

# Breast-sharing Technique in a Unilateral Mastectomy Patient

Daan Geerards, MD\*†  
 Alexander J. Kroeze, MD\*†  
 Vincent J. Kroeze, BsC†  
 Coralien L. Broekhuysen, MD\*

**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. A preoperative computed tomography scan, to assess the status of the fourth intercostal mammary perforator (IMAP), was performed. After the first procedure, symmastia was evident. Water-assisted liposuction and quilting sutures to the sternal periosteum 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. (*Plast Reconstr Surg Glob Open* 2018;6:e1976; doi: 10.1097/GOX.0000000000001976; Published online 13 November 2018.)

Unilateral mastectomy in combination with contralateral breast hypertrophy often raises the desire for breast reconstruction with simultaneous or subsequent contralateral reduction mammoplasty. When a patient, with remaining contralateral breast hypertrophy after unilateral mastectomy, declines implant reconstruction and has a lack of autologous donor-site availability, most reconstructive options diminish. A remaining option is breast sharing, first described by Pontes<sup>1</sup> in 1973. This technique uses otherwise discarded breast-tissue with minimal donor-site morbidity. Different techniques have been

described in earlier literature. Marshall et al.,<sup>2,3</sup> Schoeller et al.<sup>4</sup> and Morritt et al.<sup>5</sup> use caudal flap techniques with transposition of the caudal donor breast to the contralateral defect. Novo-Torres et al.<sup>6</sup> also described outcomes of complications in their case series. These studies provide experiences and details on how to perform particularly caudally based (ie, horizontal) breast sharing reconstruction. A vertical split method has been described less than the horizontal technique but has recently been proposed and briefly described by Mayer et al.<sup>7</sup> Earlier studies have not yet provided graphical and technical step-wise descriptions of how to perform the procedure in a vertical manner, which might be most suitable for patients with a very pliable remaining breast and severe ptosis. We present a case report with an overview of our preoperative planning, surgical details, graphical display, and personal experience for a vertical split breast sharing method.

From the \*Department of Plastic and Reconstructive Surgery, Máxima Medical Center, Veldhoven, The Netherlands; and †Department of Plastic and Reconstructive Surgery, Catharina Hospital, Eindhoven, The Netherlands.

Received for publication February 20, 2018; accepted August 22, 2018.

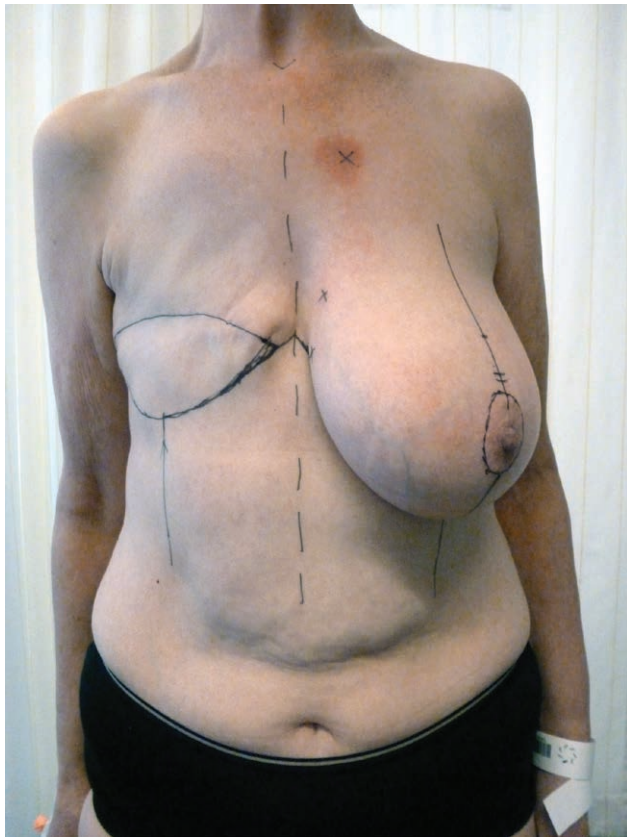
Copyright © 2018 The Authors. Published by Wolters Kluwer Health, Inc. on behalf of The American Society of Plastic Surgeons. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

