The Combined Bra-Line Back Lift Latissimus Flap (BLBL-LAT Flap) for Aesthetic Breast Reconstruction and Simultaneous Back Contouring

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Abstract

Background: The latissimus dorsi pedicled (LAT) flap has been a workhorse flap for breast reconstruction for many decades. The asymmetric back scar has been a major source of complaint. In patients with excess back adiposity, we can utilize the skin paddle harvest to improve back contour. We combined the principles of the aesthetic bra-line back lift with the LAT flap to provide simultaneous improvement of both posterior upper trunk adiposity and skin excess, which together form "back rolls," with a concealed scar.

Objectives: The objective was to establish a new surgical technique of combined bra-line back lift with latissimus dorsi flap (BLBL-LAT flap) for aesthetic breast reconstruction.

Methods: This was an IRB-approved retrospective single-surgeon study performed in a national cancer center. We included patients undergoing breast reconstruction with the combined BLBL-LAT flap between 2015 and 2023, with a minimum of 6 months of follow-up.

Results: A total of 106 female patients underwent 110 breast reconstructions with the BLBL-LAT flap. Seventy-five percent of patients had prosthesis placement and 25% of patients were 100% autologous. Complication rates were low: 4 of 106 patients (3.8%) had seroma, needing surgery. Of the 78 reconstructions with implants or tissue expanders, 3 (3.8%) had a periprosthetic infection. One (<1%) patient had partial flap loss, and no patients had complete flap loss. Four patients had bilateral BLBL-LAT flap reconstruction. Two unilateral breast reconstruction patients came back for successful symmetrizing of the bra-line back lift (without LAT flap breast reconstruction).

Conclusions: The BLBL-LAT flap allows breast reconstruction and simultaneous improvement of back contour, leaving a scar that can be concealed in a bra. This 2-for-1 procedure is of particular benefit to patients with a high BMI, who often have unwanted excess adiposity and laxity of the back. Because this patient population is at high risk for free tissue transfer, we propose that the BLBL-LAT flap be considered the first-line method of autologous breast reconstruction in higher BMI patients.

Level of Evidence: 4 (Therapeutic)

The pedicled latissimus dorsi myocutaneous flap (LAT flap) has been a reliable workhorse option for autologous breast reconstruction for many decades.[1] This versatile flap can be employed for immediate, delayed, partial, or total breast reconstruction.[1,2] The major criticisms of the LAT flap are the asymmetric back scar, the limited volume (often requiring an implant or autologous fat grafting), and donor site morbidity.[2,3] In contrast, when the abdominal free flap was first described by Holmström, it was called a "free abdominoplasty flap."[4] For patients, this "free tummy tuck" was an attractive 2-for-1 proposition. Patients not only got a natural-looking, slightly ptotic reconstructed breast, which could be 100% autologous, but were also able to get rid of their excessive abdominal pannus, common in this population. In reality, abdominal-based flaps often lead to a permanent abdominal bulge and hernias, requiring hernia repair and secondary scar revision.[5] With the advent of the free muscle-sparing transverse rectus abdominis muscle (MS-TRAM) and deep inferior epigastric perforator (DIEP) flaps, the incidence of hernia and bulge is improving, but remains significant (up to 33%), especially in higher BMI patients.[6] A recent study reported on comparison of long-term patient-reported satisfaction with the donor site after DIEP ($n = 118$) and the LAT flap ($n = 135$).[7] They found that the DIEP group was less satisfied with the aesthetic results of the donor site than the LAT flap patients.[7] Specifically, only 6.4% of LAT patients were unhappy with the appearance of their back, compared with 21% of the DIEP flap patients dissatisfied with their abdominal scars. Moreover, the rate of abdominal bulge was higher than previously believed; it was 15% in this group, which worsened with time, increasing as much as 1% per month. The authors pointed out that

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"harvesting a DIEP flap cannot be equated to an aesthetic abdominoplasty." This dispels the long-held belief that an abdominoplasty donor site is superior to the back donor site.

Most studies of the latissimus flap have focused on the outcomes of breast reconstruction.[1,8] While it was assumed that patients preferred the abdominal donor site scar to the back scar, there are not many papers that addressed this aspect in depth. In 1 study of 250 females, 50 with a history of breast cancer, participants were surveyed regarding pictures of various scars on the back from LAT flap harvest. They were asked to rank the scars in order of preference.[9] Sixty-six percent felt that the location of the scar was important. Fifty-four percent preferred the lower transverse scar, 22% the middle transverse scar, and 13% the upper transverse. Patients were most concerned about the ability to conceal the scar with a low-back top or swimwear and the ability to improve the contour of the back.[10] The more vertical (Figure 1A) and oblique (Figure 1B) incisions were least favorite, at 3% and 9% respectively. Traditionally, these 2 incisions allow the best exposure to the pedicle for the surgeon. Aside from giving the worse aesthetic result, with new rippling (new back rolls; Figure 1A), many of these scars cannot be covered by a bra (Figure 1C). In some cases, due to the tighter closure, we have seen reduced upper extremity range of motion.

