

# Immediate Breast Reconstruction:

Immediate breast reconstruction is performed at the same time as a mastectomy or a partial mastectomy. It is becoming increasingly popular as it has the advantage of retaining all, or most of the breast skin, which can lead to better cosmetic results. The patient wakes up after surgery with a breast, (perhaps not a perfect replica of the original) rather than a flat area on the chest and a mastectomy scar. However, not every woman wants immediate reconstruction. For others, a complex lengthy reconstructions may not be suitable or appropriate. Radiotherapy can also spoil the cosmetic results of a reconstruction and must also be factored into the decision. Complications from a reconstruction may also delay radiotherapy and other treatments.

Some cases are better served by having a standard simple mastectomy. They can be reconstructed later using a delayed reconstruction. All of these factors must be carefully considered before a decision is made. A lengthy consultation with your surgeon is required discussing pros and cons.

There are three categories of patients who request immediate breast reconstruction.

- 1 Therapeutic mastectomy cases.
- 2 Bilateral risk reducing mastectomies.
- 3 Partial mastectomy and remodelling of breast

## 1 Therapeutic mastectomy:

Therapeutic mastectomy is a mastectomy that is done to remove either cancer tissue or pre-cancerous tissue usually from a breast. In this situation, we can do a skin sparing procedure which retains some or all of the breast skin. The nipple may need to be removed as it increases the risk of leaving residual cancer or pre-cancerous tissue and also increases the risk of infection.

### **Radiotherapy required**

The majority of women having a mastectomy for this reason will require postoperative radiotherapy. In this scenario we feel it is inadvisable to do a complex reconstruction as the radiotherapy would not only cause scarring and contracture of the chest skin but also any complex reconstruction with its new tissue from another part of the body could be damaged by the radiotherapy. In the Cork service currently, we advise against having a flap operation (complex) to reconstruct the breast in these circumstances. However, it is perfectly reasonable to reconstruct the breast using an implant.

Implant reconstructed breasts, subjected to radiotherapy may undergo contracture of the tissue around the implant as well as contracture of the skin and chest wall.

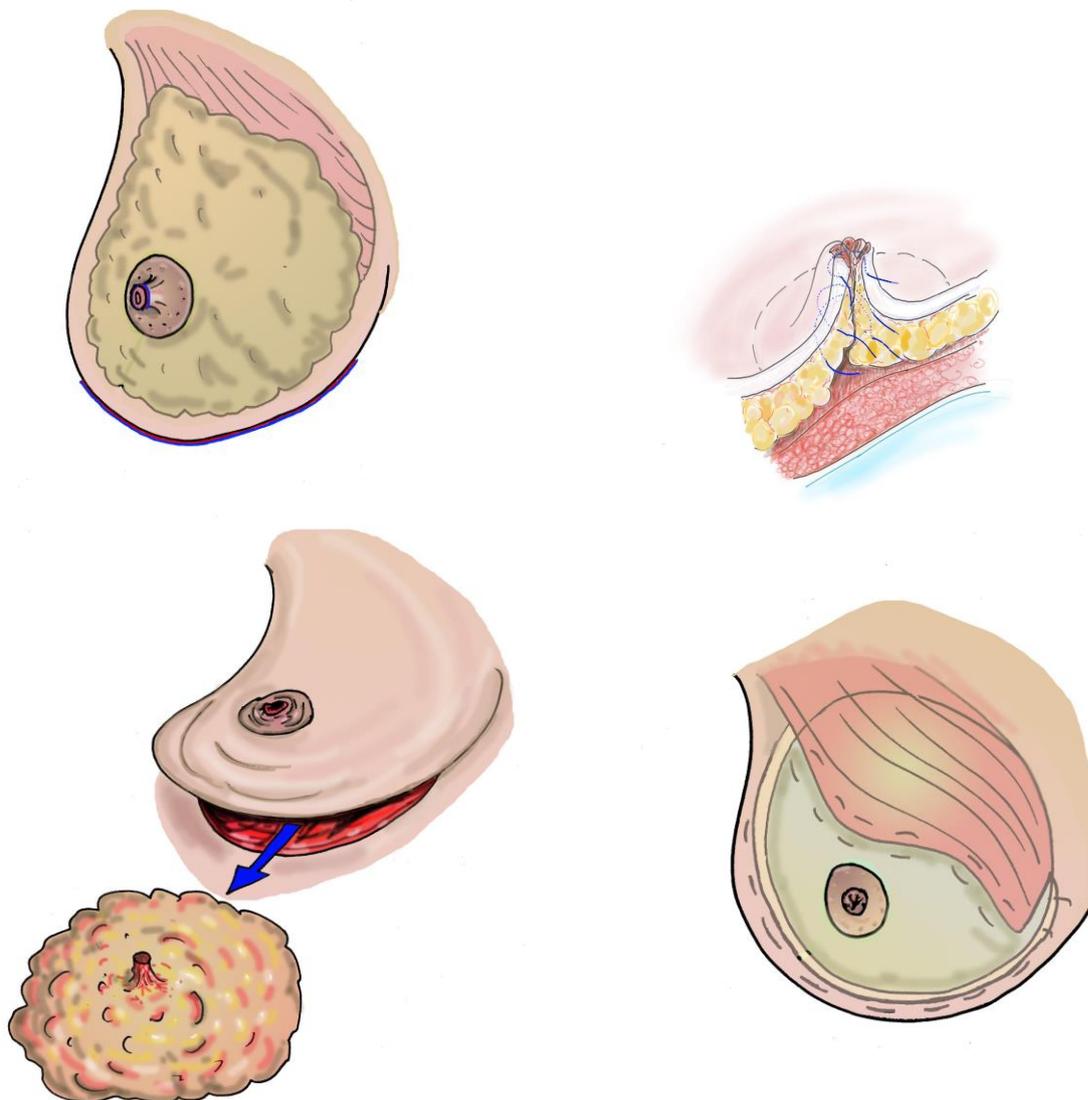
However in this instance, there is still an opportunity to return and do a definitive subsequent reconstruction. The advantage of placing the implant is that it retains the skin envelope of the breast and will optimise the long term outcome. Without an implant the skin retracts resulting in a flat contour.

