Bilateral Breast Reconstruction Using Bilateral Anterolateral Thigh Flaps

A Case Report

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Abstract: Options for autologous reconstruction have been limited in some patients by previous abdominal surgeries, and by lack of adequate abdominal tissue. The anterolateral thigh (ALT) flap has previously been described as an alternate donor site for autologous breast reconstruction when abdominal tissue is unavailable or unsuitable.

We describe our experience with a 41-year-old low body mass index (19.8 kg/m²) patient with previous suction-assisted lipectomy undergone bilateral breast reconstruction using bilateral ALT flaps.

At a follow-up of 2 years, the patient was delighted with her reconstructed breasts and despite her athletic build was able to fill a B cup bra. ALT flap has the advantages of a long pedicle, adequate soft adipose tissue, and also allowing supine positioning with a 2-team approach. The anterolateral flap is a credible alternative that may be considered for bilateral autologous breast reconstruction in selected patients.

Key Words: breast reconstruction, bilateral reconstruction, anterolateral thigh flap, perforator flap

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A b s e n c e of breast tissue secondary to therapeutic or prophylactic mastectomy has presented the patient and surgeon with multiple options for reconstruction using autologous tissue. With the more widespread use of the perforator flap for reconstruction, more options have become available in those patients, which may not have had suitable autologous options in previous years. The options for autologous reconstruction have been limited in some patients by previous surgeries and the resulting scars, and by lack of adequate tissue volume.

The deep inferior epigastric perforator flap has been an excellent option for reconstruction, especially in those patients requiring bilateral reconstruction. Although the abdominal pannus is the workhorse for autologous breast reconstruction, it may be unusable in approximately 20% of patients.1 In such cases, the gluteal region has emerged as a second donor sites for tissue transfer.1–6 The extended latissimus flap7,8 is also a possible alternative but is often insufficient in patients with low body weight and also back scars are often not accepted by Asian women.9 Other sources of tissue for autologous breast reconstruction include the lateral transverse thigh (LTT) flap,10 Rubens flap,11,12 and transverse upper gracilis flap,13–16 which take advantage of excessive fat deposition localized in the saddle bag area, iliac crest, or proximal medial thigh, respectively. Gynecomastia fat distribution involves the uniform deposition of subcutaneous fat over the thighs; thus longitudinally orientated thigh flaps such as the medial thigh flap and anterolateral thigh (ALT) flap are emerging sources of autologous fatty tissue.

ALT flap has previously been described as an alternate donor site for autologous breast reconstruction when abdominal tissue is unavailable or unsuitable.9,17,18 To our knowledge, its reported use has been limited to unilateral breast reconstruction using either one or both thighs.9,17,18 We describe our experience with a case of bilateral breast reconstruction using bilateral ALT flaps in an Asian woman with insufficient abdominal tissue.

C A S E  P R E S E N T A T I O N

A 41-year-old woman presented to us requesting bilateral autologous breast reconstruction. The patient had undergone left modified radical mastectomy and axillary node dissection for T1cN1M0 invasive ductal carcinoma 5 years earlier. Three years before, she had a right modified radical mastectomy and axillary node dissection for T2N0M0 mixed ductal carcinoma in situ, and invasive lobular carcinoma of the right breast. Both mastectomies were followed by a course of chemotherapy without radiation.

Of note in her past medical history was a diagnosis of chronic hepatitis B, 2 lower segment cesarean sections and suction-assisted lipectomy of the abdomen 10 years earlier. Physical examination revealed a patient of low body mass index (19.8 kg/m²) with bilateral hypertrophic mastectomy scars and tight chest skin (Fig. 1). The patient had insufficient abdominal pannus for even unilateral breast reconstruction (Fig. 1). She did, however, demonstrate an adequate covering of skin and subcutaneous fat distributed evenly on medial and lateral aspects of the thighs (Fig. 2). The gluteal flaps were indicated for practical reasons including the donor site necessitates intraoperative repositioning and less adipose tissue than thigh area.

The remaining practical donor site was the thigh area. Our initial plan was to use longitudinally oriented bilateral medial thighs flaps because these allowed more discreetly placed scars, however, preoperative angiography demonstrated a lack of adequate medial thigh perforators, although there were numerous perforators situated on the lateral side (Fig. 3). After discussion with the patient and full information regarding donor site morbidity, the patient elected for bilateral breast reconstruction using bilateral ALT flaps.