A technique known as the "bra-line back lift" (BLBL) is an established cosmetic procedure, created to remove excess middle and lower back adiposity and skin, while concurrently concealing the final scar under the bra-line.[11] By combining the principles of this technique to design the latissimus flap skin paddle (what we have coined the "combined bra-line back lift LAT flap," or BLBL-LAT flap), we provide breast reconstruction and simultaneously improve back aesthetics, with a scar that can be concealed by a bra or 2-piece bikini.[12] Removing a larger than usual latissimus dorsi skin and adipose paddle allows recruitment of multiple fat compartments in higher BMI patients. The resultant increase in flap volume gives no additional donor site morbidity (Figure 2A-J).[13] This is particularly beneficial in countries such as the United States, where the average BMI of breast cancer patients is significantly higher than in other regions of the world, such as Asia. The purpose of this paper was to highlight the benefit of combining the aesthetic principles of the bra-line back lift and reconstructive advantages of the LAT flap in breast cancer reconstruction. The focus of this current study was to report on the flap design, surgical technique, and aesthetic results, so that the reader might replicate the results.

METHODS

This was a City of Hope Institutional Review Board–approved retrospective study of all patients undergoing combined bra-line back lift latissimus dorsi myocutaneous flap breast reconstruction. All surgeries were performed by the author between December 2015 and December 2023, at a US national comprehensive cancer center. All patients underwent the same surgical technique with a midtransverse-oriented scar, mirroring the principles of a bra-line back lift technique. The details of the case series were published recently.[14]

Preoperative Planning, Patient Positioning, and Surgical Technique

During initial consultation with the author, all patients were shown clinical images of patients with various orientations of the latissimus flap donor site. All patients agreed with the midtransverse incision, even those who lacked excess adiposity. On the day of surgery, the patient was seen by the surgeon and marked in the standing position. An elliptical skin paddle was designed, centered around the area of the bra line, in a similar fashion to the bra-line back lift (Figure 2E).[11] In patients in whom there was a lot of redundant lateral chest wall tissue, (so-called "dog ears" or "standing cone" deformity), the elliptical incision was tapered into the inframammary fold (Figure 3).[15] This was usually at the level of the anterior axillary line, as described by Hunstad et al.[15] In patients with severe lateral tissue excess, this incision extended further anterior and became continuous with the inframammary line.

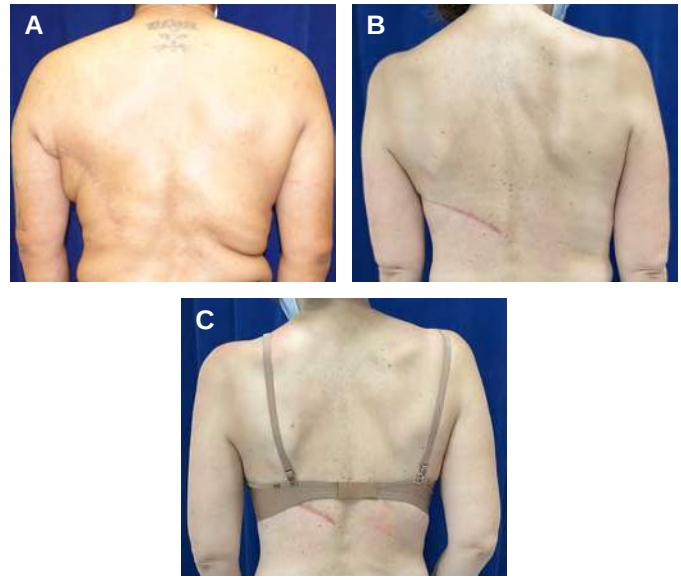

Figure 1. Examples of suboptimal LAT flap donor site scars by other surgeons. (A) A 42-year-old female patient had a LAT flap harvest with an excessively long skin paddle, with an oblique incision and tissue expander. The wound dehisced, and the expander had to be removed. Upon presentation, she had a poor aesthetic result, with new back rippling, and she experienced reduced upper extremity range of motion, needing physical therapy for 2 years. This scar could not be covered by a bra. (B) A 48-year-old female patient had a left pedicled latissimus flap for delayed breast reconstruction with an implant. She was unhappy with the oblique back scar that could not be concealed by her bra (C). View of LAT. LAT, latissimus dorsi.

In immediate unilateral reconstruction, the patient would already be in supine position at the completion of the mastectomy. We then continued to dissect the mastectomy pocket laterally, defining the anterior border of the latissimus muscle. The mastectomy incision was temporarily closed with buried sutures and covered with a temporary adhesive dressing. The patient was repositioned in the lateral decubitus position, maintained by an inflated bean bag. The ipsilateral arm was always prepared into the sterile field and secured to a Mayo stand (Teleflex Medical OEM, Plymouth, MN). Once the flap was harvested and transposed to the breast pocket, the back donor site was closed. The patient was repositioned into supine position for flap inset. Therefore, this surgery required 2 position changes.