## Immediate implant based reconstruction

It is important to say however that the majority of cases can be reconstructed using an implant alone with excellent cosmetic outcome.

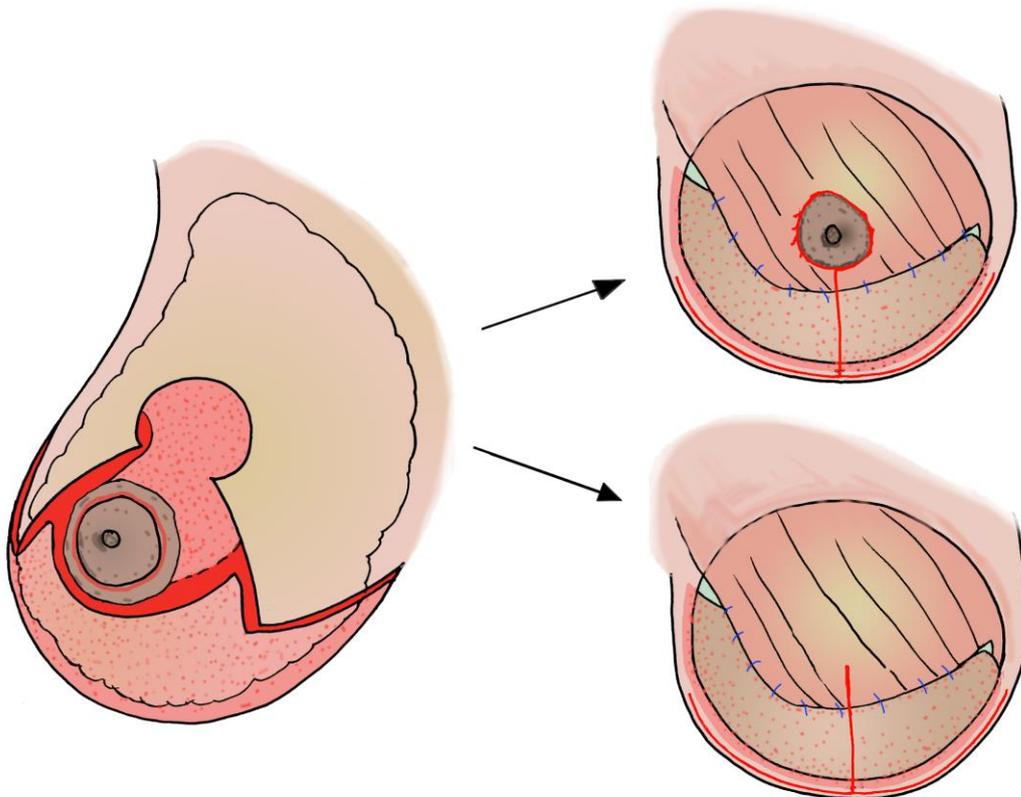
### Subcutaneous mastectomy (fig1)

If the patient is small breasted, it is possible to retain the entire skin envelope, removing the nipple only. We try and recreate a smaller nipple by closing the small circular hole, Fig1, (where the nipple has been removed), with purse string stitches. The main incision is usually in the crease under the breast and is therefore not very visible. The implant is then placed under the pectoralis muscle and the lower half is held in place with a hammock of mesh or a sheet of collagen. The collagen sheet is usually animal skin derived, this can be also known as ADN, (Acellular Dermal Matrix).



