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A COMBINATION TECHNIQUE OF AUTOLOGOUS AUGMENTATION AND BREAST LIFTING IN HYPOPLASTIC-THIRD GRADE PTOTIC BREAST: A CASE REPORT

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ABSTRACT

Introduction: Breast ptosis is a common concern among women due to factors such as aging, pregnancy, breastfeeding, and weight loss. To achieve a beautiful breast shape, mastopexy (breast lift) with augmentation is often required. This case report highlights the relevance of the chosen augmentation method in addressing ptosis.
Case Illustration: A 30-year-old woman had breast ptosis after her 2nd child and wanted a breast lift to have lifted and firmer breasts. Due to limited fat tissue available for transfer and her refusal to use silicone implants, the patient chose autoaugmented mastopexy. Before surgery in August 2022, breast ultrasound showed abnormalities. Preoperative design was made to determine skin and pedicle positions, using a wise pattern with a superior pedicle to lift the nipple-areola complex (NAC) and an inferior pedicle for autoaugmentation. Surgery was done carefully to achieve symmetry and desired result.
Discussion: Breast tissue changes a lot during and after pregnancy and hormonal factors increases the risk of ptosis. According to Regnault classification, the patient was classified as 3rd degree ptosis. While prosthetic implants are common in breast surgery, the patient declined that option. Autoaugmented mastopexy offers a more natural result without the risks of implants.
Conclusion: Breast lift with autoaugmentation is suitable for patients with breast ptosis seeking a firmer appearance without added volume. This technique utilizes the patient's own tissue to achieve satisfactory results, although outcomes may vary depending on individual factors.

Highlights:

1. This case shows autoaugmented mastopexy as a natural alternative to silicone implants for patients seeking breast enhancement.
2. The combination of breast lift and autoaugmentation using the patient's own tissue is presented as an effective method for achieving a firmer breast appearance while maintaining a natural look.
3. The use of tailored preoperative design, including breast ultrasound, enhances surgical safety and outcomes.

INTRODUCTION

Breast augmentation has been performed since 1895, with the first case involving the removal of a breast tumor in a woman, which was later replaced with fat extracted from her thigh. It subsequently evolved to include injections to achieve the desired results. In the early 20th century, people used various experimental substances such as paraffin oil, beeswax, rubber, and even snake venom. It was not until the early 1960s that silicone implants were developed. The first trial was conducted on a dog named Esmeralda, resulting in a successful breast augmentation. The dog survived for several weeks until it became uncomfortable with the stitches and chewed them out.[1]

Over the past 25 years, breast reconstruction methods have evolved remarkably, offering options such as autologous tissue and implants to improve aesthetics. Implant-based reconstruction is preferred for active individuals or those with a lean build who may lack suitable donor sites for tissue transfer. However, implant-based methods can lead to issues like capsular contracture, where the tissue around the implant tightens. A technical advancement called acellular dermal matrix (ADM) has been developed to provide support for the soft tissue and prevent this complication.

On the other hand, autologous techniques, which utilize the patient's own tissue, are particularly beneficial for women with sufficient adipose tissue in areas like the abdomen, thigh, or gluteal region. These techniques aim to assist individuals with a high body mass index (BMI) or a history of radiation.[2]

Even though augmentation with silicone implants is a well-established and common aesthetic surgery, some patients remain reluctant to use foreign materials in their procedures, even after thorough consultation and education. In this case, some non-surgical methods such as *Polydioxanone thread lift* (PDO) can be applied. PDO is reported to work by promoting neo-angiogenesis, stimulating collagen production, and activating fibroblasts, which subsequently improve skin quality. [3] However, it only provides temporary results, lasting for a maximum of two year. [4] An alternative procedure involves using autogenous fat as an augmentation material, but it has the disadvantage of less than 100% volume retention months after surgery and requires adequate donor sites (commonly the thigh and abdomen).[5]

Nowadays, people seek augmentation for various reasons. Breast augmentation was the second most performed surgical aesthetic procedure in 2022, with a total of 255,200 cases worldwide. [6] Women who have undergone labor and breastfeeding often experience ptotic breasts, caused by loss of elasticity and volume along with excess skin. In response to these demands, the development of breast aesthetic surgery techniques continues to evolve to cater to individual needs.

