

Breast Reconstruction

Reconstructive breast surgery is one of the most common procedures that the plastic surgeon is called upon to perform. With nearly 140,000 new cases of breast cancer annually, the number of women seeking reconstruction is at an all time high. The first major decision is timing of the reconstruction. It has become increasingly popular to reconstruct the breast at the same time as the mastectomy, thereby preventing a period of complete absence of the breast. The emotional advantages to the patients are clear, but not all women are candidates for immediate reconstruction. The advantages and disadvantages of immediate reconstruction should be discussed with both the Oncology Surgeon and the Plastic Surgeon.

The majority of breast reconstruction is delayed until after the mastectomy is performed and the wounds are all healed. If the patient does not require chemotherapy or radiation therapy, we prefer to wait three months after the mastectomy to allow the tissues to heal and soften. If chemotherapy or radiation is necessary, we encourage the patient to complete these therapies prior to beginning the reconstruction surgery.

There are many techniques available to the reconstructive surgeon looking to improve a patient's appearance after a mastectomy. The final choice depends on patient desires, body habitus, available tissue, appearance of the opposite breast, and the health of the patient. The realistic goal of reconstructive surgery should always be the improvement of appearance and not the perfect replacement of the breast.

Implant Reconstruction

The simplest procedure is the placement of a silicone or saline implant beneath the muscle of the chest wall. Incisions can either be through the old mastectomy scar or placed at the inferior position of the newly created breast. This frequently can be done as an outpatient, but usually under a general anesthetic. The patient will usually be discharged home in a special bra which will be worn for approximately one week. There will be some limitations of arm motion for four to six weeks. Complications, while rare, can include hemorrhage, infection, asymmetry, extrusion of the implant and progressive firmness of the reconstructed breast.

Tissue Expansion

Many times the simple placement of an implant is not possible because of inadequate skin or muscle remaining on the chest wall after a mastectomy. In this case, new tissue must be created either by expansion of local tissue or transfer of a flap of skin, muscle and blood vessels. Tissue expansion is accomplished under a general anesthetic by the placement of a "tissue expander" beneath the muscle of the chest wall. Expanders initially resemble a flat balloon. The procedure is done either as an outpatient or with an overnight stay in the hospital. During visits to our office over the next four to six weeks, sterile saline is injected into the expander to stretch the surrounding tissue to the point where it will accept the proper size implant. There is some discomfort with each expansion but the patient can usually continue normal

activity. Removal of the expander and placement of the final permanent implant is done during a second anesthetic as an outpatient or with an overnight stay. Patients with radiated skin or excessively thin skin are not candidates for tissue expansion. Complications are unusual, but can include break down of the tissue during expansion, infections, bleeding, asymmetry and firmness of the reconstructed breast.

Latissimus Dorsi Flap Reconstruction

When the condition of the patient's chest wall dictates the need for tissue transfer, the options include moving tissue either from the patients back or lower abdomen to replace the missing skin. The Latissimus Dorsi muscle is a broad muscle in the back which can be transferred along with a portion of overlying skin to the anterior chest. This "new" tissue along with an implant creates the new breast mound. Additionally, some patients have a Latissimus Dorsi muscle which is large enough to allow for breast restoration without an implant. This option is especially attractive for patients with a history of previous radiation to the chest wall.

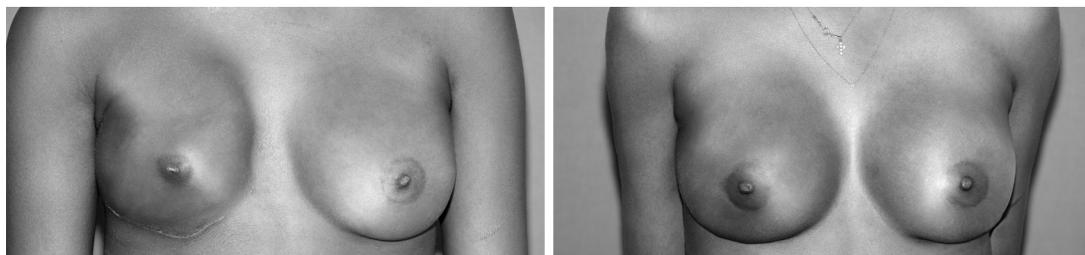
While beautiful results can be expected, this procedure requires an

