PAUL HARRIS
PLASTIC SURGEON

DIEP Flap Breast Reconstructive Surgery Information Sheet

This information sheet is a general guide for patients considering a DIEP flap breast reconstruction under the care of Mr Paul Harris.

What is a DIEP flap?

A DIEP is a piece of tissue (flap) composed of fat and skin, taken from your lower tummy (abdomen), to create the feel and shape of a breast. The tissue and its blood vessels are carefully detached from your abdomen before being reconnected to a new blood supply in your chest. It is called DIEP after the blood vessels taken from the abdomen - the deep inferior epigastric perforator blood vessels. It is a complex operation that takes about 5 - 7 hours. DIEP flaps give warm, soft and pliable reconstructed breasts that resemble natural breast tissue, and are therefore considered the gold standard for breast reconstructive procedures. In addition, the removal of tissue from your abdomen results in a flatter tummy, as if you have had a tummy tuck (abdominoplasty).

After the skin, tissues and perforators (the flap) have been carefully dissected, the flap is connected to your chest using microsurgery. Mr Harris then shapes the flap to create the new breast. As no abdominal muscle is removed or transferred to the breast area, you should experience less pain postoperatively and a faster recovery compared to other flap procedures. Abdominal strength is also maintained long-term after the DIEP flap procedure.

The surgery involved is very complex, and few breast centres offer DIEP flap breast reconstruction. Mr Harris specialises in this procedure, performing DIEP breast reconstructions regularly.

Nearly all breast reconstructions require two or more operations. When using the DIEP flap, whilst most of the reconstruction is done at the time of the main flap transfer operation, there is a need for a second, small operation to refine and adjust the reconstruction, and undertake a nipple reconstruction. However, the result should be life-long and the reconstruction should age with you naturally. It should also change with your body weight in a similar way to your other breast. This is one of the major differences between flaps and implants, as implant-based reconstructions need revision surgery periodically.

Is a DIEP flap suitable for everyone?

Mr Harris will discuss the suitability of this procedure with you. It is a good choice if you want a natural feel and look, do not want an implant, need to have either one or both breasts reconstructed, and have an adequate amount of tissue on your tummy. You can still have a DIEP reconstruction if you have had abdominal surgery (hysterectomy, caesarian section, appendicectomy, bowel surgery) unless the scarring on your abdomen is extensive. If you are very slim, very overweight, smoke or have health problems like diabetes then the procedure may not be suitable for you.

What will happen before the operation?

If the DIEP flap seems appropriate for you, Mr Harris will often arrange for you to have a scan of the blood vessels of the abdomen (CT angiogram). This will help him plan the details of the surgery and he should be able to tell you if some of the muscle of the tummy will be damaged by the surgery or if the pattern of the blood vessels is such that the muscle will be unaffected. This scan also helps speed up the operation.

If you smoke, you must stop at least three weeks before surgery to reduce the likelihood of postoperative complications. If you are unwell before the operation the surgery may need to be postponed. Do not take aspirin containing medication for ten days before surgery, and please mention all over the counter medicines and supplements as it is likely you will need to stop taking them too. Please bring with you a nightdress, dressing gown, slippers and toiletries. Do not bring cosmetics or jewellery. It is useful if you could also bring a non-wired comfortable and supportive bra, like a sports-bra, that you don't mind being cut because a hole is made in the bra so that the DIEP flap can be examined as necessary without having to remove the bra.

A short time before your admission, you will be seen by a nurse and a member of the medical team who will talk to you about your general health and examine you to make sure that you are fit for surgery. They may also arrange for you to have swabs, blood tests, a heart trace (ECG) and a chest X-ray. Mr Harris will see you on the ward soon after admission, when he will measure your chest and draw some markings to guide the surgery and an anaesthetist will discuss the anaesthetic with you. It is important that you do not wash the lines off.

You will need to sign a consent form. Make sure that you fully understand all the consequences of the surgery prior to signing this. Signing this form does not take any of your normal rights away, it merely states that Mr Harris has explained the operation to you and that you have had an opportunity to discuss the anaesthesia with an anaesthetist.

What does the operation involve?

A DIEP reconstruction is a major operation performed under a general anaesthetic and usually requires a hospital stay of 6 days. A urinary catheter is used to drain urine while you are confined to bed during the first few hours after the operation. Drains will be placed in both the breast and the abdomen to drain away excess fluid following the operation. They usually exit the wound through a tiny incision, and will be removed in the days following surgery, depending on the amount of fluid that drains. Occasionally the abdominal wound produces a large amount of fluid and patients may go home with their drain still in place. If this happens, you would need to return to the hospital a few days after discharge for removal of the drain. You will be given intravenous antibiotics for 48 hours to reduce the risk of early post-operative infection, and also a blood-thinning injection of heparin to reduce the risk of deep vein thrombosis.

How will I feel when I wake up after the operation?

You will wake up in the recovery area, before being transferred to the high dependency ward. It is usual to feel drowsy and a little disorientated for some time post-operatively. If you have pain or feel sick, you should tell the nursing staff so that they can give you the appropriate medication. The breast(s) and abdomen will feel a little sore after surgery particularly when the arms are moved, but this rapidly improves over the first few days. It is likely that your hips and knees will be bent, perhaps on cushions or with the bed bent in the middle, to take the strain off the abdominal wound.

You will be given a device to containing pain-killing medication (PCA or Patient Controlled Analgesia). The nurse will teach you how to use this, but essentially you press the button on the control if you feel pain. There is a lockout on the device so that it is impossible for you to overdose on the medication. A warming blanket is also usually in place for the first night to stop you getting cold, and you will have intermittent compression devices on the calves to reduce the chance of a deep vein thrombosis.

