

Breast Reconstruction: "Muscle Sparing Pedicled Tram" and "Conventional Tram" Techniques

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The breast is femininity's most important external identification and breast loss can have devastating psychological effects on a woman. A woman who has lost her breast as a result of cancer may feel self-conscious, insecure, inferior to other women or unwanted by men. These body image concerns are key reasons why a woman will be motivated to pursue breast reconstruction.

The incidence of breast cancer has been increasing steadily in England for many years. Between 1977 and 2008, the age standardised incidence of invasive carcinoma of the breast rose from 75 to 124 per 100,000 women.

A woman might choose to have breast reconstruction to make her chest look balanced when she is wearing a bra or swimsuit and to permanently regain her breast shape. So she won't have to use a breast form that fits inside the bra (an external prosthesis) then she will be happier with her body and how she feels about herself.

A breast reconstruction procedure recreates the breast mound following mastectomy and consequently restores symmetry. Reconstruction can be performed either at the same time as the initial mastectomy (immediate) or at a later date (delayed).

There are various approaches to breast reconstruction. One involves the use of an implant under the pectoralis major muscle. These procedures may involve a tissue expander (an implant into which saline may be injected to increase its size) or the insertion of a definitive fixed volume implant.

Reconstruction may also be performed using the patient's own tissue in two distinct ways. 'Pedicled flap' breast reconstruction involves rotating a 'flap', comprised of skin, fat and usually muscle, from the patient's back or abdomen up into the breast area, while keeping intact a tube of tissue containing its blood supply. 'Free flap' breast reconstruction involves a similar flap being completely detached from the patient's body (usually from the abdomen, buttock or thigh) along with its supplying blood vessels. It is then placed at the mastectomy site, where microsurgery is undertaken to restore its blood supply by joining the vessels that supply the flap to vessels in the breast area.

Breast reconstruction with autologous techniques has undergone considerable change in recent years. The development of autologous breast reconstruction is shaped by the need to construct a symmetrical and aesthetically pleasing breast mound, and by two opposing factors: donor-site morbidity and blood supply.

The reconstruction of the pedicled transverse rectus abdominis myocutaneous (TRAM) flap is a well-established procedure and remains a workhorse flap in reconstruction to create a soft, ptotic breast mound which restore the body image of the patient.

The full rectus abdominis muscle is harvested in the classical pedicled TRAM flap as described by giving rise to concerns about donor-site morbidity, such as abdominal bulge, hernia, chronic lower back pain and core muscle instability. This need to minimize donor-site morbidity has resulted in a number of changes to

the original procedure, such as the use of meshes, component separation and various flap-lifting techniques that gradually spare more rectus abdominis muscle, in an attempt to increase the benefits of both conventional and muscle-sparing pedicled flap techniques and minimize the disadvantages of each technology.

These techniques include the free TRAM flap with varying degrees of muscle sparing, the deep inferior epigastric artery perforator (DIEP) flap, and the superficial inferior epigastric artery flap. The free TRAM or DIEP flap, however, requires dissection through the rectus sheath as well as through a variable amount of rectus abdominis muscle and requires microanastomosis, thus increasing the operation's technical difficulty and surgical time. Reconstruction patients who have flap, or natural tissue, are significantly more satisfied with their breasts and breast-related quality of life two or more years after surgery than those who have implants, even showing levels of satisfaction that exceeded their pre-operative baselines.

The pedicled TRAM flap has two major disadvantages. Firstly, one or both of the muscles of the rectus abdominis need to be sacrificed and this can lead to functional problems. Patients may notice a decrease in core force during torso flexing or bending. Abdominal wall bulging or a hernia may also develop at the muscle harvest site. Second, because of the long distance it has to travel, blood supply to the overlying tissue isn't always ideal. Muscle twisting during transferral may also affect blood supply.

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