Indications and Controversies for Nonabdominally-Based Complete Autologous Tissue Breast Reconstruction

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KEYWORDS

• Autologous breast reconstruction • Microsurgery • Non-abdominal donor site • Lumbar flap • Second choice flap

KEY POINTS

- The deep inferior epigastric artery perforator (DIEAP) flap is the gold standard in breast reconstruction; microsurgeons should be able to provide alternatives whenever abdominal tissue is not available.
- Gluteal flaps are firm, can be subject to shelving, and distort the buttock contour.
- Thigh flaps are often limited by volume, and scars tend to descend over time.
- The lumbar artery perforator flap approaches the shape and feel of native breast tissue better than any other alternative.
- The dog-ear flap should be considered as a salvage flap for patients with a failed DIEAP flap reconstruction and sufficient bulk on the hips.

INTRODUCTION

Breast cancer scars a woman's body and her psyche. After breast amputation, autologous reconstruction is considered the gold standard and should be available to women worldwide. Reconstructive breast surgeons should master the different options that are available. Autologous breast surgeries have evolved from day-long nerve-wrecking procedures to almost routine surgeries that take up a few hours. With success rates of elective breast reconstructions approaching 100%, focus has shifted from flap survival to 3-dimensional perfection.[1] As the next step, surgeons should aim to perform a true reconstruction, restituting form and function. Obviously, a functional breast does not suggest the capability of breast feeding, but the restoration of at least tactile and erogenous sensation. Social media and the Internet submerge patients in pictures and information on the topic of breast reconstruction. Patients are becoming more demanding and request an artist on top of the mechanic when looking at their reconstructive surgeon.

In the search for the ideal autologous breast reconstruction surgeons strive to provide patients with an aesthetically pleasing breast while causing minimal donor site morbidity. The deep inferior epigastric perforator (DIEP) flap can be considered as the gold standard, but alternative options should be discussed and contemplated. Several perforator flaps have been suggested, but few of them have the volume, shape, or feel of native breast tissue (**Table 1**).

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Table 1
Properties of different flaps in total autologous breast reconstruction

	DIEAP[14]	LAP	SGAP[15]	PAP[8]	IGAP[16]	TMG[3]
Weight (g)	Variability	497	451	366	425	330
Pedicle length (cm)	9,8	5	9.1	10.2	8–11	6–8
Donor site contour	Improves	Improves	Distorts	Improves	Distorts	Improves
Scar	Border of underwear	Outside underwear	In underwear	In underwear	In underwear	In underwear
Sensate	Lower intercostal nerves	Superior cluneal nerves	Superior cluneal nerves	Posterior femoral cutaneous nerve	Posterior femoral cutaneous nerve (S1–S2)	Cutaneous branches obturator nerve

PATIENT SELECTION

Genetic testing is available in developed countries, and more breast cancer genes are being identified. There is a growing population of young women who have to face the difficult decision of undergoing prophylactic breast amputation. Many of them are slender and do not have sufficient infraumbilical skin and fat and are poor candidates for bilateral DIEP flap reconstruction. Free flap harvest can be mutilating and the importance of positioning donor site scars in areas covered by normal clothing cannot be overstressed. An ideal prophylactic breast reconstruction provides the patient with a life-long, durable tissue transplantation with the shape and feel of normal breast tissue and preferably a sensate skin envelope.

Other patients looking for an alternative method of breast reconstruction are those with a previous history of liposuction or abdominal surgery with laparotomy scars. Cancer patients with a recurrence or contralateral disease also present a challenge when a DIEP flap was already used for unilateral reconstruction. **Fig. 1** illustrates typical candidates for autologous breast reconstruction not eligible for a DIEP flap.

When only 1 side needs to be reconstructed, smaller flaps can be used and even stacked together.[2,3] When insufficient volume is obtained by a single-flap reconstruction, autologous fat transfer can provide extra bulk and nicely shape the breast.

Patient selection is utterly important in free flap surgery. Complication rates are higher in patients with abnormal body mass index (BMI), vascular disease, and diabetes and in smokers. There is no exact exclusion criterion, but if a patient is too heavy, encourage her to lose weight. If there are

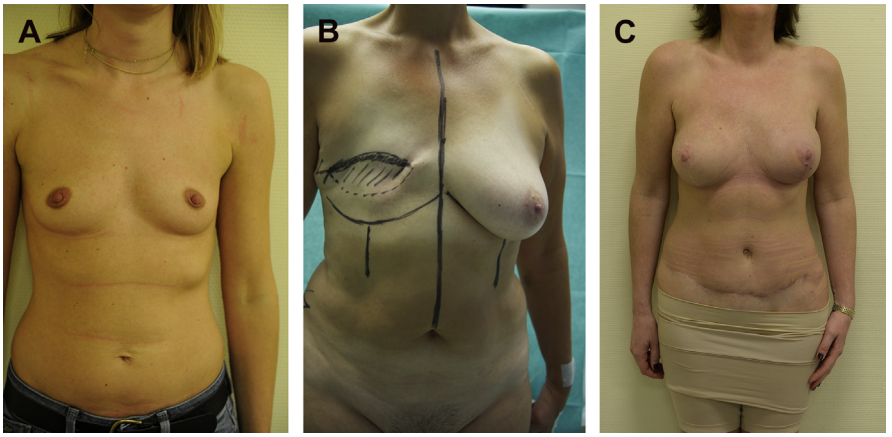

Fig. 1. Indications for alternative flap reconstruction. (*A*) BRCA-positive young woman, small breasted and no abdominal bulk. (*B*) Big-breasted woman with insufficient abdominal volume. (*C*) Contralateral disease after previous DIEAP flap reconstruction.