investment of 2 to 4 hours of surgery. In the past, this procedure required hospital admission on a routine basis, but with the advent of implantable bupivacaine pumps that deliver pain medication to the wound, most patients can be discharged home after only a brief stay in the facility.

Complications can include additional scarring on the chest and back, death of the transferred tissue, bleeding, serum accumulation in the back, infection and firmness of the reconstructed breast.

The TRAM Flap Reconstruction

The tissue transfer technique of choice is the rectus abdominus muscle and skin flap (also known as the "tummy tuck" flap). In this procedure a large eclipse of lower abdominal skin is transferred along with an underlying muscle and artery to the mastectomy site. The major advantage of this procedure is there is usually enough tissue to build a breast without the use of an implant. In removing the tissue from the abdomen a secondary benefit is tightening of the skin of the abdominal area, thus the name "tummy tuck" flap. This is a major procedure requiring several hours of surgery and four to six days in the hospital.



Before and After Breast Reconstruction

Another type of TRAM Flap Transfer has been made possible because of the development of microsurgery (the use of small needles and suture to sew blood vessels together using an operating microscope). In the **free microsurgical TRAM flap** fat from the abdomen can literally be transplanted into the breast area. In the same way, excess fatty tissue from the hips or buttocks can also be used in women who do not have enough excess abdominal fat. Using an operating microscope, small blood vessels that enter the fat are reconnected to recipient blood vessels usually beneath the arm. This restores blood circulation through the tissue and allows it to heal into place in its new position. These techniques have been remarkably successful for producing a natural and permanent reconstruction. The patient also benefits by a flatter, smoother contour of the abdomen, hips or buttocks!

Patients who are obese, diabetic, heavy smokers or who have little abdominal skin excess are not good candidates for this procedure. Complications include death of the transferred tissue, infection, bleeding and weakness of the abdominal wall.

The nipple areola complex can also be reconstructed but usually is not done at the initial reconstruction of the breast. This delay allows for more accurate positioning of the nipple on the reconstructed breast. We prefer to reconstruct the nipple with local tissue from the breast reconstruction and the areola with a skin graft from the groin or abdomen. If the color match with the opposite nipple is not acceptable, tattooing is frequently performed.

Breast reconstruction has become an equally important part of the treatment of breast cancer. Most women who undergo reconstruction feel completely "whole" and highly recommend it to other women faced with losing a breast.

New implants are currently being developed to replace saline devices. These should be available within the next five years. In the meantime, natural tissue reconstruction has evolved into a predictable and safe method to achieve a natural, permanent reconstructed breast.

Breast reconstruction is one of the most rewarding reconstructive procedures a patient can undergo, many times helping a woman overcome the feelings of loss that she suffered with her mastectomy.

