Breast Reconstruction



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KEYWORDS

- Breast reconstruction Oncoplastic breast surgery Breast implants
- Autologous free flap Fat grafting Acellular dermal matrix
- Nipple-sparing mastectomy

KEY POINTS

- Many options exist for postmastectomy and postlumpectomy breast reconstruction.
- Surgeons must present all options to safely offer reconstruction, based on patient preferences and adjuvant treatment effects.
- Postmastectomy reconstruction outcomes have been enhanced, in terms of aesthetics and outcomes, by nipple-sparing mastectomy, autologous fat grafting, acellular dermal matrices, and prepectoral breast reconstruction.
- Reconstructive outcomes are heavily influenced by postmastectomy radiation therapy; in such cases, autologous reconstruction or breast conservation and oncoplastic reconstruction may be preferable.

Video content accompanies this article at http://www.surgical.theclinics.com.

An estimated 253,000 women in the United States will be diagnosed with invasive breast cancer in 2017, and another 63,000 with in situ breast cancer. Since the federal enactment of the Women's Health and Cancer Right Act in 1998, mandating that all women will have insurance coverage for breast reconstruction, the rates of women seeking these options has increased significantly.¹ In 2016, there were 109,256 breast reconstruction procedures performed in the United States, representing approximately 40% of women undergoing mastectomies, and a 39% increase from 2000.²

Breast reconstruction after either mastectomy or breast conservation offers welldocumented benefits regarding body image, quality of life, and patient satisfaction.^{3–5} This is in large part owing to the advances in surgical techniques, and the multitude of available options for women seeking breast reconstruction after either mastectomy or lumpectomy.

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POSTMASTECTOMY BREAST RECONSTRUCTION

After mastectomy, implant-based breast reconstruction is the most commonly performed option. Either through the traditional 2-stage approach with tissue expansion, or through the single-stage (direct to implant) approach, these options produce highly aesthetic breasts in a multitude of sizes (Fig. 1).^{6,7}

The immediate placement of a tissue expander or permanent implant at the time of mastectomy is preferable, owing to the ability to use the shape of the breast skin envelope and achieve an improved aesthetic outcome. However, delayed breast reconstruction, after a previously performed mastectomy, is also possible and routinely performed (Fig. 2). Tissue expanders and implants, when placed for postmastectomy reconstruction, can be placed in different anatomic planes: fully submuscular (underneath pectoralis major muscle and serratus anterior muscle or fascia), dual plane (under a combination of pectoralis major muscle and acellular dermal matrix [ADM]), or prepectoral (completely covered with ADM).

The major benefits of prosthetic breast reconstruction are the ability for patients to choose the size of their reconstructed breasts, with rapid recovery and return to life/ work, owing to avoidance of incorporating other parts of the body as surgical sites. However, for those women looking to avoid foreign bodies, or use a more natural approach to breast reconstruction, autologous breast reconstruction is also an option for most patients. This involves using a combination of skin, fat, and muscle to reconstruct and replace the missing breast tissue and skin.⁸ This option most commonly involves tissue harvest from the abdomen (deep inferior epigastric perforator, transverse rectus abdominis flaps), inner or outer thighs (transverse upper gracilis, profunda artery perforator flaps), gluteal area (superior gluteal artery perforator, inferior gluteal artery perforator flaps), or back (latissimus dorsi flap).

The majority of these autologous procedures are now performed using microvascular (free tissue transfer) techniques, because this procedure allows for the harvest of little to no donor site muscle (less donor site morbidity), and enhanced perfusion once these flaps are reanastomosed to a vascular supply in the breast.

Both prosthetic and autologous breast reconstruction are highly successful techniques, allowing for reconstruction of reproducible and desirable breasts, after mastectomy. However, certain considerations and techniques must be taken into account when selecting the safest option; furthermore, recent advances have added



Fig. 1. Postoperative photograph of a 52-year-old woman, 4 years after bilateral nipplesparing mastectomies, and bilateral 2-stage prosthetic breast reconstruction.

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