DOI: 10.1097/GOX.0000000000001976

## CASE REPORT

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

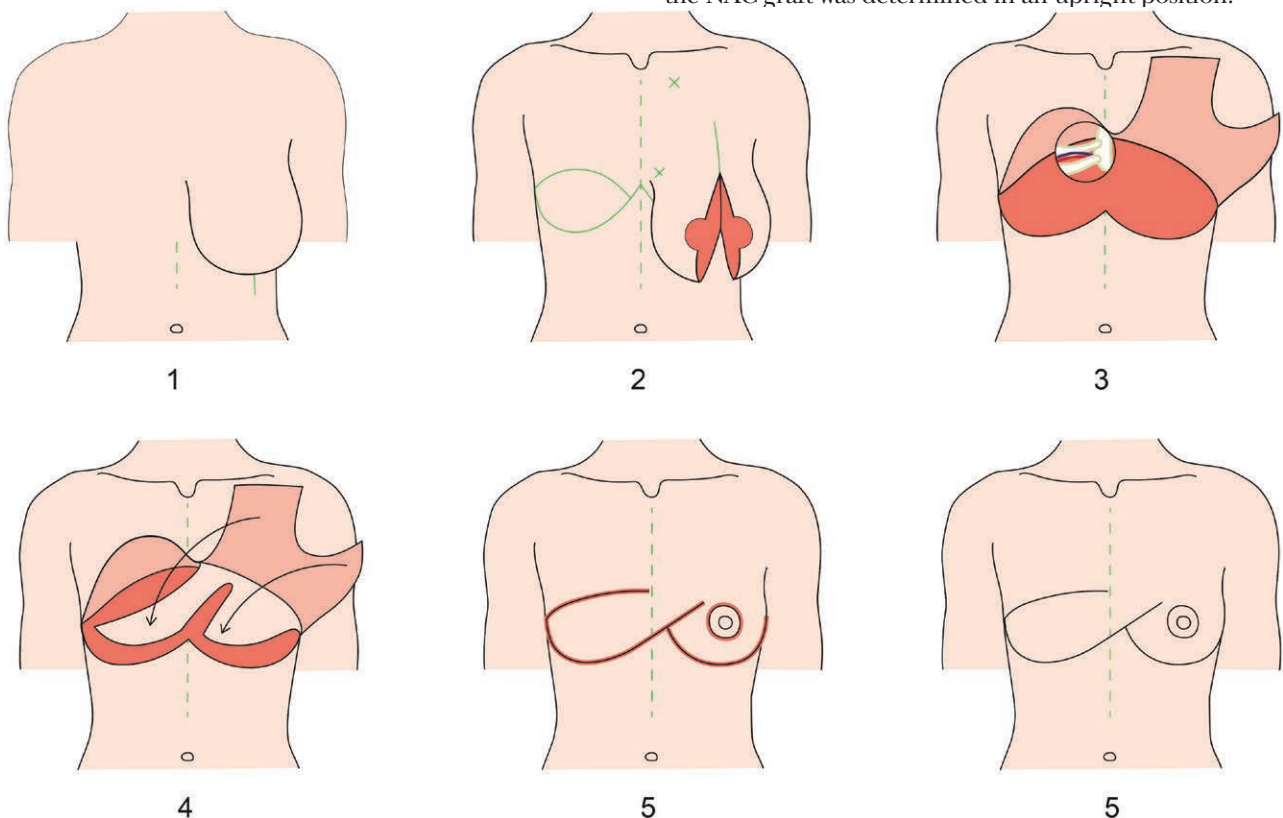
*Disclosure: The authors have no financial interest to declare in relation to the content of this article. The Article Processing Charge was paid for by the Maxima Medical Center.*



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

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<sup>1</sup> and Mayer et al.<sup>7</sup> 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),<sup>8</sup> 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-epithelialization 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.



