

Simultaneous Breast and Nipple–Areolar Reconstruction Using Musculo-derma-glandular, Axio-perforator, Bipedicled Flap

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Summary: Although breast reconstruction has been performed for centuries, there is a constant search for new approaches to achieve an aesthetically pleasing appearance while causing minimal patient morbidity. In our previous article, we have described our experience with the bipedicled musculo-derma-glandular, axio-perforator flap. The main advantage of this well-vascularized flap is the ability to restore the shape after mastectomy while removing the excess tissue from the hypertrophic and ptotic healthy breast. Based on our promising results with this technique in the previous two patients, we combined the breast reconstruction using bipedicled musculo-derma-glandular, axio-perforator flap with simultaneous nipple–areolar complex reconstruction. The surgery was successful, and the patient did not experience any complications. We believe this technique can be applied for patients with breast hypertrophy and ptosis to achieve reliable and aesthetically acceptable results in a one-stage operation. (*Plast Reconstr Surg Glob Open* 2021;9:e3963; doi: [10.1097/GOX.0000000000003963](https://doi.org/10.1097/GOX.0000000000003963); Published online 22 November 2021.)

Although the first breast cancer surgeries were performed in ancient Egypt (1600 B.C.), the first reconstruction surgery was not performed until 1895 in Germany. In that surgery, the breast was reshaped using lipoma tissue. Nowadays, breast reconstruction is highly evolved. The main two techniques, autologous and implant reconstruction, can be performed using dozens of different methods.¹

In patients with breast hypertrophy, to achieve an aesthetically pleasing appearance, simultaneous reduction mammoplasty of the contralateral side is required, which increases the extent of the surgical damage and postoperative morbidity. Additionally, staged surgeries, especially for nipple–areolar complex (NAC) reconstruction, are not desirable for patients who had gone or will go through long-term cancer treatment. This case report presents an updated version of our new autologous breast reconstruction technique for a patient with hypertrophic

and ptotic breasts. Early breast reconstruction with the musculo-derma-glandular, axio-perforator flap (MDG AP) and immediate NAC reconstruction were combined for this patient.

CASE REPORT

Our patient, a 54-year-old woman, was diagnosed with right breast cancer in 2015. The pathology was positive for invasive ductal breast carcinoma with concomitant intraductal carcinoma in the inferolateral quadrant with metastasis to the axillary lymph nodes. Although the invasive component of cancer had demonstrated no necrosis, it was observed in intraductal cancer alongside calcifications. The histologic grade of the tumor was 3, 2, and 2 in the inferolateral, central, and superolateral quadrants, respectively. The patient underwent a modified radical mastectomy of the right breast with immediate breast reconstruction with a subpectoral, 565 ml, anatomically shaped expander/breast implant placement.

In January 2020, she presented to the clinic requesting the removal of the right breast implant (Fig. 1). Mammography was performed to rule out the risk of recurrent or new cancer. Preoperatively, the flap was designed, and the new location of the NAC of both breasts was marked on the skin. Preoperatively, midclavicular point-to-nipple

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Fig. 1. Preoperative anterior view.

distance and sternum-nipple distances were 36 and 22 cm, respectively (21 cm and 8 cm postoperative, respectively). Nipple-to-inframammary fold distance was 16 cm (reduced to 7 cm postoperative) (Fig. 2). The mastectomy scar was opened, and the implant expander was removed in combination with the capsule and necrosed fat. Subsequently, an MDG AP flap was dissected involving skin and subcutaneous tissues till subpectoral fascia. The an MDG AP flap was prepared to enable the reduction of the left breast. A detailed description of the surgery has been published in our previous article.² The MDG AP flap was transferred through the tunnel made on the sternal area to the defect side. (See Video 1 [online], which displays an animation describing the musculo-derma-glandular, axio-perforator