In patients receiving unilateral delayed breast reconstruction who had preexisting radiated implants and extensive capsular contraction, we also started with the patient supine. This allowed extensive capsulectomy to be performed, as well as restoration of the breast footprint. Just like the immediate unilateral reconstruction, 2 position changes were needed; supine to lateral and back to supine. In unilateral delayed reconstruction, in patients who never had reconstruction after mastectomy (flat closure), extensive anterior chest wall dissection was not required. In these cases, we started with the patient in lateral decubitus position, and only 1 position change of back to supine was needed. We usually opened the old mastectomy scar and elevated the mastectomy flaps before harvesting the

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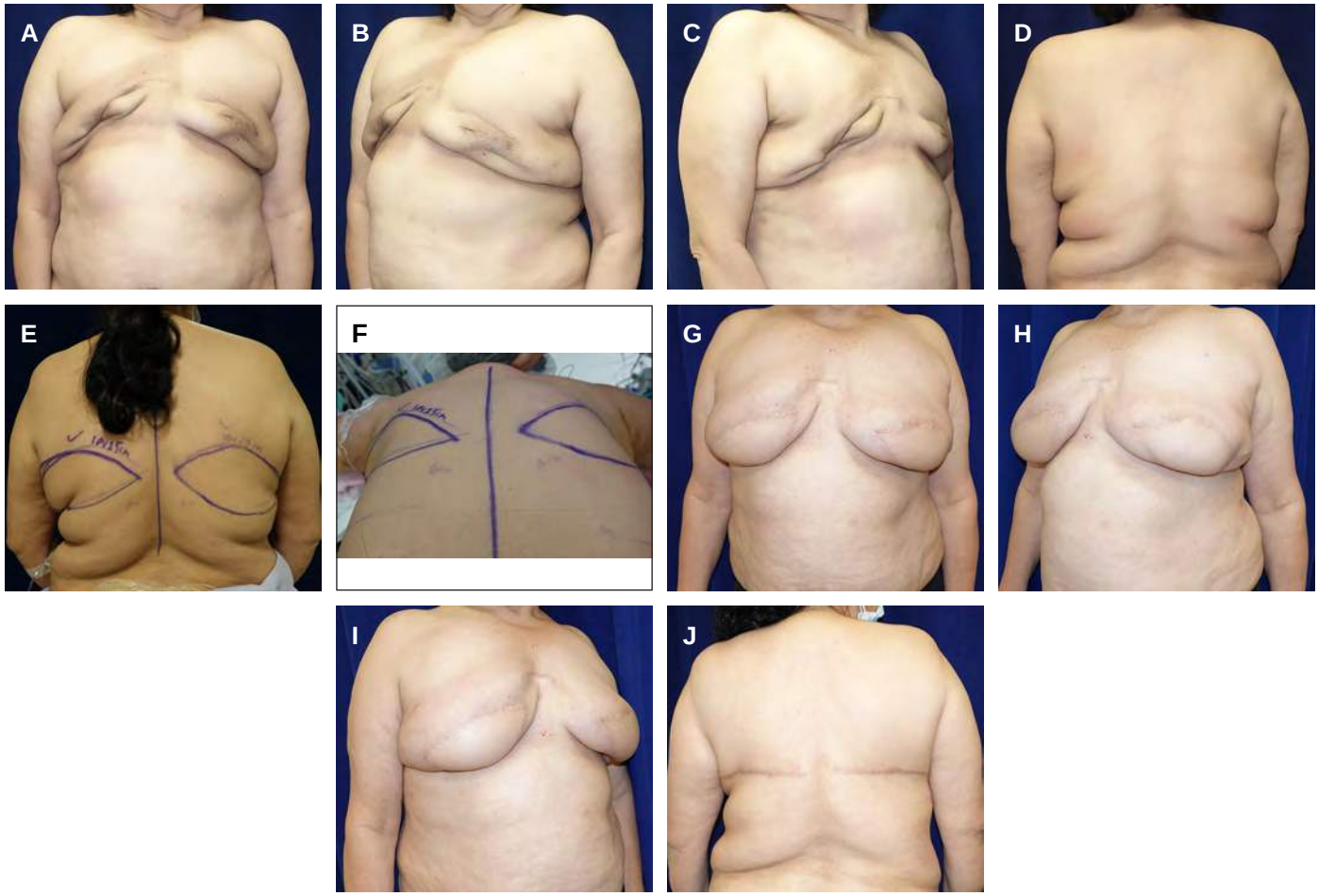

Figure 2. A 100% autologous BLBL-LAT flap reconstruction in a high BMI patient. This was a 52-year-old female with a BMI of 38 who had a history of bilateral skin-sparing mastectomy and bilateral chest wall radiation 2 years before presentation. (A) Frontal view. (B, C) Three-quarters view. Given her high BMI, she had noticeable lower back adiposity and excess tissue (D). She underwent delayed bilateral BLBL-LAT flaps on the same day, following the indicated preoperative markings (E). We started with the patient prone, and harvested both the flaps (F). After closing, we moved the patient to the supine position for flap inset. At 1 year postsurgery, she was seen with a relatively symmetric bilateral 100% autologous breast reconstruction. (G) Frontal view. (H, I) Three-quarters view. (J) Improved back contour. BLBL-LAT, bra-line back lift latissimus flap; BMI, body mass index.

latissimus flap and transposing it to the anterior chest wall. Very rarely, if the old mastectomy scar was too high for flap inset (Figure 4), we needed to create a new incision lower down on the chest wall (Figure 4), which was less aesthetically pleasing.