### **Wise reduction pattern Mastectomy (fig2)**

If the patient has very large breasts, we tend to do a breast reduction pattern, skin sparing mastectomy (fig 2). The tissue normally discarded during a cosmetic breast reduction is used to reinforce the construction. The implant is placed in a deep pocket, the upper half under the pectoralis muscle the lower half held by a sling of dermis from the inferior flap. This provides a very secure and less complicated reconstruction and often these patients have excellent long term outcomes. The nipple and the areolar complex is usually removed at the time but can in selected cases be reconstructed at the same time. Otherwise the nipple can be easily reconstructed at a later date. Most of these patients will also require reduction of the other breast in order to achieve symmetry and at this stage the nipple can be reconstructed at the same time.



**Fig 2 Wise pattern skin excision with or without nipple reconstruction.**

### **Disadvantages of implants**

While immediate implant reconstruction is very straightforward and adds very little additional time to the surgery, It does have one major draw back in that the infection rates are very high. Implants can become infected at a rate of between 10 to 15% despite taking a large number of precautions at the time of surgery to prevent this.

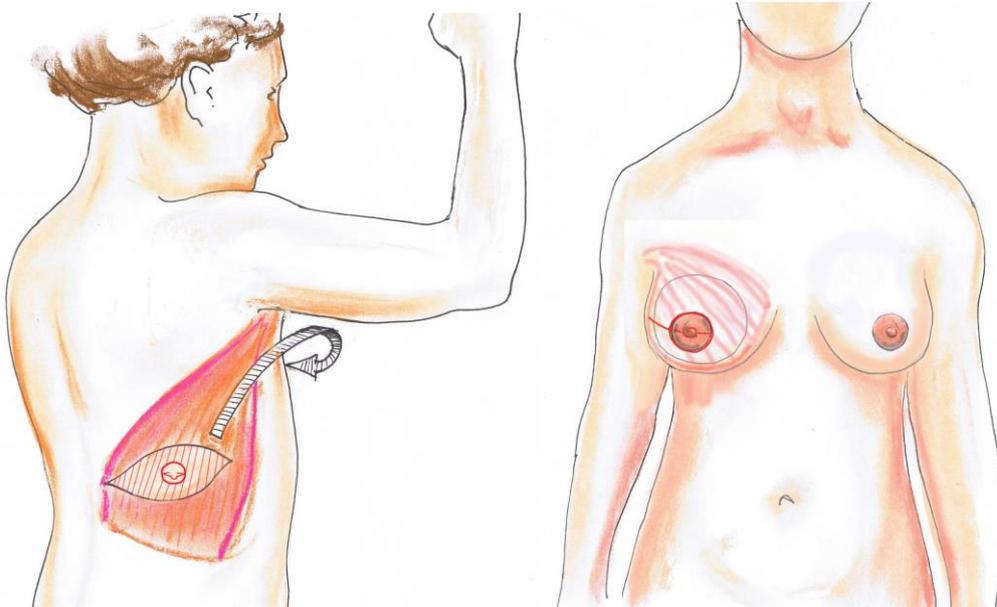
The reason for this problem is that mastectomy surgery carries a high risk of bacterial contamination, as the breast tissue and the nipple in particular contain a lot of bacteria. Despite cleaning, sterilising and antibiotics at the time of surgery, some of the implants can become infected. Unlike the patient's own tissue, if an implant becomes infected, it is very difficult to eliminate bacteria stuck to the implant and this type of infection usually results in removal of the implant. Removing the implant can be very disappointing for patients and can leave quite a poor cosmetic result, the skin shrinking back and often looking puckered and this will almost certainly require a further delayed reconstruction a few months down the road.

Implants are also prone to other problems such as capsular contracture (tightening which can make the breasts look firm and unnatural). However they can always be revised and usually revision operations are simple overnight stay procedures which can be done at a later stage. Risks of implants are included in our information leaflet on reconstruction with implants.