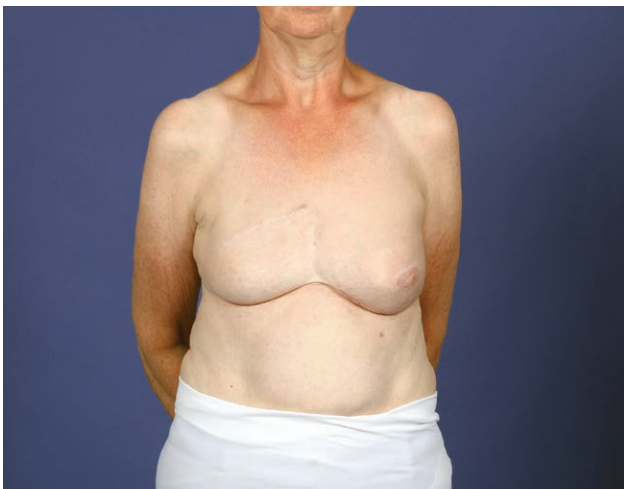
**Fig. 2.** Graphical display of first stage breast sharing reconstruction (1) preoperative marking; (2) split over breast-meridian; (3) localization of fourth IMAP; (4) flap transposition; (5) postoperative scar.



**Fig. 3.** Postoperative result after first stage of the breast sharing reconstruction.



**Fig. 5.** Final result of the multi-stage breast sharing reconstruction, side view from the right.



**Fig. 4.** Final result of the multi-stage breast sharing reconstruction, frontal view.



**Fig. 6.** Final result of the multi-stage breast sharing reconstruction, side view from the left.

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 IMAF supplies the skin area from the infra-areolar region to the inframammary fold.<sup>8</sup> When performing the split of the breast, we ensured the preservation of the fourth intercostal perforator to optimize flap vascu-

larization, 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.<sup>6</sup> (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.

**Daan Geerards, MD**

Department of Plastic and Reconstructive Surgery  
Máxima Medical Center  
De Run 4600  
5504 DB Veldhoven, The Netherlands  
E-mail: daangeerards@gmail.com

## ACKNOWLEDGMENTS

Figure 2 was made by Mireille Spaas, graphic designer.

## REFERENCES

1. Pontes R. Single stage reconstruction of the missing breast. *Br J Plast Surg*. 1973;26:377–380.
2. Marshall DR, Anstee EJ, Stapleton MJ. Post mastectomy breast reconstruction using a breast sharing technique. *Br J Plast Surg*. 1981;34:426–430.
3. Marshall DR. The contralateral breast flap in reconstruction of the breast and chest wall. *Ann Plast Surg*. 1993;31:508–513.
4. Schoeller T, Bauer T, Haug M, et al. A new contralateral split-breast flap for breast reconstruction and its salvage after complication: an alternative for select patients. *Ann Plast Surg*. 2001;47:442–445.
5. Morritt AN, Grinsell D, Morrison WA. Postmastectomy breast reconstruction using a microvascular breast-sharing technique. *Plast Reconstr Surg*. 2006;118:1313–1316; discussion 1317.
6. Novo-Torres A, Fakhri I, Aparicio-Alcazar JJ, et al. Breast sharing: new perspectives on an old method. *J Plast Reconstr Aesthet Surg*. 2015;68:1727–1732.
7. Mayer HF, de Belaustegui EA, Loustau HD. The contralateral breast flap in autologous breast reconstruction. *J Plast Reconstr Aesthet Surg*. 2016;69:876–877.
8. Schmidt M, Aszmann OC, Beck H, et al. The anatomic basis of the internal mammary artery perforator flap: a cadaver study. *J Plast Reconstr Aesthet Surg*. 2010;63:191–196.