For immediate bilateral BLBL-LAT flap and delayed bilateral BLBL-LAT reconstruction in patients with preexisting implants, there were 2 position changes: we started with the patient supine for the mastectomies or explantation with capsulectomies. The first position change was from supine to prone, to allow for flap harvest. The arms were placed above the head in a "superman position" (Figure 2F). Flaps might be harvested simultaneously if there was a second surgeon, or in series if only 1 surgeon was available. Once the flaps were harvested, the flaps were placed into axillary pockets and the back was closed. The second position change was back to supine position for flap inset. For delayed bilateral BLBL-LAT flap harvest without preexisting implants, only 1 position change was needed; we started prone, harvested the flaps as described above, and then inset in supine position, as described by others.[17]

Once the anterior chest wall dissection was completed (this might include mastectomy or explantation with capsulectomies), we then turned our attention to the posterior chest to harvest the latissimus flap. The skin paddle was harvested with a #10 scalpel for the skin incision, followed by Bovie cautery (Stryker, Kalamazoo, MI) for deeper dissection, with minimal beveling. We started with the upper incision and worked toward the humeral insertion, which was often only partially divided. Rarely, the tendon was completely divided to allow further travel for a tension-free flap inset. We then committed to the lower incision and dissected out sufficient latissimus muscle distally to cover the implant. In 100% autologous reconstruction this distal muscle provided some upper pole soft tissue, particularly helpful in patients with thin upper mastectomy flaps. We usually dissected out 6 to 7 cm of muscle distal to the lower edge of the skin paddle. The prosthesis (in implant and LAT flap cases) was usually placed in the prepectoral position, allowing full implant coverage by the latissimus muscle. For example, if the anticipated implant base width was 13 cm and the skin paddle was 7 cm wide, we needed approximately 7 cm of muscle distal to the lower flap edge. Next, we transected the muscle distally and elevated this in a caudal to cranial manner with Bovie cautery. Once we reached the vicinity of the pedicle, we exchanged the Bovie for bipolar cautery (Hayden Medical, Santa Clarita, CA) in combination with fine Jakes tonsil forceps (Jarit Inc, Atlanta, GA) to avoid inadvertent pedicle injury. We did not electively transect the thoracodorsal nerve, as described by others, to prevent animation, because we wanted to avoid long-term muscle atrophy.

Once the flap (or flaps) was freely dissected, it was transposed 180 degrees and advanced to the anterior chest. We partially

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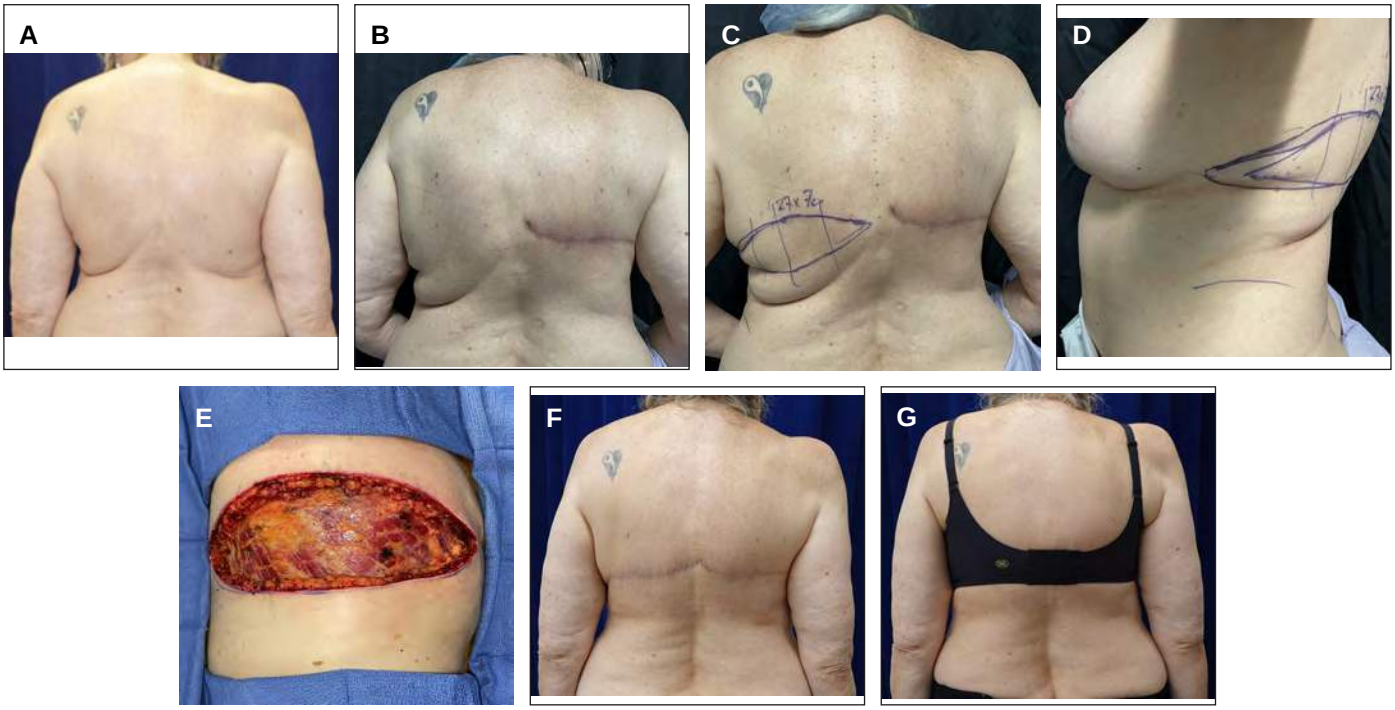

