

Mastectomy with Microsurgical Autologous Reconstruction of the Breast

► Surgeons at the Division of Plastic Surgery and the Center for Human Appearance at Penn are performing microsurgical autologous breast reconstruction for invasive breast cancer using the DIEP (deep inferior epigastric perforator) flap procedure immediately following mastectomy.

At Penn, the choice of breast reconstruction technique and timing is predicated upon a review of outcomes, risks, benefits and patient preference. Autologous reconstruction, for example, has the benefit of avoiding permanent foreign or synthetic materials, which many women find results in a more natural aesthetic and feel.

Timing is an important consideration. Immediate breast reconstruction may reduce the psychological consequences of mastectomy and provide some technical benefits by contrast to delayed breast reconstruction, resulting overall in improved patient satisfaction and aesthetic outcomes.

Postoperative adjuvant chemotherapy, moreover, is not delayed by immediate breast reconstruction, and radiation can still be administered if indicated.

By comparison to other flap methods, the DIEP flap provides less post-surgical abdominal wall weakness and a decreased chance of abdominal wall hernia formation.

CASE STUDY

Mrs. G was referred to Penn Medicine at age 45 after the discovery of microcalcifications in her right breast during a screening mammography and a biopsy demonstrating invasive breast cancer. After considering her treatment options, which included breast conservation or mastectomy with breast reconstruction, Mrs. G chose to have a skin-sparing mastectomy with autologous reconstruction using an abdominal skin island. Following preoperative markings on both the chest and the abdomen, Mrs. G received anesthesia and was placed in the supine position. Upon elevation of the skin island from the fascia, the patient had excellent perforators on either side of the flap, sufficient to supply a DIEP free flap.

The anterior rectus fascia was incised above and below the perforators on the side of interest and the fascia reflected laterally off the muscle. To identify its connection to the inferior epigastric system, the muscle was splayed around the perforator and its lateral edge elevated from the posterior rectus sheath. The inferior epigastric vessels were then dissected to yield a flap along with a vascular pedicle free of muscle.

With the completion of the flap dissection, the inferior epigastric vessels were divided proximally and passed through the opening in the muscle at the level of the perforator. Throughout these steps, care was taken to maintain the intercostal motor nerve supply to the rectus muscle to preserve function. The flap then was separated from its



► Figure 1: Invasive breast cancer, preoperative view.



► Figure 2: Post-operative view following right breast reconstruction with a DIEP free flap including nipple reconstruction and tattooing for color.

remaining attachments to the abdominal wall and passed to the chest for microanastomosis of the vein and artery to the internal mammary vessels to reestablish blood flow to the flap. Finally, the flap was inset to recreate a breast mound and the abdominal donor site was closed.

Mrs. G was discharged from the hospital on postoperative day four, and soon resumed normal pre-operative activities, including cycling and golf. Nine months later, she returned for nipple reconstruction with a local skin flap for projection and eventual tattooing for color (Figure 1b). She has experienced no sequelae from her surgeries, is quite happy with the overall aesthetic result and perhaps most importantly, is cancer free.

FACULTY TEAM

Penn Plastic Surgeons are recognized for their dedication to research and clinical care and for their collaboration with multidisciplinary teams and internationally-known specialists to provide patients with the highest quality complex care. Penn Plastic Surgery is the nation's leader and among the world's largest centers in clinical volume in reconstructive microsurgery (recently performing their 5,000th free flap reconstructive surgery).¹ Penn plastic surgeons recently took part in the first Bilateral Robotic Assisted DIEP flap procedure in the nation.

Performing Breast Reconstruction Surgery at Penn Medicine

Alexander F. Au, MD

Assistant Professor of Clinical Surgery

John H. Bast, MD

Clinical Assistant Professor of Surgery

Paris D. Butler, MD, MPH

Assistant Professor of Surgery

John P. Fischer, MD, MPH

Assistant Professor of Surgery

Joshua Fosnot, MD

Assistant Professor of Surgery

Suhail K. Kanchwala, MD

Associate Professor of Surgery

Evan B. Katzel, MD

Clinical Assistant Professor of Surgery

Stephen J. Kovach, III, MD

Herndon B. Lehr, MD Endowed Associate Professor in Plastic Surgery

Joseph M. Serletti, MD, FACS

*Chief, Division of Plastic Surgery
Henry Royster-William Maul Measey Professor
in Plastic and Reconstructive Surgery*

Liza C. Wu, MD

Professor of Surgery

ACCESS

Penn Plastic Surgery Perelman

Perelman Center for Advanced Medicine

South Pavilion, 1st Floor
3400 Civic Center Boulevard
Philadelphia, PA 19104
215.662.7300

Penn Plastic Surgery Plainsboro

Princeton Medical Center
Medical Arts Pavilion, Suite 300
5 Plainsboro Road
Plainsboro, NJ 08536
609.853.7272

Plastic & Cosmetic Surgery

Lancaster General Hospital
554 North Duke Street, Ste 100
Lancaster, PA, 17602
717.291.5863

Penn Plastic Surgery Washington Square

Penn Medicine Washington Square, 19th Floor
800 Walnut Street
Philadelphia, PA 19107
215.662.7300

References

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