Lumbar Artery Perforator Flaps in Autologous Breast Reconstruction

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KEYWORDS

• Breast reconstruction • Perforator flaps • Lumbar • DIEP • Microsurgery

KEY POINTS

- Lumbar artery perforator flaps are an ideal second option for autologous breast reconstruction in patients in whom the abdominal donor site is unavailable.
- Safe and reliable reconstruction using lumbar artery perforator flaps typically requires the participation of multiple skilled surgeons and is facilitated by the use of interposition arterial and venous grafts.
- The lumbar perforator flap has an analog in posterior body lift cosmetic surgery, and therefore harvest of this flap produces an excellent cosmetic result at the flap donor site.

INTRODUCTION

The abdominal donor site has been the most widely used source of tissue in autologous breast reconstruction since the introduction of the "free abdominoplasty flap" by Holmstrom in 1979.[1] The deep inferior epigastric perforator (DIEP) flap was introduced in 1994 and is now the accepted "gold standard" in autologous breast reconstruction.[2] In many instances, however, the abdominal donor site is inadequate for any number of reasons including a paucity of tissue, prior surgical procedures that have injured the inferior epigastric perforators, or prior failed abdominally based flap reconstruction. Several alternatives have been used for autologous reconstruction in such cases. The primary alternative donor site options can be categorized as follows: combination procedures that use two or more flaps to reconstruct a breast, gluteal-based flaps, thigh-based flaps, and lumbar artery perforator (LAP) flaps.

Although the buttock was a popular alternative donor site to the abdomen in the early era of perforator flap breast reconstruction, gluteal-based flaps have largely been abandoned in recent years, in no insignificant part due to deleterious effects on the appearance of the buttocks. Potential adverse effects on the buttock region associated with superior and inferior gluteal artery perforator flap harvest include loss of volume and fullness and disruption of normal anatomic contours and boundaries. Furthermore, the morbidity associated with possible sciatic or posterior femoral cutaneous nerve injuries that can occur during the harvest of the lower buttock based upon the inferior gluteal artery perforator has rendered this flap all but obsolete.[3,4]

At many centers, thigh-based flaps including profunda artery perforator flaps, transverse and diagonal upper gracilis flaps, and lateral thigh perforator flaps are now the preferred secondary options in autologous breast reconstruction when the abdominal donor site is not satisfactory.[5] It is the authors' opinion that for many women, the LAP flap is the most optimal

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secondary option for breast reconstruction—producing favorable results at both donor and recipient sites—and indeed this view is now shared by several high-volume centers around the world.[6,7]

In properly selected patients, aesthetically pleasing breasts can be reconstructed from tissue harvested from either the thigh or lumbar region. However, the harvest of thigh flaps can introduce unnatural contour at a flap's donor site. This is not entirely surprising, as the design of many thigh flaps does not adhere to the principles of aesthetic body contouring surgery. Although the DIEP flap has an analog in the tissue removed during an abdominoplasty, most thigh flaps used in breast reconstruction do not have analogs in body contouring surgery. The PAP flap, for example, is harvested from a portion of the posterior thigh deemed a "no-go" zone by Rohrich and colleagues in his seminal work on contouring by suction-assisted lipectomy.[8] To our knowledge, the so-called "saddle-bag" area of the lateral thigh—that many women find cosmetically objectionable and for which they seek cosmetic surgical body contouring—is seldom if ever treated by direct excision. A key reason that excision is not used to treat this area is that the natural silhouette of the lateral thigh is convex, and excision of a wedge of tissue down to the plane of the lateral thigh fascia would disrupt the normal convex contour and introduce undesirable concavity. Nevertheless, harvest of an lateral thigh perforator (LTP) flap involves excision of lateral thigh tissue at the level of the fascia; the procedure can thus create significant contour deformity at the flap donor site.[9] This is a significant enough issue that liposuction at the time of LTP flap harvest has been described as means of trying to address the secondary deformity associated with harvest of this flap.[9]

In contradistinction, harvest of tissue from the lumbar area of the lower back follows the principles of cosmetic body contouring. LAP flap design has its analog in the design of a lower body lift.[10] Just as a posterior body lift lifts the buttocks, narrows the waist and accentuates the lordotic curvature of the lower back, so too does harvest of LAP flaps. As a result, harvest of LAP flaps produces Callipygean contour at the donor site.