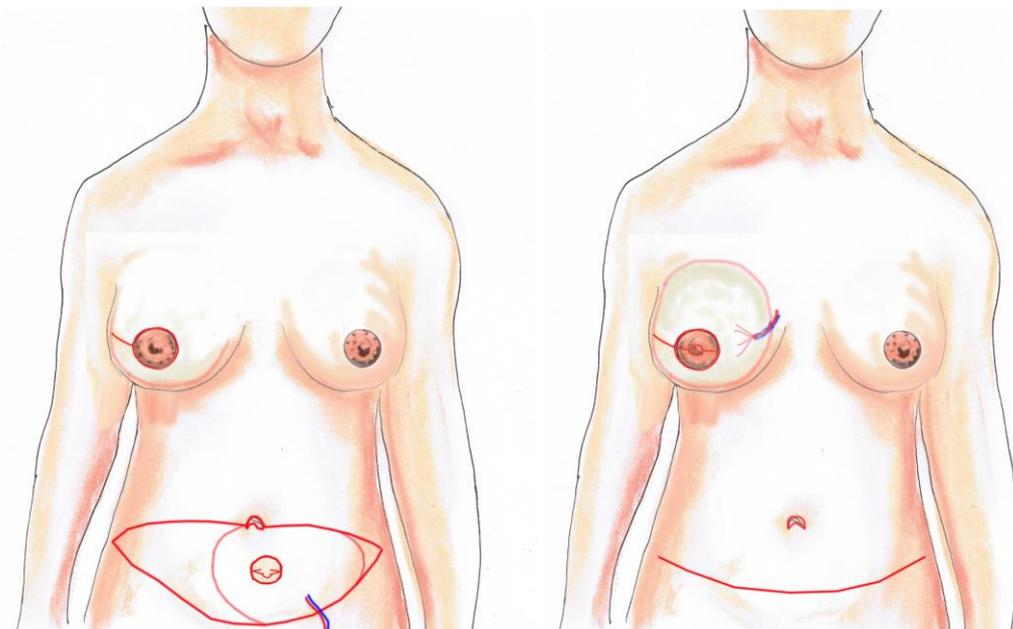
### **No Radiotherapy required Fig 3 and Fig 4**

When it is certain that radiotherapy is not required after mastectomy, it is possible to do more complex forms of breast reconstruction in the immediate setting such as a Latissimus Dorsi musculocutaneous flap, from the back, or a DIEP flap from the abdomen. These procedures can result in excellent cosmetic outcomes as most of the breast skin is retained and the tissue in the flap is used to reconstitute volume and possibly the nipple or a small patch of skin. but these are not ideal if the flaps are going to be irradiated postoperatively. More detail in relation to these flap operations is supplied in the section on Risk reducing mastectomy.

**Fig3 This a diagram shows a unilateral LD flap with nipple reconstruction**



**Fig 4 Unilateral DIEP flap with nipple reconstruction**



## 2 Risk reducing mastectomy (No radiotherapy):

There is now an increasingly cohort of women who present with diagnosed genetic abnormalities that predispose them to having breast cancer. Some of them have a very high risk of breast cancer in their lifetime. The most common genetic abnormalities involve the BRCA1 and 2 genes. There are also multiple non BRCA gene abnormalities which can lead to a high risk of breast cancer.

Many of the high risk patients in this group, elect to have bilateral mastectomies to reduce the risk of cancer over a lifetime. Sometimes the genetic diagnosis is only made after breast cancer and a mastectomy has already occurred on one side. These women then return seeking risk reducing surgery on the other side, (unilateral risk reducing). Obviously, these are not cancer cases and will not require radiotherapy and therefore, definitive reconstruction can be done at the same time as their mastectomies. We can also plan to hold onto as much of their breast skin as possible, which should in theory lead to excellent cosmetic outcomes.

Bilateral reconstruction of any type in the immediate setting often leads to slight or moderate asymmetry. It is fair to say in fact that the vast majority of cases will require some minor revision within the next year. This is because it is almost impossible to create identical bilateral pockets after mastectomy surgery. One breast nearly always looks a little different to the other.

### **Bilateral Subcutaneous Mastectomies and Implants (Fig1, involving both breasts)**

For small breasted women, a subcutaneous mastectomy with or without nipple removal retains the skin envelope. This means that the only missing element is volume, which can be replaced very simply and effectively with implants. Implants can then be placed in a submuscular plane with a mesh or sheet of collagen to support the lower half of the implant. The implants can be permanent or considered temporary and replaced at any stage with other implants or by more complex reconstructions at any stage .