Figure 3. Delayed symmetrizing bra-line back lift after contralateral unilateral BLBL-LAT flap with silicone implant. This was a 65-year-old female with a history of locally advanced right breast cancer. She had severe capsular contracture after undergoing mastectomy with tissue expander reconstruction and subsequent radiation performed at another hospital. Before surgery she had significant lower back rolls bilaterally (A). We performed a revision of her right reconstructed breast with a BLBL-LAT flap and implant. She was very pleased with her breast reconstruction and back contour (B), and returned 6 months later for a contralateral bra-line back lift. (C, D) Preoperative markings. (E) Back defect after skin and subcutaneous fat were removed during bra-line back lift. (F) Resulting symmetric back scars and improved back contour 12 months postsurgery. This outpatient BLBL surgery was a 90-minute procedure and was covered by insurance. (G) Concealment of the scars in a bra. BLBL-LAT, bra-line back lift latissimus flap.

closed the tunnel of transposition with interrupted 2-0 Vicryl sutures (Ethicon, Raritan, NJ), leaving space that allowed the pedicle and muscle to transit tension-free. Based on preoperative and intraoperative findings, any additional excess lateral chest wall tissue or dog ears beyond the lateral tip of our ellipse was marked out and excised. Often this extended to the inframammary fold of the ipsilateral breast (Figure 3C, D). We placed two 15-French Blake drains (Ethicon) in the back donor site and sprayed the wound space with fibrin glue, as described by others.[18] The back incision was closed with 2-0 polydioxanone sutures (deep fascia), 3-0 Monocryl (deep dermal; Ethicon), running 4-0 Monocryl (subcuticular) suture (Ethicon), and skin adhesive. We did not apply any other back dressings for these patients at the conclusion of the case. In patients with a known skin adhesive allergy, we simply applied a petroleum dressing with antibiotic ointment and gauze.

After surgery, the breast incision was dressed with petroleum dressing and gauze. All patients are placed in a postsurgical bra until all drains had been removed. Once drainfree, patients wore a compressive breast binder for 2 additional weeks to prevent seroma formation. Occupational therapy range of motion exercises were started a week after all drains were removed, provided there was no seroma formation. Any seromas were aspirated with an 18-gauge needle in the clinic. Very rarely, persistent seromas required return to the operating room to remove the mature seroma capsule.

RESULTS

During the study period, 106 female patients underwent 110 breast reconstructions. Four patients had bilateral flaps.[14] The demographics of our patients are shown in Table 1. In the past year, we have started to offer symmetrizing bra-line back lift. To date, 2 patients who had unilateral BLBL-LAT flap for breast reconstruction underwent delayed symmetrizing bra-line back lift 6 months after their first surgery (Figure 3A-G). The average BMI was 27.5 kg/m^2 (range 19-38) and average age at time of surgery was 51 years (range 29-80). Ninety-one percent of patients had undergone radiation to the chest wall. The average length of stay over the entire 8-year study period was 2.1 days; by 2022-2023, the majority (83%) of patients stayed 1 night only. Four patients had simultaneous bilateral BLBL-LAT flaps, and their skin paddles were marked in the same transverse line (Figure 2E). During the early years of the study, we placed many more tissue expanders. In the past 2 years, we have not placed any tissue expanders, choosing instead to proceed directly to silicone implants. Twenty-six percent of our patients did not need any prosthesis.