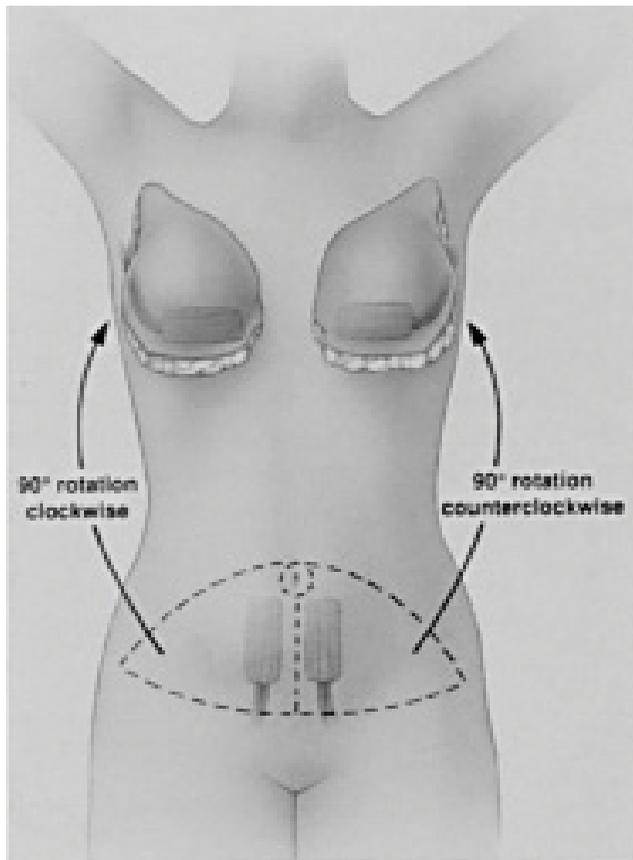
The Perforator Flaps

The current state of the art in breast reconstruction is the use of perforator flaps from the abdomen, buttock or upper back area. Using these methods, the skin and fat in those areas is elevated and transplanted to the breast area using the small blood vessels that supply the tissue with oxygen and nutrients. While the TRAM flap removes the important muscular and facial structures from the abdomen at the time of tissue transfer, the Deep Inferior Epigastric Perforator (DIEP) flap allows maximal preservation of those structures, therefore the risk of hernia and other long-term abdominal wall contour problems is reduced to miniscule proportions.

Similarly, the Gluteal Artery Perforator (GAP) and Thoracodorsal Artery Perforator (TDAP) flaps allow maximal conservation of the underlying muscular structures, with preservation of function and contour in those areas. Breast restoration with perforator flaps can be expected to yield beautiful results, although a lot more time and effort is spent in the operating suite to establish the new breast mound. The additional time spent is usually worthwhile, as the new breast is completed without the use of prosthetics and behaves and looks very much like the native breast.

Patients who are obese, smoke and have hypertension are not good candidates for these procedures. Patients who have a good amount of lower abdominal tissue, in general, will be good candidates for DIEP flap breast

reconstruction. Thinner patients that do not carry enough abdominal tissue might be better suited for a GAP or TDAP flap breast reconstruction. Complications include death of the transferred tissue, infection, bleeding and revision surgery.



Skin and fat from the abdomen can be transplanted to the chest area to form new breasts. An artery and vein must be reconnected in the armpit area using a microscope.

Breast Implant Removal (Explantation)

Silicone gel has long been used inside implants that are used to augment (enlarge) or reconstruct women's breasts. The most common use of silicone-filled breast implants is for cosmetic purposes. However, they have also been used to reconstruct the breast following mastectomy, either for diagnosed cancer, or in women with high risk factors for developing cancer.

Most patients and surgeons attest to the efficacy and safety of these devices. However, more recently in the medical literature and popular media, silicone gel-filled breast implants have been claimed to incite an array of medical conditions, including arthritis, fibromyalgia, autoimmune collagen vascular disease (lupus, scleroderma, dermatomyositis, etc.). Collectively

these symptoms comprise a medical condition that has become known as "silicone implant-associated syndrome" or "breast implant illness".

Patient-reported symptoms and signs included painful breast, generalized achiness, fibromyalgia, dry eyes, dry mouth, increased sensitivity to pain and double vision. Most patients were found to have ruptured silicone implants. The implants and surrounding scar tissue were removed and replaced with saline-filled implants. However, more and more women are choosing not to have implants replaced.

Microscopic analyses of all tissue samples revealed chronic inflammation. Improvement of patient-reported symptoms and signs occurred over the course of months postoperatively in approximately 80% of the patients.