### **Bilateral Wise reduction pattern Mastectomies and implants (Fig2, involving both breasts)**

In larger breasted women, it is possible to do a breast reduction type of skin sparing mastectomy (Wise pattern. anchor shaped scar), which makes use of the patient's own tissue to create a flap of tissue or a hammock into which the implant can sit. These often have an excellent result and although later may require bilateral nipple reconstruction.

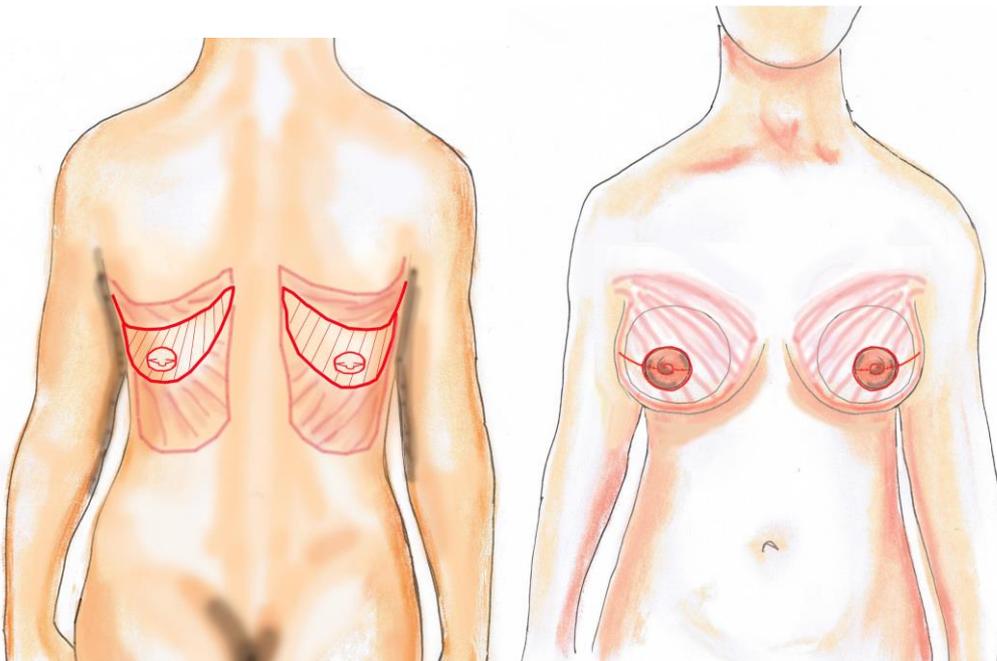
### **Disadvantages to bilateral implant breast reconstruction**

There is also a slight tendency for breast to look a little lateralised, as the implants must go under the muscle layer which tends to push the reconstruction down and outwards. This can also be corrected at a later date when the scar tissue has settled. As with all implants in the mastectomy setting, the infection rate is high and the patients must accept that they are taking a small but very definite risk when they undergo this procedure.

### **Bilateral LD flaps, Latissimus Dorsi (Fig5)**

Sometimes for additional security, LD flap from the back can add much bulk / volume and perhaps a new nipple in the immediate setting. While this double operation not as daunting as bilateral DIEP flaps, the downside of LD's is that it is still quite a big procedure with four operation sites (both breasts sites and bilateral back as well). Also, in spite of the additional volume provided by the flap, they usually need to be supplemented with implants. However implants in this scenario have a lower complication rate, as they are covered in a thick layer of muscle. Loss of the implant, due to infection, does not result in retraction of the skin and loss of the skin envelope. The implant can also be later replaced with fat injection. The risk of LD breast reconstruction should be checked in our information leaflet on LD reconstruction.

**Fig 5, Bilateral LD flaps and nipple reconstruction**



## Bilateral DIEP flaps (Fig 7)

As these procedures are bilateral, more complex flap operations such as DIEP flaps present huge technical and logistical issues for any breast service. A DIEP flap is a microsurgical procedure, which on one side can take between 4 and 6 hours (if there are no problems). However, if the operation is bilateral, involving two microsurgical teams and procedures, it could take between 7 and 9 hours. In addition, it must not be forgotten that the patient is also undergoing bilateral mastectomies in the same operation and this must be added to the time. Bilateral DIEP flap cases under these conditions have a higher complication profile. These procedures are enormous undertakings, which we do not take lightly and generally we do not recommend this option unless there are very compelling reasons to do so.

Another issue with bilateral DIEP flaps is that many patients do not have enough tissue in the abdomen to reconstruct two breasts.

The risk of DIEP breast reconstruction should be checked in our information leaflet on DIEP reconstruction.

**Fig 7, Bilateral DIEP flaps with nipple reconstruction**