DISCUSSION

In recent years, the latissimus flap has been overtaken by the DIEP flap in autologous breast reconstruction as the gold standard.[19] The biggest advantage of the DIEP flap for breast reconstruction when compared with the latissimus flap is the larger volume that can be harvested, with the potential for avoiding implants and fat grafting–related complications. Also, the fully autologous DIEP flap often has a more natural-looking ptosis than the latissimus flap with implants. Traditionally there was a perception that back donor site morbidity was significantly worse than the abdominal donor site.[5] Furthermore, patients liked the idea that they could be rid of their abdominal pannus. However, careful review of the literature reveals that far from the free abdominoplasty, as is often the pitch for a DIEP flap, short-term aesthetics and long-term bulge can result in significant patient dissatisfaction.[5] A recent patient-reported outcomes study revealed that patients were happier with the latissimus dorsi donor site in the long-term,

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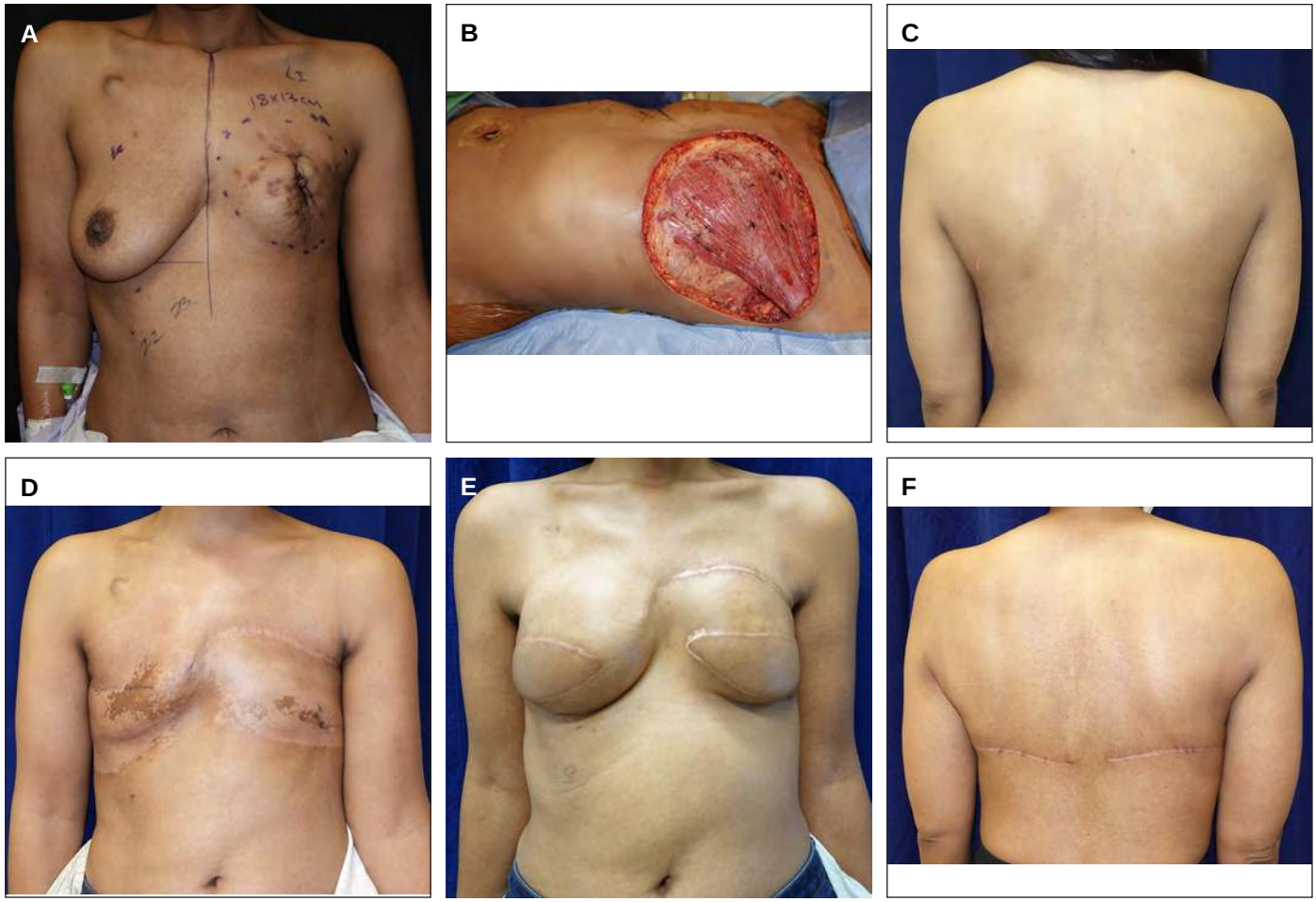