The most fatty area of the anterolateral thigh was harvested using standard ALT flap harvest technique—the vascular anatomy and dissection technique have been previously detailed.19–21

The choice of ALT flap had the added advantages of allow us to minimize operative time by performing a familiar dissection using a 2-team approach without the need to reposition the patient. Preparation of the chest wall and exposure of bilateral recipient
vessels was performed by 1 team, whereas the other team elevated the bilateral ALT flaps. Each ALT flap was raised with a skin paddle of 22 × 8 cm and an extended 3 cm of subcutaneous adipose tissue medially and laterally. This allowed for a sufficiently bulky flap to give adequate breast projection and also allowed for tension-free direct closure of the donor site. Each resultant tissue flap (22 × 8 cm) was used in its entirety and had a subcutaneous thickness of approximately 2.5 cm to give a final flap weight of 225 g (Fig. 4).

The flaps were transferred to the thorax and anastomosed to the ipsilateral internal mammary vessels at the level of the third intercostal cartilage. Ischemia time was 54 minutes for each side. Shaping was performed by suturing the flap laterally with 2 pull through sutures and draping the excess length of flap in the 15 cm-wide breast site defect. This allowed for some natural ptosis of the flap; the adipose components of the flap were buried beneath the chest skin flaps and the skin edges sutured.

The patient was transferred postoperatively to the microsurgery intensive care unit for hourly flap monitoring and regular physician review. The postoperative course was smooth and the patient was discharged on day 7.

Nipple reconstruction was performed 6 months later using banked intercostal cartilage graft and the modified top hat technique. The nipple areola complexes were tattooed after 3 months. Unfortunately, the patient developed hypertrophic scarring of her thighs. One thigh required reexcision of the scar and z-plasty, the other responded well to regular cortisone injections (Fig. 5). At her most recent follow-up 2 years after initial reconstruction, the patient was delighted with her new breasts and despite her athletic build was able to fill a B cup bra (Fig. 6).
DISCUSSION

In the current climate of breast cancer treatment, many patients are undergoing bilateral mastectomy, which is due in part to increased awareness of genetic risk factors and the increase in prophylactic mastectomy. Many patients and surgeons prefer autologous tissue for breast reconstruction. This has led to the evolution of free perforator flap reconstruction for unilateral and bilateral breast defects. Our first choice for autologous bilateral breast reconstruction is the abdominal pannus and we favor bilateral deep inferior epigastric perforator flaps. However, when an abdominal flap is contraindicated due to paucity of tissue, scarring or previous liposuction of abdominal tissue, we need to consider additional donor sites such as the buttock, back, or thigh. Gluteal subcutaneous tissue is more firm than breast tissue and allows good breast projection, although there may be some issues with contouring.1,9 Bilateral breast reconstruction with gluteal flaps requires patient repositioning and for bilateral reconstruction may need to be planned as a staged procedure. Use of bilateral extended latissimus dorsi flaps also necessitates repositioning and is associated with a higher risk of donor site complications.7,8,15 The donor site scar may be significant7,8 and are generally less acceptable to Asian women.9

Thigh flaps can be oriented either transversally or longitudinally. Transverse flaps (lateral transverse thigh, transverse upper gracilis, Rubens) have been used for breast reconstruction in patients with bulky fat accumulation in the upper lateral thigh (saddle bag), upper medial thigh, and iliac crest area.10–16 As a group, such flaps have been criticized for their limited width and potential donor site contour deformities.10–16 The ALT is the only longitudinal thigh flap to have been previously described for breast reconstruction.9,17,18 It has been successfully used in patients with low BMI and small breasts.9 It has also been described in obese patients to avoid abdominal wound complications and pulmonary complications caused by reduced tidal volume due to increased abdominal pain.18 The major disadvantages are limitations of width and donor morbidity.9,17,18

Because of the soft pliable consistency of the lateral thigh tissue and the ease of intraoperative patient positioning; the ALT flap, is gaining favor as preferred second donor site for bilateral autologous breast reconstruction. The exact flap choice should be tailored to the patient’s morphology. For a patient with a generalized excess of thigh tissue we offer that a longitudinally oriented flap causes less donor deformity than a transversally oriented one.

SUMMARY

The anterolateral flap is a credible alternative that should be considered for bilateral autologous breast reconstruction in selected patients. ALT flap selection permits supine positioning of the patient throughout and simultaneous flap harvest and recipient site preparation. ALT flap characteristics include a large pliable skin component, long vascular pedicle, and soft underlying fat that more closely resembles breast tissue.

REFERENCES