This case report is particularly important as it provides a comprehensive overview of the challenges and advancements in breast augmentation techniques, especially in light of evolving patient preferences and safety concerns. By documenting a specific case that highlights the successful use of both autologous tissue and implant-based reconstruction, it offers practical insights into decision-making for patients with different body types and medical histories. Additionally, this report addresses the growing trend of patient reluctance toward silicone implants, offering alternatives like PDO thread lifts and autogenous fat transfer. By analyzing the outcomes and patient satisfaction in this case, we can better understand the implications of each method, guiding clinicians in recommending personalized approaches to breast augmentation. This targeted information not only enriches the clinical literature but also empowers patients with the knowledge they need to

make informed choices about their body and health.

CASE ILLUSTRATION

A 30-year-old woman presents with complaints of sagging breasts after her second pregnancy. Seeking to restore a more youthful appearance, she has chosen to undergo mastopexy to achieve lifted and firmer breasts. However, she has expressed several concerns: she does not have enough fat tissue in her abdomen and thighs for effective fat transfer, and she firmly refuses the use of silicone breast implants due to potential complications and personal preferences. After carefully considering her options, the patient decided to pursue a breast lift combined with auto-augmentation, a technique that utilizes existing breast tissue to enhance fullness without the need for foreign implants. This approach aligns with her desire for a natural look while addressing her specific anatomical limitations.

Figure 1. Overview of patient's preoperative breast condition from (A) the front and (B), (C) the sides support the option of fat transfer, patient express her refusal to use silicone breast implant. Upon hearing options available, the patient opted for breast lift with auto augmentation.

The surgery took place in August 2022. In preparation for the procedure, we performed a breast ultrasound screening one week prior, collaborating with a radiologist to ensure accurate assessment. This screening revealed an abnormality in the breast tissue, necessitating further evaluation. The discovery of this abnormality highlighted the importance of thorough pre-operative assessments, allowing for informed decision-making and tailored surgical planning to ensure the best outcomes for the patient.

Directly before the operation, we marked the preoperative design while the patient was in a straight sitting position. The design was marked using a surgical marker to determine the skin excision and pedicle position. We utilized a wise pattern[7] and superior pedicle to reposition nipple-areolar complex (NAC) upward to the level of the inframammary fold (IMF) (4 cm elevation), and an inferior pedicle for auto-augmentation (with a 10 cm base, 5 cm distal flap thickness, and 6 cm elevation). The new nipple-areola complex (NAC) size was reduced to 3.5 cm from the previous 5.5 cm for both breasts. For the pillars, we simulated breast width reduction by moving the breast laterally and medially,

ultimately choosing a height of 6 cm for the new NAC to IMF distance. Lines were drawn from the distal point of the pillars to the IMF to outline the rewrapping and reduce the total breast height.