Major drawbacks to LAP flap breast reconstruction include the relatively high rate of flap failure (6% to 10%) reported for this procedure as well as a high incidence of donor site seroma.[11] Postoperative sensory changes at the donor site are also common. It is essential that patients considering LAP flap breast reconstruction be properly informed about the risks and benefits of this surgery.

History of Lumbar Artery Perforator Flaps

Pedicled flaps based upon the LAPs have been used in locoregional reconstruction of the lumbosacral region.[12,13] The first reported free flap harvested from this area for breast reconstruction was in 2003 by de Weerd and colleagues[14] Since that time, LAP flap breast reconstruction has slowly grown in popularity. Although the donor site is aesthetically ideal, the technical difficulty of the procedure and a comparatively high reported complication rate have likely contributed to a relative lack of widespread adoption of LAP flap breast reconstruction. Inherently, the procedure is technically challenging and best undertaken by microsurgeons who have significant experience with complex perforator flap microsurgery. We and others have found that refinements in execution have improved operative efficiency and outcomes.[11,15,16]

Anatomy

Several studies have delineated the vascular anatomy of the lumbar region and more specifically, that of the LAPs.[17,18] The dominant LAPs most commonly arise from the L4 posterior intercostal branches.[11,19] These perforators most commonly course between the quadratus lumborum and erector spinae muscles to enter the subcutaneous tissue approximately 7 to 10 cm lateral to the posterior midline. Alternatively and less commonly, these perforators can traverse through the erector spinae muscle fibers on their way to entering the fatty tissue of the lower back.[20] The ideal and most preferred anatomy of the perforator upon which to base an LAP flap is a sizable septo-cutaneous L4 perforator. L5 perforators are sometimes the largest; however, the intimate relation of the L5 perforator to the pelvic bone can present significant difficulty for the surgeon. L5 perforators can be adherent to the pelvic periosteum and thus dissection of the thin-walled veins off of the pelvis is tedious and unforgiving. Of course, the immobility of the pelvis can make exposure difficult and adds to the challenges of L5 perforator dissection. In addition, L5 perforators may originate on the iliolumbar vessels rather than the aorta. In such cases, the dissection may not be toward the spine but rather in a more lateral trajectory.

The Artery of Adamkiewicz typically arises between T8 and L1, and is thus easily avoided at the L4 to L5 level.[21] The Artery of Adamkiewicz supplies the lumbar and sacral spinal cord and must be preserved to avoid neurologic complications while harvesting lumbar flaps.[22]

Patient Selection, Preoperative Workup, and Surgical Planning

Any patient who requires autologous reconstruction but does not have a suitable abdominal donor site may be considered for LAP flap reconstruction. Many women have sufficient fatty tissue in the lumbar distribution and this can readily be assessed on clinical examination. Pinch testing and physical examination are used to determine if a sufficient amount of soft tissue is available to reconstruct a breast to the desired dimensions. The laxity of the lower back and buttock tissue are evaluated to ensure that donor site closure will be achieved with appropriate tension and contouring. Prior lower back surgery may or may not be a contraindication to LAP flap harvest, and discussion with a spine surgeon should take place when appropriate. In addition to the standard preoperative risk assessment done for a patient undergoing free flap breast reconstruction, careful attention should be paid to risk factors for hypercoagulability, as hypercoagulability is a relative contraindication.

The total surface area of skin that can be incorporated into an LAP flap is generally markedly less than can be harvested with the typical DIEP flap. The skin paddle of an LAP flap is typically elliptical in shape and measures 6 to 8 cm at the longest part of the short axis of the ellipse. The long axis of the LAP flap skin island typically measures between 22 and 27 cm. The fat lobules of the lower back are similar to those of the buttock region in that they are more taut and less malleable than the fatty lobules of the abdomen wall. LAP flaps thus have greater stiffness and turgor than do abdominal flaps. As a result, like an SGAP flap, the LAP flap produces excellent contour, but there is little ability to manipulate either the fatty component or the skin paddle when insetting these flaps. The surgeon essentially “sculpts” the breast at the time the flap is harvested, and the flap is simply “placed” into the recipient site defect. Women who require significant restoration of the skin envelope of the reconstructed breast may not be good candidates for LAP flap surgery.