Figure 4. Thr BLBL-LAT donor site is preferred even in patients without excess back adiposity. This is a 40-year-old female patient with a BMI of 27, who presented with a large left breast cancer and extensive skin involvement, as well as contralateral locally advanced cancer. (A) Preoperative view. She underwent bilateral mastectomies with extensive skin resection on the left chest wall. (B) Intraoperatively, after her oncologic resection, there was a large skin and soft tissue defect of the left anterior chest. (C) Her back did not show any excess back adiposity. (D) We performed immediate thoracoabdominal advancement flap for coverage, allowing prompt postmastectomy bilateral chest wall radiation (12 months after surgery). She remained disease-free. (E) One year later, she had delayed breast reconstruction with bilateral BLBL-LAT flaps and direct-to-implants. (F) Her transverse back donor site scars healed well, without contour deformity or stretching of the scars.[16] BLBL-LAT, bra-line back lift latissimus flap; BMI, body mass index.

compared with abdominal donor sites.[7] In the past, there have been many studies reporting on attempts to minimize or change the orientation of the latissimus flap donor site. These include short scars, robotic and endoscopic harvest, and even "scarless" techniques.[20-22] All of these methods have distinct advantages and limitations. Clearly if a skin paddle is needed, such as after total mastectomy, minimally invasive techniques do not convey much advantage. For instance, as highlighted in a commentary, the scarless technique has a somewhat narrow application.[23] It is feasible for low BMI patients, who require muscle coverage only, and no skin flap.[22] Other advantages of the latissimus flap over the DIEP flap include the shorter operative time, lesser risk of complete flap failure, and easier recovery. In low BMI patients and those with coagulopathies or severe comorbidities, or patients who have undergone abdominoplasty, the lack of pannus precludes the use of the free DIEP flap.

In contrast to other authors, our technique does not try to minimize or shorten the donor site scar. Instead, we borrowed the principles of an established and accepted body contouring technique, to improve our skin paddle design and reduce excess back rolls. In doing so, we were creating long scars on the back, which could be concealed by a brassiere or even a 2-piece bikini (Figures 2I, 4G).

Worldwide variations of the body mass index of breast cancer patients are seldom discussed in the context of breast reconstruction, but this is highly relevant to our study. Most noted is the difference in average BMI of patients living in Asia compared with in the United States. A paper from Taiwan looking at risk factors of complications associated with tissue expansion found that instead of the standard cutoff of a BMI of 30 applied to Caucasian patients, Asian patients had an increased risk of complications when the BMI was greater than 24.[24] Aside from the fact that high BMI patients are associated with increased rates of postsurgery complications, breast reconstruction needs and challenges also vary with BMI.[25] Average bra cup size and mastectomy weights also differ significantly in different regions of the world. In a recent national database study of 46,042 US patients reporting about obesity effects on breast reconstruction outcomes, 31.5% had a BMI >30.[25] Further breakdown revealed 19% with a BMI of 30 to 35; 8.3% a BMI of 35 to 40, and 4.2% a BMI > 40.

In addition to high BMI patients, we also have a subset of normal BMI, postbariatric surgery patients with significant previous weight loss. This latter group of patients tends to have significant back rolls, which are best served with a combined bra-line back lift latissimus flap.[11] By removing this excess tissue to maximize contour improvement, we also get larger-volume skin paddles. This decreases the need for future treatments, such as autologous fat grafting.[26] This was highlighted in a recent radiological study, in which it was shown

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Table 1. Patient Demographics and Complications

Characteristic	*n* (%)
Total patients	106
Total BLBL-LAT flaps	110
Bilateral BLBL-LAT flaps	4
Average BMI, kg/m^2	27.5 (range 19-38)
Average age, years	51 (range 29-80)
Average follow-up	3.59 (range 0.8 to 8)
Patients with previous breast surgery	
Partial breast defects	13 (12.3)
Mastectomies	93 (87.8)
Surgical Indications	
Invasive cancer	84 (79.2)
Ductal carcinoma in situ	18 (17.0)
Phyllodes tumor	4 (3.8)
Timing of BLBL-LAT	
Immediate	28 (25.5)
Delayed	82 (74.5)
Type of BLBL-LAT reconstruction	
Autologous only	28 (26.4)
BLBL-LAT + Prosthesis	78 (73.6)
BLBL-LAT + Direct-to-Implant	59 (75.6)
BLBL-LAT + Tissue expander (before implant)	19 (24.4)
Subsequent symmetrizing bra-line back lift	2 (1.8)
Subsequent nipple reconstruction	13 (12.3)
Complications of surgery	
Seroma	4 (3.8)
Periprosthetic infection	3 (3.8)
Partial flap loss	1 (0.9)
Total flap loss	0 (0.0)

BLBL-LAT, bra-line back lift latissimus flap; BMI, body mass index.

that females with a high BMI had increasing latissimus flap skin paddle thickness by computed tomography (CT) scanning.[27] In 26.4% of our patients, a prosthesis was not needed and total autologous latissimus flap was sufficient for breast reconstruction.[14] None of our patients needed autologous fat grafting. We would also argue that even in patients who do not need a back lift, that is, thinner patients with a lower BMI, we have found patients to be very satisfied with the transverse orientation of the back scar and the ability to conceal it in the bra line, as reported by others.[28]