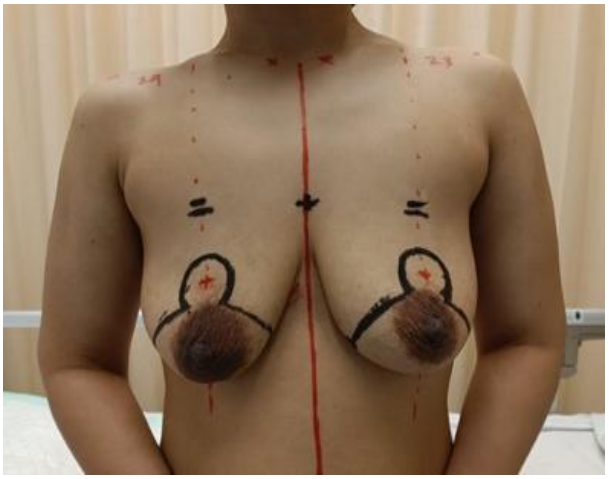
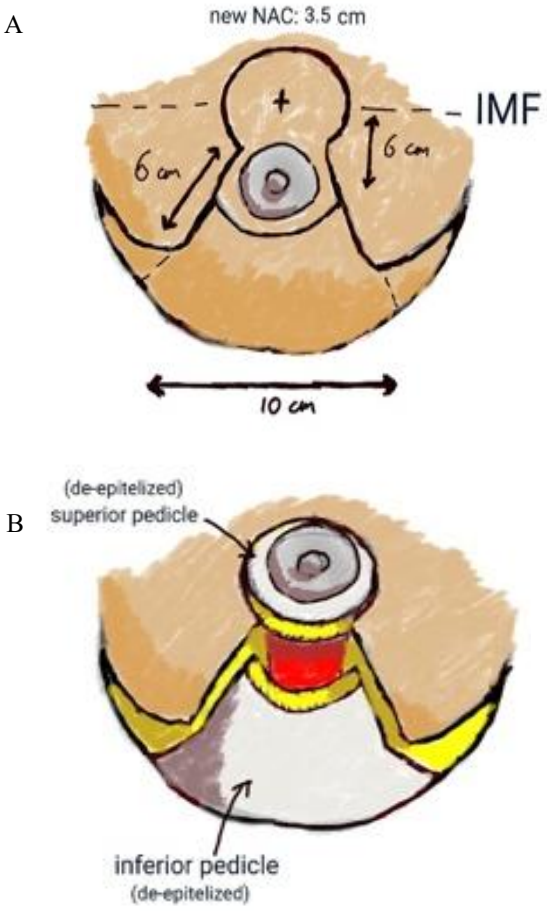
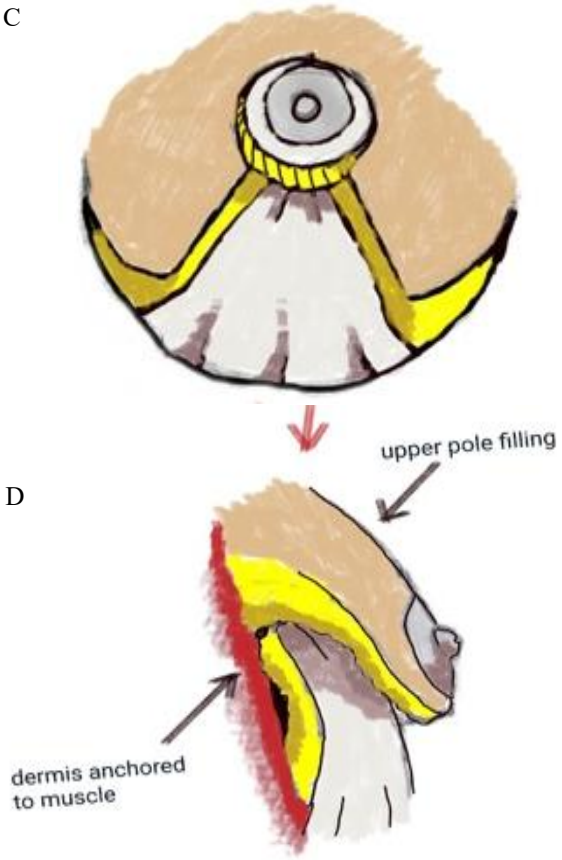


Figure 2. Preoperative design drawn in straight sitting position, with new NAC located at IMF.





Note: Drawing courtesy on own

Figure 3. Durante OP Illustration; (A) Design with measurements; New NAC of 3.5 cm diameter, 6 cm of distant between new NAC and IMF, and 10 cm inferior pedicle base. (B) Inferior pedicle after de-epithelization from anterior and lateral view. (C) Anterior view of inferior pedicle insertion toward muscle fascia.

The pedicles were de-epithelialized and incised through the fat and breast tissue until reaching the fascia plane of the pectoralis major muscle. A pocket was created under the superior pedicle in the suprafascial plane, extending upward to a determined point that would express as upper pole fullness (2 cm above the new NAC position). The lower pedicle was elevated and sutured at its distal flap, anchored to the muscle fascia inside the pocket using 3/0 Vicryl sutures.