Preoperative cross-sectional imaging with perforator mapping is essential (**Fig. 1**). In keeping with the recommendations of the American College of Radiology, to avoid exposing patients to unnecessary radiation when alternative testing modalities are available, we prefer magnetic resonance angiography (MRA). Use of MRA avoids the significant dose of radiation that is delivered to the abdominopelvic region when high-resolution CT scanning is used for perforator mapping.[23–25]

The LAP flap pedicle is short and the artery has a narrow caliber. Pedicle length tends to be in the range of 2 to 4 cm, and the arterial diameter in the rage of 0.8 mm to 1.2 mm. Without interposition grafts, microsurgical anastomoses of the pedicle vessels to the internal mammary vessels (our recipient vessels of choice) are extremely difficult. Size mismatch at the arterial anastomosis increases the risk of thrombosis owing to turbulent flow, and flap inset is complicated by a lack of freedom of movement attributable to the short pedicle. These issues have been mitigated with the use of arterial and venous interposition grafts.[26] Depending on individual circumstances, we harvest interposition grafts from either the deep interior epigastric system or the thoracodorsal system.

Markings

We use the lumbar region ipsilateral to the breast that is being reconstructed. Harvest of an LAP flap ipsilateral to the breast being reconstructed facilitates shaping of the breast, microsurgical anastomoses to mammary recipient vessels, and flap inset.

The flap is bounded anteriorly by the anterior superior iliac spine (ASIS) and posteriorly by the midline. The flap is centered vertically on the perforator/s that are selected based upon preoperative cross-sectional imaging. The vertical height of the skin island is determined by a pinch test and the skin island is designed as an ellipse (**Fig. 2**). It is important to avoid harvesting too large a skin paddle to avoid a closure under tension that can predispose to donor site wound breakdown.

Along the horizontal axis of the flap, the lumbar perforator/s generally enter the underside of the flap approximately 7 to 10 cm from the posterior midline.

The area of soft tissue to be included in the flap will extend well beyond the inferior border of the skin island. The fatty component of an LAP flap includes both lower back fat and gluteal fat. The surgeon should design the flap so that it will have a total vertical height of at least 13 to 16

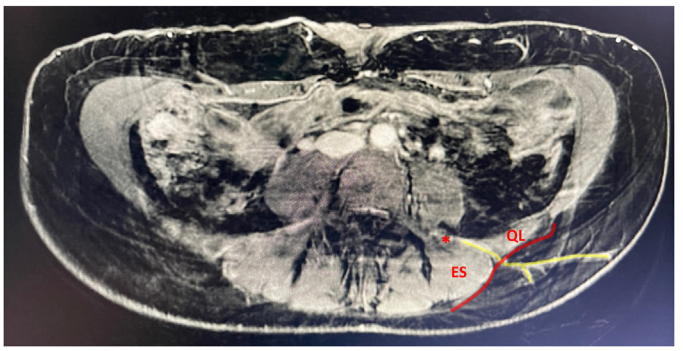

Fig. 1. Magnetic resonance angiogram showing a left septocutanous lumbar perforator (*highlighted in yellow*) passing between the quadrates lumborum (QL) and the erector spinae (ES) muscles. The relatively short distance between the surface of the thoracolumbar fascia (*red line*) and the tip of the transverse process (*asterisk*) can be appreciated on this representative image.

cm. The area of subcutaneous fat that will be incorporated into the flap from beneath undermined buttock skin is marked (see **Fig. 2**). We find it helpful to visualize harvesting a flap that ultimately takes the shape of an anatomic-shaped breast implant or inflated tissue expander.

Surgical Procedure

We always begin LAP flap reconstruction with preparation of the recipient site with the patient in supine position. Recipient vessels are dissected following the mastectomy in an immediate reconstruction or after the breast pocket has otherwise been prepared in a delayed reconstruction. We think it is most prudent to have the recipient site ready before harvest of the flap and interposition grafts. The internal mammary vessels are the preferred recipients for lumbar flap reconstruction. The thoracodorsal vessels can be used as recipient vessels as well; however, they are less desirable than the mammaries given the geometry of the LAP flap and its pedicle.

If vascular grafts are to be harvested from the abdomen, we also dissect, but do not harvest, deep inferior epigastric vessels during the initial stage of surgery. To avoid prolonged ischemia of the grafts themselves, interposition graft ligation and harvest are done only after flap harvest is completed.