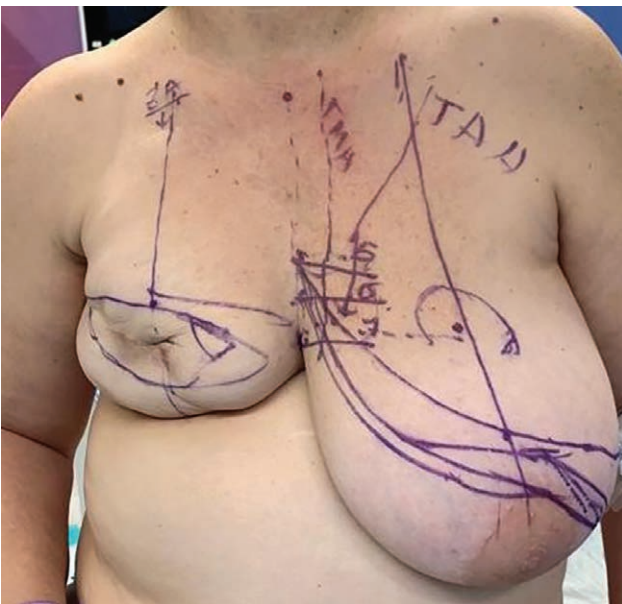


Fig. 2. Preoperative markings demonstrating the new position of the NAC complexes, the flap design, and location of the fifth, sixth, and seventh intercostal perforators.

flap technique.) Immediate NAC reconstruction with free nipple sharing graft was performed, which also improved the aesthetic appearance as the patient had large contralateral NAC. (See Video 2 [online], which displays the greater flap rotation accomplished by the use of the back-cut.) (See Video 3 [online], which displays the transposition of the flap through the tunnel.) The surgery lasted 2 hours, 20 minutes. Two drains were used to prevent seroma formation. Drainage from the right and left breasts on postoperative day 1 was 150 cm³ and 100 cm³, respectively.

Aesthetically acceptable results were achieved. The patient was satisfied with the cleavage, projection, and symmetry of the breasts despite the lost sensation in both nipples. In the last follow-up, 6 months after surgery, healing of the incision site with a linear scar was observed. (Fig. 3) No fat necrosis or any other complication was observed (Fig. 4). The patient did not experience any delayed complications 1.5 years postoperative.

DISCUSSION

Implant-based reconstruction is the most commonly performed surgery to restore the breast's natural appearance after mastectomy. When Wilkins et al compared several reconstruction techniques for any complication, implant-based reconstruction had the lowest, and the DIEP flap had the highest complication rate.³ Despite their advantages, the use of implants can result in a range of complications. Among them, capsular contracture and infection can lead to the failure of reconstruction.⁴ With both of the techniques mentioned above, for patients with breast hypertrophy, an additional operation on the contralateral breast should be performed to achieve symmetry. The breast-sharing technique has been previously used for this patient group as a single-stage operation, which has been related to superficial necrosis.⁵ The multiple-stage version of this technique is not commonly performed due



Fig. 3. Postoperative anterior view (6 months after surgery).



Fig. 4. Postoperative lateral view (6 months after surgery).

to the risk of venous congestion, the number of surgeries, and the duration of time needed to recreate the normal shape of the breasts.⁶

Our technique is innovative in a way that excludes the additional donor site morbidity issue compared with other autologous flap techniques. Subsequently, the problems associated with the tissue transfer, such as hernia formation due to pedicled TRAM flap use,⁷ are avoided. Additionally, similar to all autologous flap techniques, the use of the patient's own tissue prevents the foreign body reaction. In addition to the above, the use of breast tissue as the flap creates the best skin color and texture match. In the end, reconstruction is carried out using the excised tissue from reduction surgery, leading to the resolution of both complaints after a single-stage surgery. To date, we operated on three patients, and did not observe any complications in them. All cases were carried out as delayed breast reconstruction. Patients were screened, and the chance of neoplasm was ruled out. However, in the case of immediate reconstruction, the risk of translocation of remaining cancer remains. Thus, candidate selection for the surgery should be performed carefully. In the case of recurrence or new cancer, biopsies taken from the mastectomy side and the donor breast should provide some information about the source of the cancer tissue. However, due to the limited number of patients

and short follow-up period, we did not have a patient with that presentation. Our patient did not want to undergo multi-staged surgery, and due to previous implant failure, she did not wish to receive implants. Additionally, she complained of the hypertrophy and ptosis of the contralateral breast and desired reduction mammoplasty, making her a suitable candidate for reconstruction surgery with MDG AP flap. Reconstruction of the breast and NAC in one-stage surgery decreased hospital stay, cost, and patient morbidity.

CONCLUSIONS

Achieving a desired aesthetic outcome with breast reconstruction following the resection of the cancerous tissue is usually challenging in patients with hypertrophic and ptotic breasts. We have shown the effectiveness of the MDG AP flap with high patient satisfaction and minimal morbidity and postop complications. As described in this case report, due to the robust vascularization of the MDG AP flap, simultaneous NAC reconstruction can be performed successfully. The promising results in a patient with previous failed reconstruction further attest to the reliability of the MDG AP flap.

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