We performed a similar procedure for the contralateral breast and temporarily

sutured the skin to achieve the new breast shape. During the operation, evaluations for both breasts were conducted while the patient was in a sitting position under general anesthesia, with precautions and assistance from the anesthesiologist. After achieving symmetry and the desired shape, we continued the procedure by washing the breast pocket with saline, placing a 100 cc Barovac drain, and suturing the superficial fat with 3/0 Vicryl, the dermis with 4/0 Vicryl, and the skin with 6/0 Vicryl. Lastly, before finishing the surgery, we evaluated NAC viability using the capillary refill time test (normal if under 2 seconds). For the final dressing, we applied compression using gauze around the breast and wrapped it with elastomoul.

Figure 4. Durante OP; (A) Pocket dissection until 2 cm above new NAC and (B) Upper and lower pedicle (C) Anchored lower pedicle into muscle fascia plane

Figure 5. Direct Post-Surgery; Result from (A) the front (B) and (C) the sides

Two weeks after the surgery, the swelling began to dissipate, and wound epithelialization was observed at the treated site. All stitches were subsequently removed.

Figure 6. Two Weeks Post-Surgery; Result from (A) the front (B) and (C) the sides.

A yellowish bruise surrounding the scars slowly faded a month later, and the scars were completely healed within two months post-operative care, leaving a red-blue scar following the line of the incisions. There were no complications or complaints from the patient.

Figure 7. One Month Post-Surgery; Result from (A) the front (B) and (C) the sides.

Figure 8. Two Months Post-Surgery; Result from (A) the front (B) and (C) the sides.

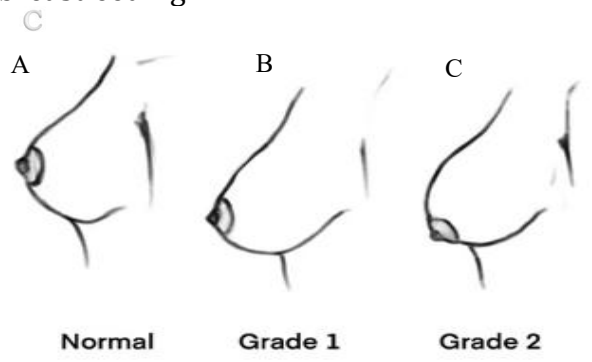
DISCUSSION

Breast tissue undergoes various physiological changes during pregnancy, the postpartum period, and lactation. These changes are influenced by hormonal fluctuations, such as increases in estrogen, progesterone, and prolactin. [8] Particularly, breastfeeding for 7–12 months increases the likelihood of more severe ptosis by four times[9].

Several sources report changes in the breasts postpartum and during breastfeeding, including breast ptosis, tuberous breast deformity, and hyperplasia. [1,10,11] Some nipple and areola physical changes such as enlargement, hyperpigmentation, secondary areolae, erectile nipples, prominence of veins, striae, and enlargement of the Montgomery glands or tubercles (sebaceous glands hypertrophy) are found concurrently[12].

The study findings indicated that breast ptosis significantly affects both woman's attractiveness and perceived age. Increased breast ptosis, characterized by more sagging breasts, is associated with lower attractiveness and is linked to age perceptions in women[13] .

The patient presented as a primary care patient with no history of breast surgery. Given that her nipple was below the inframammary fold (IMF), this is based on the Regnault classification quoted by Mugea.[14] She was classified as having third-degree breast ptosis. The ptosis was formed due to prior postpartum changes and breastfeeding.



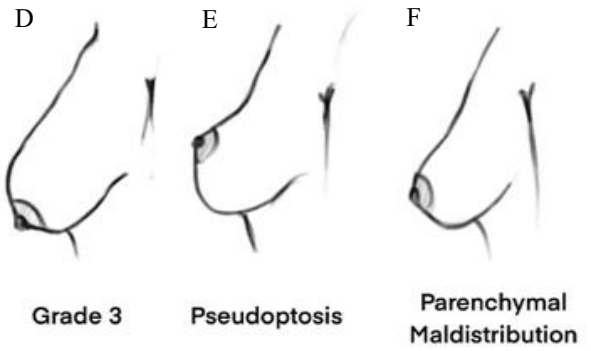


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Figure 9. Regnault Ptosis Classification; (A) Normal, (B) Grade 1: Mild, nipple is at the level of the fold, (C) Grade 2: Moderate, nipple is below the level of the fold, (D) Grade 3: Severe, nipple is below the fold pointing downward, (E) Pseudoptosis: Lower breast sagging, nipple is above or at the similar level to the fold, most of the breast is well below the fold, and the nipple to IMF distance is usually more than 6 cm. (F) Parenchymal Maldistribution: areola at the IMF with hypoplastic loose glandular skin.