Once recipient site preparation is complete and we are ready to harvest the LAP flap, the chest is

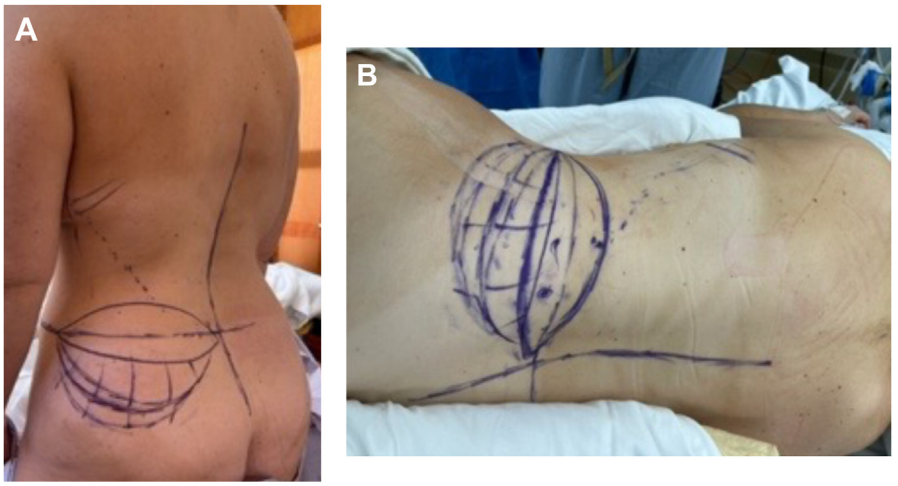

Fig. 2. LAP flap markings shown preoperatively (*A*) and on the operating room table with the patient positioned in lateral decubitus (*B*). The skin paddle is marked as a solidly outlined ellipse transected horizontally by a line corresponding to the level of the umbilicus. The ellipse measures roughly 6 to 8 cm vertically and 25 cm along its anterior-to-posterior axis. Along the vertical axis, the ellipse is centered on the identified perforators (marked as dots in image *B*). The dominant perforator is typically found approximately 7 to 10 cm anterior to the posterior midline. Other more anterior perforators may be identifiable with doppler, but these generally smaller vessels are not suitable for microvascular transfer of the flap. That portion of the flap that includes gluteal fat elevated subcutaneously is identified here with hash marks caudal to the skin island.

temporarily closed and covered with a sterile occlusive dressing. If abdominal grafts have been prepared, the graft donor site is similarly managed at this stage. The patient is then repositioned for the first time.

Positioning

The patient is positioned either in lateral decubitus position or prone position, depending on surgeon preference. There are pros and cons to each approach. It is often easier to identify the perforators when the patient is positioned prone; however, the deep inferior epigastric arteriovenous (AV) grafts can not be simultaneously harvested in this position. We sometimes use thoracodorsal grafts when the patient is placed prone for flap dissection. Although use of thoracodorsal grafts enhances efficiency in such situations, use of these grafts potentially eliminates a second set of recipient vessels as well as future latissimus dorsi flap harvest. Because the inferior epigastric grafts can be harvested with the patient in lateral decubitus position, operative efficiency is superior to prone positioning if flap dissection is done in lateral decubitus position when these grafts are used. Notably, an AV graft can be harvested from the thoracodorsal system in either the prone or lateral decubitus position.

Although the senior author has performed bilateral simultaneous LAP flap reconstruction, we generally favor staging bilateral LAP flap reconstructions. If bilateral LAP flap harvest is to be undertaken, prone positioning must be used.

Arteriovenous graft harvest

As described above, preparation—but not harvest—of an AV graft is typically completed before flap elevation. The inferior epigastric AV graft is harvested through a 5 cm groin incision. Dissection down to the rectus fascia is undertaken and the muscle fascia is split along the direction of the fascial fibers. The lateral border of the rectus muscle is identified and the muscle is reflected medially to expose the deep inferior epigastric pedicle on the underside of the rectus muscle (**Fig. 3**).The pedicle is dissected cranially and caudally as far as possible (typically 6 to 10 cm).

