tucked in and secured to the chest wall tissue migration is minimal.

Additionally, as the flap is being folded posterior to the NAC rather than up to it from an inferior position (as in the stacked technique) glandular volume directly behind the NAC contributing to conification and projection is maximized. The described technique allows upper pole redistribution of native tissue preventing requirement for mesh or implant while minimizing scar burden in the skin envelope. It corrects ptosis while increasing the projection and apparent volume of the breast.

Although breast tissue redistribution is a recognized mastopexy technique we believe this is the first occasion that a superiorly based glandular flap has been described to produce augmentation of breast shape via a vertical scar. The senior author has found this technique produce a reliable and cosmetically appealing outcome for patients over the past 5 years.

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Footnote

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/abs.2019.11.02>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in studies involving human participants were in accordance with the Declaration of Helsinki (as revised in 2013). Informed consent was obtained from the patient for publication of this manuscript and any accompanying images.

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