Technique

Prosthetic implants usage in breast surgery known to result in improving shape and volume. Implants are made of either silicone or saline and are inserted through an incision beneath the breast or around the areola. They can be placed under the gland, under the muscle, or in a dual position, with approaches including incisions in the axilla or umbilical area.[15]

Autogenous fat transfer is an alternative for non-prosthetic augmentation for those who do not want a foreign body in their augmentation or who prefer small to moderate volume filling and surface refining.[16] Fat transfer has the advantage of providing more natural results compared to prosthetic implants.[17]

Both prosthetic implants and fat grafting can be used concurrently to manage breast volume while still maintaining a natural shape. The combination of both techniques can address limitations in patients with soft tissue defects, allowing for the correction of breast asymmetry and the achievement of the desired breast shape.[16]

There are several options for the placement of the added volume: subfascial, subglandular, submuscular, or dual plane. Any of these can be chosen, as no clinically significant differences have been found.[18]

Autoaugmentation involves filling the breast using a dermoglandular flap to increase fullness in the upper pole and enhance the central projection of the breast by relocating breast tissue.[19] The main goal is to achieve a lifted and firmer breast by repositioning existing breast tissue without adding external volume. This technique is often used not only in primary surgeries but also as a corrective procedure following implant removal.[20]

The patient refused silicone implants, aiming only for firmer-looking breasts. Based on the pre-surgery examination, she was not a candidate for autologous fat grafting due to a lack of sufficient fat. Furthermore, some patients are reluctant to have implants inserted because of their fear of complications associated with breast implants.[21] Women who have previously received silicone breast implants are at risk of autoimmune dysautonomia-related diseases. Those with silicone breast implants have significantly different levels of circulating adrenergic, endothelin, and angiotensin receptor autoantibodies compared to women without silicone breast implants. They are also more susceptible to autonomic-related symptoms due to autoantibodies against autonomic receptors.[22] Patients may experience local complications such as discomfort, inflammation, swelling, infections, capsular contracture, implant rupture, and gel bleed. In addition, they may also experience systemic symptoms such as persistent tiredness, joint pain, muscle aches, fever, dryness, and cognitive impairment.[23]

These indications could be influenced by stress, personality traits, and social

circumstances. Patients experiencing elevated levels of physical or psychological stress appear to be more prone to somatization. Although there is no clear proof of causation, many women have sought implant removal due to significant concerns. A recent literature review revealed that 75% of patients reporting silicone-related issues found relief from their symptoms after removal.[24] In relation to this, patients reportedly seek help from health professionals, including naturopaths (41.4%), psychologists (36.0%), and psychiatrists (25.2%).[25]

Another issue to consider is Breast Implant-Associated Anaplastic Large Cell Lymphoma (BIA-ALCL). Unlike systemic ALCL, which is a highly aggressive metastatic illness, BIA-ALCL shares similarities with cutaneous ALCL, characterized by a less aggressive progression and typically detected early in its development. It is often localized to lymphoma cells found within a peri-implant seroma or capsule tissue.[26]

The psychological dimension is significant, as patients may feel emotionally dissatisfied if the results fall short of their expectations. Therefore, being aware of these risks is essential for those contemplating aesthetic breast surgery. Engaging in open conversations with the surgeon about their concerns and aspirations can help manage expectations and enhance overall results.