A thoracodorsal graft can be harvested in either prone or lateral position. A 5 to 8 cm incision is made along the bra strap line or within a relaxed skin tension line beginning just posterior to the anterior border of the latissimus muscle. The anterior border of the latissimus is exposed and reflected to allow access to the TD pedicle on the undersurface of the muscle. The vessel is identified and dissected cranially into the axilla and caudally toward the takeoff of the serratus branch (see **Fig. 3**). Prior axillary dissection or radiation are relative contraindications to use of the thoracodorsal pedicle as an AV graft, unless patency of the vessels is confirmed with preoperative imaging.

Flap elevation

Flap elevation is begun by incising along the skin paddle markings. The superior incision is then deepened and the dissection is beveled toward the upper limit of the flap. Only a small amount of subcutaneous fat beyond the edge of the skin island is captured along the superior border of the flap. Along the inferior border of the skin island, the flap is shaped by beveling into the gluteal fat and capturing a significant amount of gluteal fat in the flap (**Fig. 4**). This dissection occurs in nonanatomic tissue planes with the surgeon visualizing that, at this stage of the procedure, he or

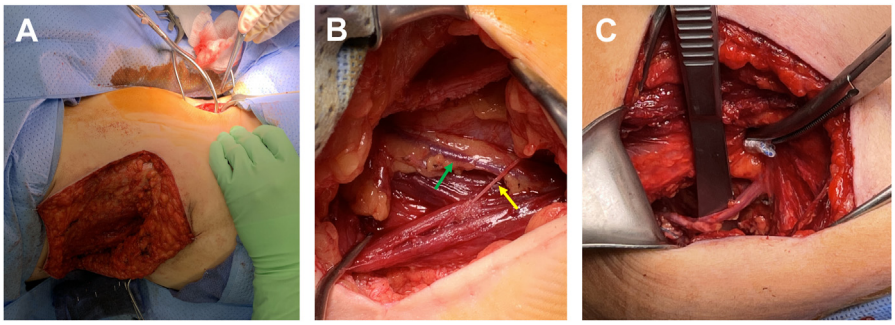

Fig. 3. AV graft harvest: An AV graft can be harvested from the deep inferior epigastric system with the patient in the lateral decubitus position (*A, B*). Deep inferior epigastric grafts are seen held in the surgeon's forceps (*A*) immediately after an LAP flap was harvested (LAP donor site is seen at the bottom of the photograph). A close-up view of the DIE graft (*green arrow*) with a preserved motor nerve (*yellow arrow*) crossing over the vessels is shown (*B*). Grafts can be harvested from the thoracodorsal system with the patient in lateral decubitus position as shown by the thoracodorsal (TD) vessels draped over the forceps (*C*).

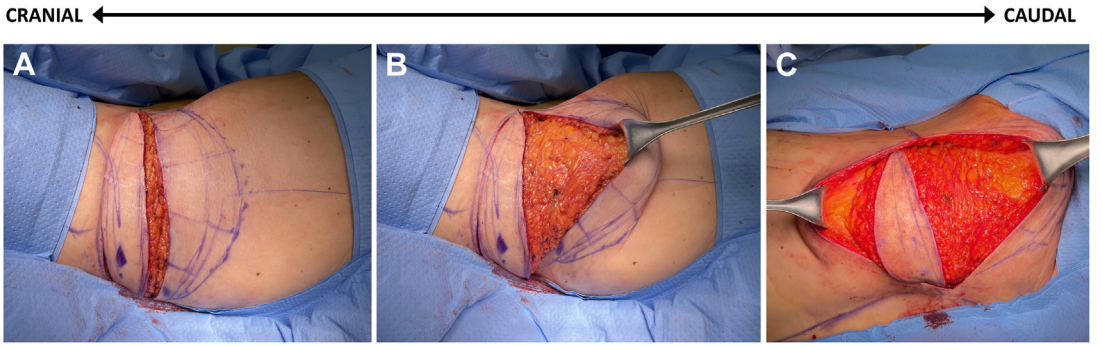

Fig. 4. Shaping the reconstructed breast during LAP flap harvest. The entirety of the flap skin island is incised (*A*). The flap is shaped by dissecting so as to capture a significant amount of gluteal fat along the caudal skin island incision (*B, C*). Along the cranial incision, surgical beveling is modest, and only a limited amount of fat is captured beyond the margin of the skin island (*C*).

she is sculpting the flap into the shape needed for the breast reconstruction (**Fig. 5**).