It has been noted by others that there is a high donor site morbidity, including seroma rates as high as 96%.[29] We have demonstrated that with judicious drain placement, this rate can be significantly reduced to only 3%.[14] Abnormal back contour and scarring were also common complaints, particularly in high BMI patients.[1] With our technique, we have seen that the high BMI patients were more likely to have more excess back rolls and therefore more noticeable improvement in back contour (Figure 2D, J). A recent paper described the problems of "dorsal irregularities" that were caused by uneven dissection during flap harvest, and possibly superficial quilting sutures. To resolve this, the authors successfully performed fat grafting.[16] Because we harvest the skin paddle (skin, subcutaneous fat, and fascia) en bloc and do not place quilting sutures, we have not seen any such contour problems, even in lower BMI patients. One patient with a BMI of 27 presented with left breast cancer and extensive skin involvement, with contralateral locally advanced cancer (Figure 4). She had to have bilateral mastectomy with extensive skin resection on the left chest wall (Figure 4B). She did not have excess back adiposity (Figure 4C). We performed immediate advancement of a thoracoabdominal flap for coverage, allowing prompt postmastectomy bilateral chest wall radiation (Figure 4D). She remained disease free. One year later, she had delayed breast reconstruction with a bilateral BLBL-LAT flap and direct-to-implants (Figure 4E). Her transverse back donor site scars healed well, without contour deformity (Figure 4F).[30]

Other authors have discussed length of stay (LOS) after latissimus flap breast reconstruction. Our overall average LOS was 2.2 days. As we increased our experience over time, this shortened to a 1-night stay. By 2022 and 2023, 83% of patients stayed overnight only.[14] We employ a modified enhanced recovery after surgery (ERAS) protocol, as detailed in our previous publication.[14] This was considerably shorter than other reports of LOS following other ERAS protocols. Taba et al reported on 193 patients; their ERAS group had an average LOS of 4.2 days, compared with 5.4 days in the no-ERAS patients.[31] We were also interested to see that a paper comparing conventional (open) vs endoscopically harvested vs robotic harvested LAT flap reported a LOS of 9.75 days vs 10.8 days vs 10.2 days.[21] Of note, these authors appear to keep their patients in the hospital until drains are removed.

Study Limitations

There were limitations of our study: we did not include formal patient-reported outcomes data. The author routinely follows up with her patients on an annual basis. Anecdotally, patients have been very satisfied, with the longest follow-up of 8 years to date. Several patients have come back and requested a contralateral BLBL-LAT flap, even in the unradiated breast. We also recently started offering symmetrizing bra-line back lift, and this has been met with enthusiasm in heavier patients with excess back adiposity. To date, 2 patients have undergone this successfully (Figure 3), and this was covered by their insurance as a symmetrizing procedure. These patients are cautioned that if we perform a symmetrizing bra-line back lift, this skin paddle would no longer be available if the patient were to develop breast cancer in the future. This concept of "burning bridges" was mentioned in a recent commentary regarding minimally invasive harvesting of a latissimus muscle–only flap for partial defects.[23]

We are currently obtaining IRB approval for a future study in which we will administer the BREAST-Q and specifically the latissimus flap specific BREAST-Q scales, to assess patient satisfaction after a BLBL-LAT flap.[32] A recent systematic review of patient-reported outcomes and complications of the pedicled LAT flap for breast reconstruction reported highly favorable scores.[3] They included 5

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studies and a total of 331 patients, with administration of the BREAST-Q, including psychosocial, sexual, and physical well-being.[3] The average response rate to satisfaction with outcome domain was 80%. Further, a meta-analysis of 2 of the studies showed that patients with a LAT flap and no implant had a statistically higher score than those with LAT and implant.[3] Previous literature has already established patient preference for a transversely oriented donor site scar.[9] The same authors also showed that patients value both orientation and contour improvement.[9] We anticipate that higher BMI patients will be more satisfied, because they will have improved symmetry of the back. We plan to stratify patients based on BMI. Because these patients are also poor candidates for free flap reconstruction due to a higher risk of complications, we propose that the BLBL-LAT flap be considered the first-line technique for autologous reconstruction in this population. We do not believe any other technique of autologous breast reconstruction sets out to improve back contouring by harvesting the excess adiposity. We hypothesize that the improvement in contouring will lead to a higher satisfaction than that from simply the transverse orientation that can be concealed by a bra.

CONCLUSIONS

The combined bra-line back lift LAT flap is the first iteration of the latissimus flap for breast reconstruction that embraces the back scar and utilizes it to improve back aesthetics—a concept that is well established in body contouring. The ideal patients are those with a higher BMI, who require a large-volume flap for breast reconstruction and also have excess back adiposity that they would be glad to be rid of. We suggest that even low BMI patients may benefit from the transversely oriented back donor site scar that can be concealed within the bra line. In a similar vein to Holmström and his free abdominoplasty flap, perhaps we should consider calling this new combined technique the bra-line back lift flap for breast reconstruction?

Disclosures

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