**Breast Reconstruction following Breast-conserving Surgery with a Subcutaneous Tissue Expander and Latissimus Dorsi Flap**

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**Summary:** Corrective surgery following breast-conserving surgery is generally challenging due to severe fibrosis induced by postoperative radiotherapy. Although use of the latissimus dorsi myocutaneous flap offers a safe and reliable option, exposure of the skin paddle to the skin surface is often inevitable to achieve correction of nipple-areola complex malposition, leaving conspicuous, patchwork-like scars on the breast. In this report, we describe a 2-stage procedure using a subcutaneous tissue expander and the latissimus dorsi myocutaneous flap for the correction of both nipple-areola complex malposition and breast volume without skin paddle exposure. Although careful observation is necessary during skin expansion, this technique could offer an alternative option for patients undergoing corrective surgery following breast-conserving surgery. (Plast Reconstr Surg Glob Open 2014;2:e231; doi: 10.1097/GOX.0000000000000200; Published online 10 October 2014.)

Breast-conserving surgery (BCS) has been widely accepted given the high survival rate comparable to that of radical mastectomy and as it allows for preservation of a large proportion of the breast. Yet, roughly 30% of patients are reportedly unsatisfied with the cosmetic outcomes of BCS. The correction of cosmetic sequelae, however, is usually challenging for reconstructive surgeons due to severe fibrosis induced by postoperative radiotherapy. Correction of breast deformity following BCS normally uses the latissimus dorsi myocutaneous (LDM) flap for its reliable vascularity, low complication rate, and technical ease. Although aesthetic improvements can often be achieved, exposure of the skin paddle to the skin surface is often inevitable during the correction of nipple-areola complex malposition and breast volume without skin paddle exposure. Because the texture of the back skin differs considerably from that of the breast skin, patchwork-like breast scars are often conspicuous. To address this issue, contractions of skin and soft tissue should be released before LDM flap reconstruction.

Here, we report a case in which a subcutaneous tissue expander (TE) was used before LDM flap transfer, leading to a successful correction of NAC malposition and breast volume without skin paddle exposure.

**CASE REPORT**

A 52-year-old woman underwent BCS due to breast cancer in the right upper quadrants at another hospital. Eleven years later, she visited our clinic...
to correct the cosmetic sequelae of BCS. The initial examination revealed severe right breast deformity and NAC malposition (Fig. 1). The volume difference between the right and left breasts was estimated to be about 220 cm³ based on 3-dimensional computer analysis (Breast-Rugle, Medic Engineering, Kyoto, Japan) (Fig. 2). To correct NAC malposition and breast volume without exposing the skin paddle, we performed a 2-stage procedure using a subcutaneous TE and the LDM flap.

First, a rectangular TE (Integra, Model No. 3610-44-2, PMT Corporation, Chanhassen, Minn.) was inserted into a subcutaneous pocket created in the upper quadrants to correct the cranially malpositioned NAC. Although a part of the breast skin became very thin during expansion, the TE could be filled up to 325 cm³ (Fig. 3). Five months later, reconstruction with the LDM flap was performed. The flap weighing about 280g was elevated in the left lateral decubitus position, and the TE was replaced with the LDM flap in the sitting position. Before placing the LDM flap in the pocket, extensive capsulotomy was performed to release residual contractures of the skin and soft tissue.

The postoperative course was uneventful, and the patient was satisfied with the aesthetic outcome. Postoperative photographs show that NAC malposition is well corrected, and the breast scar is inconspicuous (Fig. 4). Postoperative 3-dimensional analysis also revealed that the right and left breasts are similar in both overall and regional breast volumes.

**DISCUSSION**

Correction of breast deformity following BCS with a local flap, fat grafting, or an implant is associated with a high rate of postoperative complications due to initial radiotherapy. The LDM flap has high vascularity and is associated with fewer risk factors, and therefore, it will likely afford improved aesthetic
outcomes. However, exposure of the skin paddle to the skin surface is inevitable when correcting NAC malposition, leaving conspicuous, patchwork-like scars on the reconstructed breast.

In the present case, we used a subcutaneous TE before LDM flap transfer to release skin contracture. Correction of both breast volume and NAC malposition was achieved without skin paddle exposure. Compared with subpectoral TE placement, subcutaneous TE placement not only allows for better control of breast shape but also provides increased TE stability, preventing TE movement during expansion. Of course, careful observation of the skin condition is necessary during expansion, but in our case, sufficient skin expansion was achieved without any major complications.

We used a smooth, rectangular TE in the present case, but there remains room for discussion regarding the type of TE that is suitable for each case. For instance, a textured TE might cause less capsular contracture and less resistance to expansion, whereas a recently developed tabbed TE might provide more stability even in the case of subpectoral TE placement. Further studies are needed to address these issues.

**CONCLUSIONS**

Although correction of breast deformity after BCS with severe malpositioning of the NAC is challenging, our 2-stage procedure using a subcutaneous TE and the LDM flap could achieve correction of both NAC malposition and breast volume without leaving conspicuous, patchwork-like scars on the reconstructed breast. Although careful observation is required during skin expansion, and further studies are warranted regarding the suitable type of TE, this method offers a good alternative for patients undergoing corrective surgery after BCS.

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