Where will the incisions be?

You will have an incision on your breast (or breasts if bilateral), and one on your abdomen. The breast incision will contain a patch of visible skin from the tummy so that Mr Harris can check that the flap is working well. The abdominal incision will be a horizontal line, usually just below the bikini line. There will also be an incision around the belly button (umbilicus). All the sutures are dissolvable except for a small number within the umbilicus.

All incisions produce scars, which usually settle down over several months. However, some scars can become troublesome. Hypertrophic scars are red, raised and itchy for several months following the operation. These can be treated, but may result in a wide stretched scar. Keloid scars are larger and more difficult to treat but these are extremely rare following breast reconstruction.

What post-operative care do I need and when can I go back to work or exercise?

It is normal to spend one night after the operation in a high dependency unit for close monitoring. It is very important that the new blood supply to your breast reconstruction is well maintained, so it will be carefully monitored by frequent checking of its colour and temperature. After the first night, you will be transferred to the ward for standard nursing care for another 5 days. On the first day following surgery, a physiotherapist will help you sit out in a chair for a short time and you should be able to get out of bed by yourself 2 days after the operation. After 2/3 days the PCA is stopped and painkillers are given regularly in the form of tablets. You can then take a shower on day 3 or 4.

On the day of discharge, you will receive an information sheet on post-op recovery. You will be asked to attend a Dressing Clinic appointment around 10 days after the operation (3 days after discharge). At that appointment, a nurse will remove the dressings and check the wound. Mr Harris may be present for this dressing change, although it may not be necessary, but will review you in clinic within a week of the nursing appointment. You should continue to shower daily but please do not soak in the bath with the wounds submerged for at least 3 weeks.

After 2-3 weeks, you may go back to non-physical employment and resume driving, but check this with both Mr Harris and your insurance company as they vary in their recommendations. Four weeks after your operation, you may resume gentle exercise, but violent movements, upward stretching of the arms and physical employment are inadvisable for 6-8 weeks. You can sleep on your back or side but not on your stomach for at least 8 weeks.

What are the potential complications of this surgery?

Any invasive surgical procedure has risks such as infection, haematoma (blood clot), dysaesthesia (change in sensation), post-operative pain, and delayed wound healing. However, the overall complication rate for DIEP

surgery is less than 10% and most of these are minor problems, with the most common outlined below.

A haematoma is a collection of blood inside the body and usually reveals itself within 24-48 hours of the operation. The risk of this complication is reduced by the use of drains, but if one does occur, a further short operation may be necessary to drain the haematoma and stop the bleeding. If you feel either the breast reconstruction or the abdomen getting larger after your operation, especially if it is associated with pain or light-headedness, then you should tell a member of the nursing or medical team as soon as possible.

Flap loss rarely happens but is a serious complication. Mr Harris will keep a very close check on the new tissue in the reconstructed breast in the first few days after the operation to ensure its blood supply is working well. If not, you may need to go back to the operating theatre to have it checked. About 1 in 100 women who have a DIEP flap may need one of these 'second checks' in the week after their surgery. Very rarely (fewer than one in 250 cases or 0.4%) the new tissue in the breast fails and an alternative method of reconstruction is needed.

The development of a serious infection is rare, as antibiotic cover is provided at the time of the surgery to reduce the risk of this happening. Most infections resulting from surgery appear within a few days of the operation and require a further course of antibiotics.

A seroma is a build-up of fluid under the wound site, and occurs in 10% of patients after the drains are removed. Most will disappear over the course of a few weeks, but if they do not, or cause pain, they will be drained by Mr Harris in the outpatient department. If the seroma recurs, which happens rarely, the wound will be injected with steroid to reduce the production of fluid. The seroma and its treatment does not usually have long-term consequences. The breast reconstruction flap will have little or no light-touch sensation. Over 12 to 18 months, the periphery of the reconstruction will regain some sensation and most patients can feel movement of the breast on the chest wall.

Most women's breasts are asymmetrical (not perfectly equal in either size or shape) and Mr Harris should mention this pre-operatively. With advancing age, the breast also tends to ptose or droop. Although every effort is made to create a new breast to match the opposite healthy one, it is rarely possible to achieve perfect symmetry. After discussion with Mr Harris and depending on your wishes and needs, it may be appropriate to perform a mastopexy (hitching up) or reduction operation on the other breast in order to match them. Weakness of the abdominal wall after a DIEP flap procedure may result in a bulge but this is rare, and post-operative abdominal exercises can improve this. Very rarely, damage to the muscle may produce a hernia that will require additional surgery. This is an extremely rare complication because the abdominal muscle is left intact, which is the great advantage of the DIEP technique compared to the previously used TRAM flap breast reconstructions.

Where can I find additional information about DIEP flap reconstruction?

A diagnosis of breast cancer and its subsequent treatment can be a very traumatic experience. Members of the breast care team are available to discuss any problems you may have. There are also a number of independent organisations that also offer help, including:

Consumer Interest Groups:

- Breast Cancer Care, www.breastcancercare.org.uk
- Macmillan Cancer Support, www.macmillan.org.uk

Professional Interest Groups:

- British Association of Aesthetic Plastic Surgeons (BAAPS), www.baaps.org.uk
- British Association of Plastic, Reconstructive & Aesthetic Surgeons (BAPRAS), www.bapras.org
- Association of Breast Surgeons, www.associationofbreastsurgery.org.uk
- Royal College of Surgeons of England, www.rcseng.ac.uk

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