Care should be taken to avoid excessive dissection near the posterior midline lest an unsightly hollow result. However, care must also be taken not to undercut the flap in this area, as this portion of the flap will ultimately be needed to produce medial fullness of the reconstructed breast.

Once the superficial and peripheral flap borders have been defined by dissection with electrocautery, the flap is elevated from lateral to medial (lateral position) or from medial to lateral (prone position) until the lumbar perforators are identified piercing through the thoracolumbar fascia to enter the undersurface of the flap. The thoracolumbar fascia through which the perforators traverse is easily identified by its glistening white appearance. Notably, when raising the undersurface of the flap, dissection should be superficial to the gluteal fascia, and cluneal nerves should be preserved whenever possible (**Fig. 6**). If cluneal nerves must be divided, they should be repaired. Donor-site numbness, nerualgia and dysesthesia at the LAP donor site can be reduced with attention to preservation, and when necessary, repair of cluneal nerves.

Once the perforator/s have been identified, the thoracolumbar fascia is opened and the perforator/s are dissected, ideally in the septal plane between the quadratus lumborum and the erector spinae muscles. A skilled assistant is essential at this stage of surgery to help with exposure. Dissection must be meticulous and bloodless. L5 perforators may be adherent to the boney pelvic margin and must be freed from the periosteum that sometimes encases them. Extreme care must be exercised during that dissection as bleeding from branches heading into the pelvis can be difficult to manage. Lumbar perforators are dissected toward their origin until the surgeon reaches the level of the tip of the transverse process associated with the vascular pedicle (see **Fig. 6**). Dissection is always terminated at this level to avoid injury to the dorsal sensory ganglion or injury to deep vessels that may be difficult to control safely. The pedicle is typically 2 to 4 cm on length. A sensate flap can be created by incorporation of a sensory nerve entering the underside of the flap.

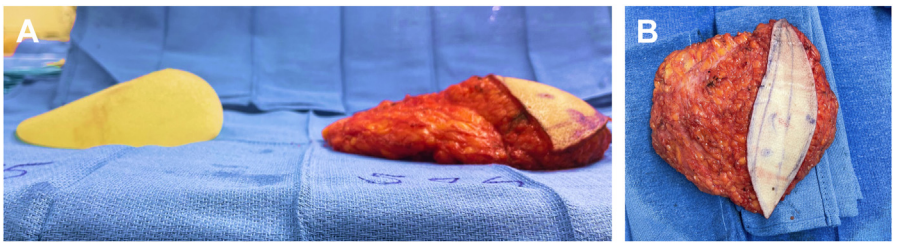

Fig. 5. Lateral (*A*) and anterior (*B*) views demonstrating the shape of the carefully elevated LAP flap. It is analogous to a form-stable implant as shown here (*A*).

