

## Breast Reconstruction

There is much literature that provides strong evidence that breast reconstruction following mastectomy is one of the most important determinants of patient's long-term health. Many studies have documented the psychological, social and emotional benefits of breast reconstruction as well as improved self-esteem, body image and overall quality of life. With the proven benefits of breast reconstruction, the Women's Health and Cancer Rights Act in 1998 mandated that health insurance coverage for breast and nipple reconstruction as well as contralateral breast surgery to correct for any asymmetry.

Breast Reconstruction consists of two general stages; the first stage is breast mound reconstruction, which is followed by nipple – areola complex reconstruction. Reconstruction can be immediate (at the time of the mastectomy) or delayed. There are advantages and disadvantages to both but largely depend on patient's choice. There is some belief that immediate reconstruction helps patients cope with the psychological disturbances that are associated with breast cancer diagnosis particularly mastectomy.

There are two general types of breast mound reconstructive option, using implants or autologous tissue. Implants can be placed in a single stage surgery if breasts are small, however typically a two-stage procedure is performed whereby a tissue expander is inserted previously to expand the overlying soft tissue. Over the course of weeks or months, the expander is slowly filled with saline until there is adequate skin coverage prior to permanent implant placement. Benefits of implant reconstruction include an easier, shorter surgery with no donor site morbidity and decreased operative time. The disadvantages include frequent doctor visits to increase the tissue expander and the need for a second surgery to place the permanent implant. Complications include, infections, capsular contracture, implant migration and rupture. All permanent implants are composed of an outer silicon shell that is filled with silicone or saline.

The breast mound can also be reconstructed using autologous tissue including skin, underlying fat and muscle taken from the patient's abdomen, back, buttock and thigh. The tissue can be transferred as pedicle flap meaning with an intact vascular supply, or as a free flap, which requires microvascular anastomosis to recipient vessels in the chest (thoracodorsal or internal thoracic vessels). Common autogenous pedicle flaps used include a TRAM flap (transverse rectus abdominis myocutaneous) utilizing the superior epigastric vessels and Latissimus Dorsi Flap utilizing the thoracodorsal vessels. Examples of free flaps include free-TRAM (utilizing inferior epigastric vessels) and perforator flaps such as the deep inferior epigastric perforator (DIEP). For those that do not have sufficient abdominal fat the buttock area can also be used as a donor site utilizing the superior gluteal (SGAP) and inferior gluteal artery (IGAP). Advantages of autologous reconstruction include a more natural looking breast. Disadvantages are longer operative time with accompanied longer recovery, risk of flap necrosis and donor site morbidity.

Reconstruction of the nipple and areolas complex is the final stage of breast reconstruction. There are many techniques of nipple reconstruction of which utilize skin grafts which is followed by tattooing.

References:

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2. Cordeiro, P.G., Breast Reconstruction after Surgery for Breast Cancer. *N Engl J Med*, 2008. 359(9): p. 1590-1601.