

Breast reconstruction surgery after cancer

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Breast reconstruction surgery is one of the most common procedures that the plastic surgeon is called upon to perform. With increasing 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 until 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.

The key to a successful reconstruction is careful selection both of the patient and of the operation, which is appropriate for the individual patient. As breast reconstruction is big surgery the patient should become as healthy and possible and stop smoking.

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. There will be some limitations of arm motion for four to six weeks. Complications, whilst rare, can include haemorrhage, infection, asymmetry, extrusion of the implant and progressive firmness of the reconstructed breast capsule.

Please note that implants are man-made and will need replacing after a period of time.

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 anaesthetic by the placement of a “tissue expander” beneath the muscle of the chest wall. Expanders initially resemble a flat balloon. During visits to the clinic 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 anaesthetic. Some types of expander can stay in permanently.

Patients with radiated skin or excessively thin skin are not usually candidates for tissue expansion, as the tissues will not stretch.

Complications are unusual, but can include breakdown 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 extra tissue transfer, the options include moving tissue either from the patient’s 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 and fat, to the anterior chest. This “new” tissue along with an implant or expander creates the new breast mound. While beautiful results can be expected, this is a more complicated procedure than tissue expansion alone and requires two to three hours of surgery

and several days in hospital. 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.

This reconstruction involves the latissimus dorsi flap and an expander/implant, except for A cup breasts where the latissimus dorsi flap can be used alone.

Autologous reconstructions

The more sophisticated tissue transfer techniques do not use implants - they use only the patient's tissues - the results can be far nicer and more durable but there is a small risk of failure of the reconstruction.

In Norwich our preference is for perforator flap techniques, where a breast is fashioned out of a flap of skin and fat with its blood vessels, and muscle is not sacrificed.

1. Perforator flaps: DIEP, SIEA, PUP, SGAP, IGAP, TDAP

Since September 2000 we have been using these flaps taking skin and fat with one single artery and vein from the abdomen or the buttocks and sewing them to the mastectomy site.

The operations are delicate and involve complex microsurgery (the use of small needles and suture to sew blood vessels together using an operating microscope).

The small blood vessels that enter the fat are reconnected to recipient blood vessels beneath the arm or on the chest. This restores blood circulation through the tissue and allows it to heal into place in its new position.

The advantage to the patient is that no muscle is taken with the flap, only skin and fat, therefore minimising the risk of weakness and hernia of the abdominal wall. A mesh is not needed.

There is usually enough tissue to build a breast without the use of an implant, so the result should be permanent. The abdomen is tightened as in a "tummy tuck"

or the buttock is sewn as in a “buttock lift”.

It is major surgery lasting from five to eight hours and requiring about six days in hospital. There is a failure rate, although it is now quite low.

At operation we find that some patients do not have the right perforator vessels and sometimes we have to fall back on the:

2. TRAM flap

In the free microsurgical TRAM flap some muscle as well as skin and fat from the abdomen is transplanted into the breast area. The muscle is necessary as a carrier for the blood supply. Again there is usually enough tissue to build a breast without the use of an implant when removing the tissue from the abdomen area.

The abdomen is tightened as in a “tummy tuck”.

This is also a major procedure requiring several hours of surgery and six days in hospital. Here, because muscle is taken away, a mesh is usually applied to reinforce the abdomen in order to prevent the occurrence of weakness and hernia.

Very occasionally, if the blood supply is precarious, we have to use the pedicled TRAM flap, where even more rectus muscle (one of the “crunch” muscles) is taken. This is a faster procedure, does not require microsurgery as the blood supply is still connected, but a large mesh is required as weakness and hernias are more common. The operation lasts about three to four hours with a four to five day stay in hospital.

All these autologous techniques have been remarkably successful at producing a natural and permanent reconstruction. The patient also benefits by a flatter, smoother contour of the abdomen and hips or a more youthful buttock.

If there is little fat on the abdomen, the buttock flaps are used to make a breast. Patients who are obese, diabetic or smokers are not good candidates for autologous breast reconstruction.

Complications include failure i.e. death of the transferred tissue, infection,

bleeding and weakness or hernia of the abdominal wall.

Nipple

We produce silicone stick on nipples made from a template of the normal side.

The nipple can also be reconstructed with local tissue from the breast reconstruction, or by taking part of the remaining nipple and “sharing” it, or by using labia or earlobe but usually this is not done at the initial reconstruction of the breast. This delay allows for more accurate positioning of the nipple on the reconstructed breast.

For the areola, we tattoo, although we sometimes use a skin graft instead.

Other breast

The other breast may be made bigger or smaller as well.

Conclusion

Breast reconstruction has become an 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 continually being developed and more should be available in the next five years. Alternatively, autologous reconstruction has evolved into a reliable 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.

Breast reconstruction summary

Implant alone (often after tissue expansion)

Implant used

Expander/Implant + latissimus dorsi flap from the back

Back latissimus dorsi flap A cup only

Pedicled TRAM

No implant used Abdomen Free TRAM

Free perforator flap: DIEP/SIEA/PUP

Buttock IGAP/SGAP

Other TDAP

Augmentation

Other breast

Reduction