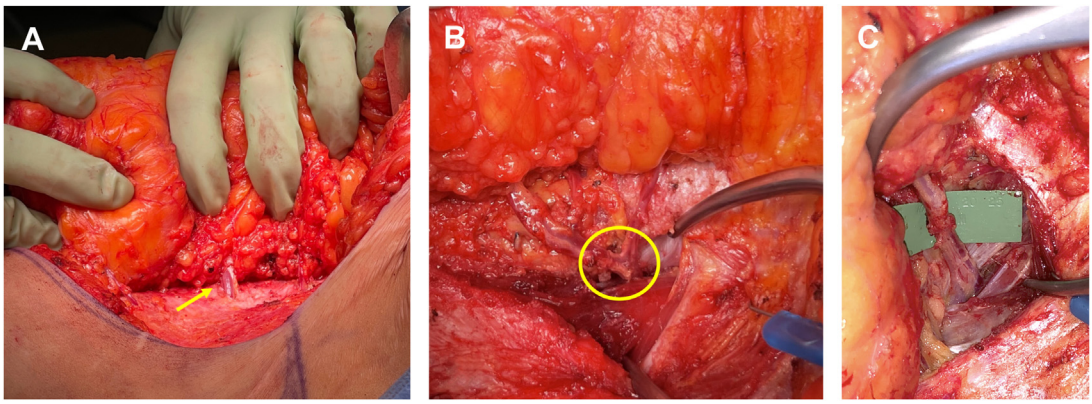

Fig. 6. LAP flap perforator identification and dissection. Once the superficial dissection of the flap has been completed, the deep surface of the LAP flap is elevated off of the underlying tissue and the lumbar perforators are identified and prepared. A large lumbar perforator is seen passing through the thoracolumbar fascia (*A*). Frequently two lumbar perforators coalesce just beneath the thoracolumbar fascia to form a larger single pedicle (*B*). The pedicle is dissected by opening the thoracolumbar fascia and following the perforator/s in the septocutanous plane to the level of the transverse process tip – a distance that is typically 2 to 4 cm (*C*). (*yellow arrow*) lumbar perforator; (*yellow circle*) two lumbar perforators coalesce into a single pedicle.

Flap harvest, donor site closure

Once the pedicle has been dissected and divided, flap elevation is completed using electrocautery to divide any remaining soft tissue attachments, and both the flap and the AV grafts are harvested. At this point in time, the flap is brought to the back table of the operating room where the AV grafts are anastomosed to the flap pedicle (**Fig. 7**). The arterial anastomosis is typically performed with a 1.0 to 1.5 mm coupler. If the arterial walls will not evert onto the tines of the coupler, the anastomosis is hand sewn with 10 to 0 nylon sutures. The venous anastomosis between the largest LAP pedicle venae comitant and that of the graft is completed with a coupler.

Except in circumstances when both prone positioning and deep inferior epigastric grafts are used, the LAP flap donor site is closed in layers while microsurgery is being done on the back table. Seromas occur frequently at the donor site, and we thus anticipate that a drain will be in place for up to 4 weeks. A 19 French round drain is placed in the donor site overlying the thoracolumbar fascia; it is brought out anteriorly near the ASIS so as to allow the patient to care for their drain without difficulty. We typically use a negative pressure dressing over the donor site suture line.

If interposition grafts are harvested from the thoracodorsal system, the upper back incision is closed over a drain before repositioning. If the grafts were harvested from the inferior epigastric system, the access incision is temporarily closed and covered with an occlusive dressing. Closure

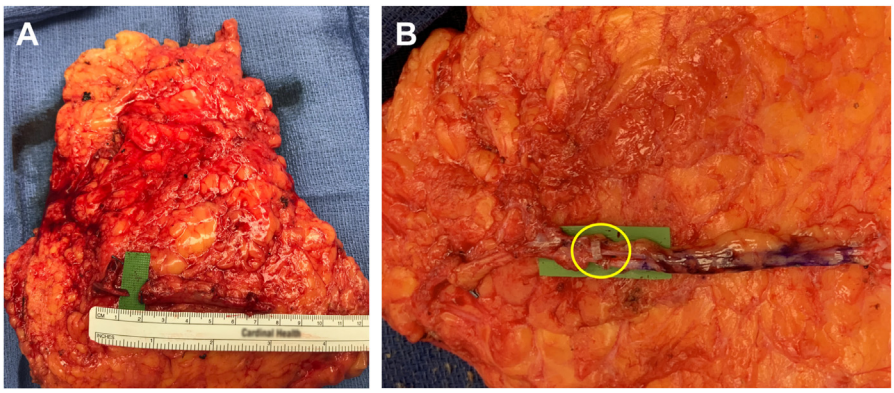

Fig. 7. LAP flap anstomoses to AV graft. A DIE graft, comprised of the deep inferior epigastric artery and two venae comitantes, is shown placed in proximity to the short lumbar artery pedicle on the undersurface of this LAP flap (*A*). Both the arterial and venous anastomoses are typically performed with couplers (*yellow circle*) (*B*).

Fig. 8. Case 1: Bilateral LAP flap breast reconstruction achieved using staged LAP flaps for this patient with inadequate abdominal soft tissue for breast reconstruction. The patient's abdominal donor site was clearly inadequate to provide the volume necessary to reconstruct both breasts. She underwent bilateral mastectomies, immediate reconstruction of the left breast with an LAP flap and immediate reconstruction of the right breast with a prepectoral breast implant. Subsequently, the right breast implant reconstruction was replaced with an LAP flap. Deep inferior epigastric interposition grafts were used bilaterally.

of that site is then done after the patient is repositioned to supine.

