Breast-sharing Technique in a Unilateral Mastectomy Patient

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Summary: Breast reconstruction patients frequently desire consecutive or simultaneous contralateral breast reduction. When combining the requirements of both autologous breast reconstruction with symmetrizing breast reduction, a 2-staged contralateral pedicled breast sharing is a dignified alternative. We present a 60-year-old woman with a radical mastectomy and adjuvant radiotherapy. On the contralateral side, she had a hypertrophic breast with a desire for reduction mammoplasty. A 2-stage procedure for breast sharing was planned. After the first procedure, symmastia was evident. Water-assisted liposuction and quilting sutures to the sternal periostium were applied in a second procedure to correct the symmastia. We preserved the fourth intercostal perforator to provide optimal vascularization. Water-assisted liposuction and quilting sutures were used to correct the remaining symmastia and contributed to the aesthetics of both breasts. A drawback of this procedure is the need for multiple stages. Furthermore, oncological safety should be considered and surgeons should be aware of the risk for venous congestion. Breast-sharing could be a feasible alternative reconstruction for women seeking unilateral breast reconstruction with contralateral breast hypertrophy. It reduces the need for free-flap surgery and subsequent donor-site morbidity. Considering the fact that the contralateral breast must be of significant size, the indication for this type of reconstruction is limited.

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CASE REPORT

The patient was a 60-year-old woman, who had undergone a radical mastectomy, which had achieved clear his-

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tological margins, and adjuvant radiotherapy for stage 1 lobular carcinoma of her right breast. On the contralateral side, she had a hypertrophic breast causing 1-sided heaviness with a desire for reduction. In this case, a deep inferior epigastric perforator (DIEP) flap could not meet up to the desired volume, and she was against the use of a silicone breast implant. We offered the possibility of performing a breast sharing surgery using the technique earlier described by Pontes and Mayer et al. Because prior cadaveric studies delineated the importance of the presence of the fourth intercostal mammary perforator (IMAP) for supplying the skin area from the infra-areolar region to the inframammary fold (IMF), a preoperative computed tomography scan was executed, which showed no signs of any other perforator being dominant over the fourth IMAP. Figure 1 shows our patient with preoperative markings. The pivot point was taken into account in the design because the location of the perforator determines it.

The procedure began with excising the nipple-areolar complex (NAC) to save it as a full-thickness graft, followed by preparing the acceptor area of the postmastectomy side using an elliptical de-epithelization of the skin caudal of the mastectomy scar and cranial to the new IMF (Fig. 2). The donor breast was split in half vertically over the breast-meridian from the NAC to the IMF. Then, the fourth IMAP was located medially after which the medial flap was further dissected and turned over to the acceptor side. To ensure optimal perfusion of the neo-breast, the flap was sutured into place with the least amount of tension possible. The residual breast tissue was shaped and the most optimal location of the NAC-graft was determined in an upright position.

![Preoperative markings for breast sharing after right mastectomy](image1)

![Graphical display of first stage breast sharing reconstruction](image2)

1. Preoperative marking
2. Split over breast-meridian
3. Localization of fourth IMAP
4. Flap transposition
5. Postoperative scar

Fig. 1. Preoperative markings for breast sharing after right mastectomy.

Fig. 2. Graphical display of first stage breast sharing reconstruction (1) preoperative marking; (2) split over breast-meridian; (3) localization of fourth IMAP; (4) flap transposition; (5) postoperative scar.
Figure 3 shows the 3-month postoperative result. The most prominent and undesired characteristic is the evident symmastia in the early stage. After 8 months, the symmastia was corrected using water-assisted liposuction, together with transdermal quilting sutures to the sternal periosteum using Vicryl 2-0.

In this particular case, a third and final stage was performed to correct an indentation of the right upper quadrant by using lipofilling and an elliptical excision of the left IMF. Figure 4, 5, and 6 show the final result.

**DISCUSSION**

Breast sharing could be a worthy reconstructive alternative for autologous free-flap transfers to reduce. It also addresses the common demand for contralateral breast reduction. As discussed earlier, the cadaveric studies showed that the fourth IMAP supplies the skin area from the infra-areolar region to the inframammary fold. When performing the split of the breast, we ensured the preservation of the fourth intercostal perforator to optimize flap vascularization, even though sufficient venous outflow can’t be warranted. Performing water-assisted liposuction was of important value for correcting the remaining symmastia. Additional quilting sutures reduced dead-space and thereby seroma and hematoma formation. These quilting sutures also contributed to the aesthetic of the breasts by placing them in a crescent shape just lateral to the sternum.

Several issues should be kept in mind when performing a similar procedure. First of all, there is always a well-known risk of venous congestion in reconstructive surgery and for this procedure as well, with a change of total or distal flap necrosis, earlier described by Novo-Torres et al. (1 out of 7 patients with loss of flap due to venous congestion). Second, another limitation is the risk of incomplete histological margins when performing a direct breast sharing technique, because relocation of remaining malignant tissue could be troublesome. For delayed reconstruction, extensive preoperative breast screening could be advisable to rule out occult disease in the donor site. Lastly, it could be considered to bury the full-thickness NAC graft in the groin to be able to determine the definitive position.
in the final stage or after the breast stops changing shape (ie, after a few weeks - months). In our case, the NAC of the left breast was placed slightly too laterally.

Additional studies with bigger sample sizes, comprehensive outcomes in terms of aesthetic satisfaction, and complication rates are desirable for this uncommon breast reconstruction method.

**CONCLUSIONS**

Breast-sharing could be an appropriate alternative option for women seeking unilateral breast reconstruction with a desire for contralateral breast reduction. It is an addition to our armamentarium of autologous breast reconstruction option, given the availability of a hypertrophic breast. Considering the fact that the contralateral breast must be of significant size and sufficiently ptotic, the indication for this type of reconstruction is limited. Further studies regarding this procedure are desirable.

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Figure 2 was made by Mireille Spaas, graphic designer.

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