Breast cancer is the most common cancer in women. Although treatment advances have improved survivorship, surgical interventions can have detrimental effects on a patient’s self-esteem and body image. A major focus is now being placed on improving the quality of life for breast cancer survivors. With this, the availability of breast reconstruction has been recognized as an integral aspect of the recovery process.

The 2 major classes of breast reconstruction include synthetic implant reconstruction and autologous (flap) reconstruction, with the most common autologous reconstructions being transverse rectus abdominis myocutaneous, deep inferior epigastric perforator, or latissimus dorsi flaps. Overall, autologous reconstruction recipients tend to have higher aesthetic and general satisfaction than implant patients, as well as a lower risk of reconstructive failure. Although autologous flap failure is rare, technical errors during dissection and insetting for both free and pedicle flaps may lead to flap compromise and possible total or partial flap failure. In this article, we salvaged a pedicled latissimus dorsi musculocutaneous flap after transection of the intramuscular portion of the pedicle by anastomosing the serratus anterior branch of the thoracodorsal artery into the remaining flap vasculature distal to the damaged part. This technique resulted in partial flap salvage.

CASE REPORT

A 60-year-old woman underwent a right-sided lumpectomy in 2008 for invasive ductal carcinoma. After a second scare in 2010, she chose to have an elective bilateral mastectomy for prophylaxis. In 2016, a delayed autologous reconstruction of both breasts was performed using bilateral latissimus dorsi musculocutaneous pedicle flaps and implants.

Bilateral latissimus dorsi flaps were harvested and tunneled through to the anterior thorax for breast mound reconstruction. Upon transposition, blood supply to the pedicled flaps appeared intact with no evidence of vascular compromise. The patient was taken to the recovery room, where the left flap site began expressing signs of venous congestion with swelling, erythema, and a brisk capillary refill. Evidence of arterial insufficiency also began to present, as patches of the flap were cool to the touch with prolonged capillary refill. After close observation in the postanesthesia care unit, no improvement was seen and the decision was made to take the patient immediately back to the operating room.

The incisions of the flap were opened and the flap was elevated completely off the recipient site. Under loupe magnification, the vascular pedicle branches were dissected back toward their origin and the area of damage was located. It was determined that an accidental transection of the thoracodorsal artery and vein had occurred distal to the serratus branch take-off.

After dissection into the flap and identifying target vessels distal to the damaged area, it was decided to harvest the thoracodorsal artery into the remaining flap vasculature distal to the damaged part. This technique resulted in partial flap salvage.

Summary: Autologous breast reconstruction has become a standard option during the recovery of breast cancer survivors. Although pedicle damage is a rare complication of this procedure, extensive torsion or tension can lead to partial or total flap failure. We report a case of partial flap salvage after accidental transection of the pedicled blood supply within the intramuscular course of a latissimus dorsi musculocutaneous flap. This salvage technique involved microvascular anastomosis between the remaining vasculature of the latissimus dorsi pedicle and the serratus branch of the thoracodorsal artery and vein. (Plast Reconstr Surg Glob Open 2017;5:e1427; doi: 10.1097/GOX.0000000000001427; Published online 26 July 2017.)

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 authors.
the serratus anterior blood supply from its take-off at the thoracodorsal pedicle that was intact and follow it distally to achieve adequate length to use as donor vessels to reperfuse the compromised flap (Fig. 1). The donor vessels were a good size match to the target flap vessels. With this microvascular anastomosis, we were able to successfully re-establish blood flow in the flap. The flap appeared much healthier and was well perfused. The patient was admitted to the plastic surgery service for observation, where flap congestion was seen with some distal tip necrosis. Over the next 2 weeks, the necrotic area expanded to include the cranial breast skin, resulting in a salvage of approximately 50% of the flap (Fig. 2). A secondary revision surgery was performed 2 months postoperatively to remove the necrotic portion of the flap. A tissue expander was subsequently inserted beneath the flap and the patient is currently undergoing breast tissue expansion (Fig. 3). Moving forward, the surgical plan involves bilateral breast reconstruction with implant exchange.

**DISCUSSION**

Autologous flap failure is an infrequent but serious complication that may require immediate surgical intervention. Previous groups have documented flap salvage...
using primary anastomosis techniques, \(^2\) conversion to a free flap, \(^2,3\) vein graft techniques, \(^2,4\) or by harvesting a new flap altogether. \(^5\) Although flap salvage by anastomosis to the serratus branch of the thoracodorsal artery has been previously recognized, \(^2\) we are not aware of any groups attempting this flap salvage technique. Our choice to proceed with this method was an unpremeditated decision made in the operating room that required a thorough knowledge of local vascular anatomy.

Patient preferences and surgical resources are factored into the decision of which type of breast reconstruction to proceed with. For pedicled reconstructions, the flap is supplied by its native vasculature after transposition. In contrast, free flap reconstructions require microvascular anastomosis to the existing blood supply at the site of transposition. For this reason, pedicled reconstructions are generally characterized by shorter operation times. Additionally, they do not necessitate a surgeon with microsurgical training. We wish to use this case to show that intraoperative flap damage may benefit from or require microvascular surgical interventions to salvage the flap. Thus, we would like to stress the importance of adding microsurgical techniques to one’s armamentarium not only for free flap reconstruction but for possible pedicled flap reconstruction salvage in such cases as the one presented.

CONCLUSIONS

Breast reconstruction is now recognized as a key element in the management of breast cancer survivors. Although reconstructive failure is rare, surgeons must be aware of these risks and be equipped to handle these complications as they arise. In this case, emergency microvascular surgery was necessary to salvage the flap. We wish to use this case report to provide surgeons with an intervention option for flap avulsion and to stress the importance and benefit of microsurgical skills when faced with these complications.

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