A study of 201 women with breast implants found that extroversion and social desirability were the most common personality traits, with neuroticism a close third. Neuroticism was found to correlate positively with body dissatisfaction, while extroversion showed a negative correlation with body dissatisfaction. As a result, individuals with higher levels of neuroticism are more inclined to opt for cosmetic procedures. Previous research, along with the current study, identified higher levels of neuroticism in women undergoing cosmetic surgery, including breast augmentation.[27]

Pre-operative counselling is important to prepare patients for surgery by educating them on the risks and benefits and managing their expectations. A full discussion on the options including the implications of choosing autologous techniques versus implants, is essential to ensure informed decision-making. This process fosters a trusting relationship between the patient and the surgical team, which is vital for overall satisfaction. Post-operative support is equally important, as it assists patients in their recovery and addresses any concerns that may arise. Regular follow-ups can help in monitoring healing, managing complications, and ensuring that the patient's expectations are met. Emotional support during this phase can enhance the overall satisfaction with the surgical outcome.

Long-term clinical follow-up shows that the morphological results regarding volume remain stable three to four months after the procedure, provided the patient’s weight remains constant, with a resorption rate of 30 to 40%. The development of focal fat necrosis is strongly operator-dependent; in our clinical experience, it occurs in 15% of cases during the surgeon’s early experience (after 50 procedures) and decreases by 3% with more experienced surgeons.[28] A mastopexy and autoaugmentation, with or without fat grafting, have limitations and can produce only a somewhat fuller, naturally sloping upper pole at best. This procedure will not create the firm, full roundness that an implant can provide.[29]

Combining autologous fat grafting and auto-augmentation presents several challenges, primarily related to patient acceptance and surgical complexity and determining the appropriate technique according to patient expectations. The term "auto-augmentation" can be misleading as it does not increase breast volume and patients may be disappointed if they were

expecting more. The procedure requires multiple sessions of fat grafting and patients need to be patient. Scars from previous surgery and thin breast tissue can increase the risk of complications like necrosis. Timing is also important; doing fat grafting before implant removal can increase flap security but requires careful consideration of the patient's current satisfaction with their breast shape. Furthermore, the cost of lipofilling is typically not covered by health insurance, adding a financial burden on patients. Overall, achieving stable results and high patient satisfaction remains a significant concern in this combined approach[30,31].

Thus, in this paper, we found that breast lift with autoaugmentation is the most suitable option, resulting in good outcomes and high patient satisfaction. This case presents a feasible guide for similar cases and needs. However, as this case is not representative of circumstances, variables such as above differences, age, previous treatments and medical history are likely to affect the results achieved.

The manuscript includes several strengths, limitations, and new contributions. Bestows the strength of conducting an extensive comparative review of prosthetic as well as the autogenous techniques employed in breast surgery focusing on the patients side as well as the psychological aspects of patient's overall satisfaction. Also addresses the concerns related to implants with regard to the risk assessment and also addresses the clinical aspects of outcome and complications. But the study has its own limitations factors including generalizability due to individual differences, absence of comprehensive long-term results and limited understanding of the number of subjects and the intricacy of the techniques combination. Especially important here is the fact that the manuscript gives emphasis of combining auto fat grafting with auto augmentation and concerning the psychological aspects of patient's experiences and also incorporates the Regnault classification of breast ptosis which is useful in evaluating the subject matter. All in all, the study has worth of adding value when taken in the right perspective however the study also has issues which need to be looked into on its implementation.

CONCLUSION

Breast lift with autoaugmentation is commonly performed for patients with breast ptosis who seek a firmer appearance without increasing volume. Preoperative procedures include breast screening, taking a medical history, assessing the degree of ptosis, and marking the breast with a mastopexy pattern. During surgery, breast tissue is repositioned using inferior and superior flaps from the patient's own tissue, achieving a pleasing breast shape that meets the patient's expectations. Autoaugmented mastopexy is an effective option for those who decline implants and have specific physical characteristics. The short-term results indicate high levels of patient satisfaction without complications, making it a practical choice for similar cases. However, outcomes can vary based on individual factors such as age and medical history.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

FUNDING DISCLOSURE

The authors declare no additional sources of funding, and no financial interests.

AUTHOR CONTRIBUTION

BSN contributed to the conception and design of the study, critical revision of the article, final approval of the article, provision of study materials or patients, and the collection and assembly of data. NFA was responsible for the analysis and interpretation of the data, drafting of the article, and collection and assembly of data. LML contributed to the analysis and interpretation of the data, critical revision of the article, and final approval of the article.

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