

Technical Modifications for Breast Reconstruction and Nipple-Sparing Mastectomy and Their Long-Term Outcomes

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Introduction

The use of minimally invasive mastectomy has enabled surgeons to execute nipple-sparing mastectomy through a smaller, less noticeable incision while working in full view and with more accurate hemostasis. However, because of the shorter incision on the lateral breast border, it presents new difficulties for microsurgical breast reconstruction procedures including vascular anastomosis and flap in setting. To aid in the inset of flaps and the establishment and maintenance of the medial breast border, we suggest a novel method of transcutaneous medial fixation sutures. Before transferring the flap, the sutures are inserted following the mastectomy. The dermis of the corresponding medial point of the flap is then stitched to the three nylon loops. By simultaneously applying a slight pull to each of the three sutures and a combined lateral push, the flap is inserted into the pocket. After the flap insert is finished, the stitches are then knotted and buried.

The Transverse Rectus Abdominis Myocutaneous (TRAM) flap, the superior gluteal myocutaneous flap, the inferior gluteal myocutaneous flap, the lateral thigh flap, and the deep circumflex iliac soft tissue flap are all options for free autogenous breast reconstruction (Rubens). The most typical application of the TRAM flap is in free flap breast reconstruction. The superior gluteal flap is frequently utilized on individuals who have insufficient abdominal tissue or have had previous abdominal surgery. It is possible to create perforator flaps for both the TRAM flap and the superior gluteal flap, maintaining all of the implicated muscle and, in the case of the TRAM perforator, the entire rectus fascia. These flaps are more difficult technically but have no effect on how the donor site works. The usage of the other flaps is less common and is restricted to unique patient situations.

Mastectomy procedures that preserve as much of the breast envelope and the nipple-areolar complex as possible produce superior aesthetic results. Nipple-Sparing Mastectomy has become more common as a result of this (NSM). The risk of ischemia of the mastectomy flap, which includes the nipple-areolar complex, and the difficulty of performing a whole oncologic excision makes nipple-sparing mastectomy a difficult treatment. We assess identify technique modifications made throughout time, and examine our experience with NSM. The prevalence of NSM is rising, the variety of the results of NSM and its modifications for

reconstructive purposes, NSM incision patterns being used is diversifying, and complications are declining. At our hospital, NSM is most frequently combined with immediate, implant-based reconstruction. The impact of mastectomy complications on reconstruction are probably limited by fluorescent angiography, which is used to evaluate the perfusion of the skin following a mastectomy. Most patients will complete the breast reconstruction procedure despite the incidence of problems.

Minimally invasive techniques provide previously unheard-of benefits in the quest to optimize female breast reconstruction. Generally speaking, minimally invasive Nipple-Sparing Mastectomies (NSMs) involve robot-assisted procedures and endoscopic surgery through a small, barely noticeable incision, typically at the lateral breast border. Robotic surgery offers greater three-dimensional vision for surgeons when compared to endoscopic NSM, enabling more accurate dissection and hemostasis as well as simpler and less taxing handling. The aforementioned approaches considerably reduce the obvious cutaneous scars, but they also present additional difficulties for reconstructive surgeons because crucial steps in free flap reconstruction, such as vascular anastomosis and flap in setting, are very difficult to perform. The medial inferior portion of the breast border is shaped using our approach, which may be used to shape any other flaps as well as the inset of the Deep Inferior Epigastric Artery Perforator (DIEP) flap, which is our main workhorse flap.

The most challenging aspects of completing microsurgical breast reconstruction after robotic-assisted mastectomy include putting the flap into the pocket, in setting it, and shaping it, as well as microsurgical anastomosis through a small incision. It is challenging to push and bring the flap all the way into the mastectomy pocket through a little lateral incision to reach the most medial inferior point. Even after accomplishing this, the gravity effect remains difficult because, in the absence of a suspension suture, the flap may eventually drop inferiorly and laterally. The medial pole may depress and gradually deviate to the side. Transcutaneous medial fixation sutures were intended to help with flap transfer as well as provide suspension fixation of the flap in the medial inferior pole. The sutures are initially designed to be dynamic to aid with flap transfer. Transcutaneous, suture loops are inserted, and no nodes are created; they are then left inside the pocket. On the skin of the chest wall, the sutures that are not inside the pocket are momentarily tapped. The flap margin's dermis is stitched to the loops of suture before being transferred. The sutures first serve as a guide, bringing them out of the mastectomy pocket, to bring the flap to the most medial inferior pole of the reconstructed breast. Once the site has been determined, the sutures are tied to secure the flap permanently and prevent it from falling.

Sentinel lymph node biopsy, which may be extended to axillary lymph node dissection depending on the intraoperative pathological assessment, and robotic docking mastectomy preparation are the surgical steps carried out by the breast surgeons prior to the inset and medial fixation sutures. These steps are performed through a 4-5 cm skin incision on the anterior axillary line. R-NSM using the da Vinci Xi surgical system (Intuitive Surgical, Denlinger), or any type of minimally invasive mastectomy, is finished at the same time that the flap (typically a DIEP or alternatively a perforator [profunda artery perforator] flap) is raised by the plastic surgeons and the pedicle is not yet transected.