Breast Reconstruction Following Nipple-Sparing Mastectomy: Predictors of Complications

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Abstract

Background:
Nipple-sparing mastectomy (NSM) is increasingly used for treatment and prevention of breast cancer. Little data exists on risk factors for complications and reconstruction outcomes.

Methods:
Multi-surgeon single institution retrospective review was performed between 2007-2012.

Results:
Two hundred eighty-five patients underwent 500 nipple-sparing mastectomy procedures for breast cancer (46%) or risk reduction (54%). The average BMI was 24, and 6% were smokers. Procedures were performed utilizing inferolateral inframammary fold (IMF) (51%), periareolar (24%), lateral radial (10%), inferior radial (4%), or pre-existing scar (11%) incisions (Figure 1).

Immediate breast reconstruction (reconstruction rate 98.8%) was performed with direct-to-implant (DTI) (59%), tissue expander-implant (38%), or autologous (2%) reconstruction. Seventy-one percent used ADM and 11% mesh. Seventy-seven reconstructions had radiotherapy. Complications included infection (3.3%), skin necrosis (5.2%), nipple necrosis (4.4%), seroma (1.7%), hematoma (1.7%), and implant loss (1.9%).

Positive predictors for total complications by multivariate regression analysis included smoking (OR=3.3, C.I.=1.289-8.486) and periareolar incisions (OR=3.63, C.I.=1.850-7.107). Increasing BMI predicted skin necrosis (OR=1.154, C.I.=1.036-1.286) and preoperative radiation predicted nipple necrosis (OR=4.86, C.I.=1.0197-23.169). An IMF incision decreased complications (OR=0.018, C.I.=0.0026-0.12089). An IMF incision and preoperative radiation were associated with more single-stage reconstructions while lateral radial, inferior radial, and smoking were associated with two-stage reconstructions (p<0.05 for each). Five-year trends showed increasing numbers of NSM reconstructions, fewer
complications, an increase in IMF and decrease in periareolar incisions, and an increase in single-stage reconstruction (Figure 2). A patient survey showed preference for the IMF incision.

Conclusions:

Nipple-sparing mastectomy and immediate reconstruction has a high rate of success and low rate of complications. The inferolateral IMF incision decreases complications, is preferable to patients, and may allow a greater proportion of direct-to-implant reconstructions. Periareolar incisions increase ischemic-related complications and should be avoided in inexperienced hands. Other risk factors important to assess in deciding operative strategy include patient BMI, smoking status, desired implant volume, and preoperative radiotherapy.

References:


Disclosures:

Amy S. Colwell is a consultant for Lifecell and Allergan.