Flap anastomosis, inset

The patient is repositioned to supine and the previously dissected mammary vessels are revealed by removing the temporary dressing. The flap and its anastomosed AV grafts are brought to the recipient site and heparinized saline is flushed through the flap. If the flap has been harvested from the ipsilateral donor site, the flap is rotated 180° so as to position the vascular pedicle medially and the "gluteal" fat superiorly. This configuration is ideal for performing microsurgery at the recipient site and for shaping the breast. Total vessel length from the undersurface of the flap to the open end of the vessels of the interposition grafts will be in the range of roughly 8 to 12 cm. With this total vessel length, and with the diameters of the grafts and recipient vessels reasonably matching, anastomoses to the chest vessels closely

Fig. 9. Case 2: This patient presented after left mastectomy, axillary node dissection and post-mastectomy radiation. At the time of consultation, she sought right prophylactic mastectomy and bilateral autologous reconstruction. Her left breast was reconstructed with bipedicle conjoined DIEP flaps. The skin paddle of either an LAP flap or a single DIEP flap would have been inadequate for the left reconstruction and thus both hemi-abdominal flaps were used to reconstruct the left breast. Shortly thereafter, she underwent right prophylactic mastectomy and immediate right LAP flap breast reconstruction. A contralateral excision of lumbar tissue was performed at a later date for symmetry.

resembles microsurgery during DIEP flap breast reconstruction. After confirming patency of all anastomoses, the flap is inset.

The skin island will be oriented in the lower 1/3rd of the reconstructed breast, and that portion of the flap chiefly composed of gluteal fat forms the upper sloping portion of the reconstructed breast. This fat is tucked beneath the patient's own breast skin, and closure is done over a drain.

Revision Surgery

We find that most patients who undergo autologous breast reconstruction, regardless of the particular donor site used to harvest tissue, require a revisionary (so-called second stage) surgical procedure to optimize the results at both the donor and recipient sites. Our typical revisionary procedure is done on an outpatient basis 3 or more months following flap transfer surgery. These procedures include one or more

Fig. 10. Case 3: This patient is a 43-year-old woman who underwent staged bilateral prophylactic nipple-preserving mastectomies and LAP flap breast reconstructions. This patient's abdominal donor site was insufficient to achieve the desired volume and projection. Bilateral deep inferior epigastric interposition grafts were used. Autologous fat grafting was used at the time of revision surgery. Narrowing of the waistline that is achieved with lumbar artery perforator flaps is readily apparent.

of the following: revision of the reconstructed breast/s for shaping purposes and to reduce or eliminate flap skin island/s; nipple reconstruction; donor site scar revision; nipple reconstruction; contralateral breast reduction or mastopexy; symmetrizing procedure at the contralateral lower back for unilateral LAP flap reconstruction patients (**Figs. 8 to 10**).

SUMMARY

The LAP flap is an excellent option in autologous breast reconstruction when the abdominal donor site is unavailable. Performed correctly, elevation of this flap produces excellent contour at both the breast and the donor site. The callipygian contour that can be achieved at the donor site parallels the results of cosmetic body contouring procedures.

A major downside to LAP flap breast reconstruction is the relatively high rate of flap failure (6% to 10%) reported for this procedure. Donor site seroma and postoperative sensory changes at the donor site are also common issues. Size and position of the skin island limit the utility of the LAP flap in patients that require skin envelope restoration.

LAP flap surgery is an excellent choice for breast reconstruction in properly selected patients. In spite of certain limitations, the favorable attributes of LAP flap surgery make this approach our preferred nonabdominal flap for breast reconstruction.

CLINICS CARE POINTS

- Lumbar artery perforator (LAP) flap breast reconstruction is a technically challenging procedure with a relatively high reported failure rate. This procedure is best performed by experienced microsurgeons who routinely perform perforator flap surgery.
- Two microsurgeons are essential for efficient and safe execution of LAP flap breast reconstruction.
- Owing to the rigorous nature of this procedure and the complexity of the surgery, bilateral simultaneous LAP flap reconstruction should be reserved for surgeons already experienced with LAP flap surgery.
- A symmetrizing procedure is often performed several months after unilateral reconstructions to either directly excise or liposuction fat in the contralateral lumbar distribution.
- Donor site seromas are the most common complication of this procedure.

DISCLOSURE

The authors have no financial disclosures.

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