

# Breast Reconstruction

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## KEYWORDS

- Breast reconstruction • Mastectomy • Breast implant
- Superior gluteal artery perforator flap • Lumpectomy
- Deep inferior epigastric perforator flap • Breast cancer

## KEY POINTS

- A collaborative approach within the diagnostic, oncologic, and surgical team with the reconstructive specialist is essential to develop a treatment plan that optimizes the patient's care from the very beginning.
- Only 33% of women who are otherwise candidates for immediate reconstruction at the time of mastectomy choose reconstruction.
- The type of mastectomy the patient undergoes directly influences the reconstructive outcome and aesthetics.
- Careful handling of the skin, gentle retraction, pristine dissection between the gland and the overlying subcutaneous fat layer, minimized cautery settings, and an understanding of the associated thermal plume are essential to reliably healthy skin flaps.

## INTRODUCTION

An estimated 300,000 women are affected by breast cancer every year in the United States, and another 2.6 million are living posttreatment. As diagnostic technology has progressed and the understanding of the disease process has evolved, the number of mastectomies performed in the United States has increased. Breast reconstructive techniques have commensurately become more sophisticated along the same timeline. The result is that those facing mastectomy have the potential to simultaneously retain physical beauty and wholeness. Despite these advances, only 33% of women who are otherwise candidates for immediate reconstruction at the time of mastectomy choose reconstruction. The 2 reasons most attributed to this remarkable statistic are failure of the treatment team to refer the patient to a plastic surgeon at the time of diagnosis/decision for mastectomy and the resultant lack of understanding on the patient's part regarding her reconstructive options.

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Disclosures: None.

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A collaborative approach within the diagnostic, oncologic, and surgical team with the reconstructive specialist is essential to develop a treatment plan that optimizes the patient's care from the very beginning. One facet of this team-based mindset is the mastectomy itself. Where will the incision be placed? What portion of the breast skin will be preserved? Will we reconstruct at the time of mastectomy or not? Will we preserve the nipple-areolar complex?

The type of mastectomy the patient undergoes will directly influence her reconstructive outcome and aesthetics. Mastectomy planning has become a surgical art in this regard. This procedure begins with incision placement. The convention of large horizontal incisions has become archaic in centers that use team-based planning before mastectomy. Incision placement that allows adequate exposure for mastectomy and simultaneous maximized reconstructive outcome may vary from vertical incision from nipple to fold, lateral incision from nipple to flank, straight, serpentine, fold hidden, and anywhere in between. The rule is complete preservation of the skin envelope in all but those with advanced disease or tumor cells near the skin surface. Even in these cases, the design may be carried out in a way that preserves peripheral landmarks in the breast and avoids a large medial extension that would otherwise be visible in drop-neck clothing. Basic considerations, such as preservation of the inframammary fold are a given, but the surgical oncologist must approach the breast skin as though it were a facelift. Careful handling of the skin, gentle retraction, pristine dissection between the gland and the overlying subcutaneous fat layer, minimized cautery settings, and an understanding of the associated thermal plume are essential to reliably healthy skin flaps. Perhaps even more important within these considerations is the avoidance of dissection beyond the peripheral boundaries of the breast because the medial and lateral intercostal blood flow is critical to meaningful perfusion of preserved breast skin.

Nipple-sparing mastectomy is a concept in evolution and one more level of sophistication with respect to mastectomy planning. For those who are candidates, this approach further elevates the standard, allowing outcomes that reach toward an "untouched" look after mastectomy. These concepts push the reconstructive result and in many cases, can produce a superior aesthetic to "breast preservation" (lumpectomy) protocols.

Tissue expander/implant reconstruction remains the most common form of reconstruction because of quicker recovery potential, avoidance of donor site morbidity, ease of procedure for the operating surgeon, and resultant wide availability. The implant or expander is placed beneath the pectoralis muscle to camouflage its upper pole and help protect the overlying skin. Acellular dermal matrix may be used to complete this pocket and further support the implant position and add thickness to the lower pole coverage.

Concerns with tissue expander/implant reconstruction include capsular contraction, infection, deflation, and the need for resultant additional surgery.

Autologous reconstruction allows one to use the patient's own tissue to reconstruct her breast. The pedicled transverse rectus abdominis myocutaneous (TRAM) flap, developed over 30 years ago, was the most significant step forward in autologous reconstruction. At present, autologous tissue breast reconstruction has evolved allowing free tissue transplantation to recreate the breast. These techniques no longer require use or loss of the rectus or other musculature and may be taken from any place on the body where musculo/fascio cutaneous perforating vascular pedicles enter overlying fat.

Most commonly, the abdomen is the source of tissue for autologous reconstruction with several options including pedicled TRAM, free TRAM, or deep inferior epigastric

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