



UNDERSTANDING INTRAOPERATIVE RADIATION THERAPY

A PATIENT GUIDE

TREATMENT OPTIONS

A diagnosis of breast cancer is never easy, but today there are more treatment options than ever before.

This is surely a stressful and emotional time. The diagnosis of breast cancer can take place quickly. This booklet is to help women at the time when they are deciding which treatments will be best for them.

You should discuss all the different treatment options with your healthcare team, including how they work and the benefit and potential risks. During this time, it is important to have the advice and support of your breast care team and support people, along with all the information you require to make an informed decision.

Women diagnosed with early-stage breast cancer are typically treated with breast conserving surgery (BCS), also known as a lumpectomy.

The goal during a lumpectomy is to remove the diseased breast tissue and a small surrounding margin of unaffected cells. This contrasts with the more radical full breast removal, or mastectomy.

Radiotherapy following surgery is an important part of the treatment.

Breast-conserving surgery followed by whole breast radiation therapy has been shown to be an effective alternative to mastectomy for women with early-stage breast cancer. Radiation is administered with the goal of destroying any remaining cancer cells, helping to reduce the chances of a cancer recurrence.



RADIOTHERAPY OPTIONS

For the past 20 years, Whole Breast Radiation Therapy has been the conventional treatment. Today there is a Single DOSE Radiotherapy option.

Conventional radiation therapy (figure 1) generally referred to as whole breast radiation therapy (WBRT), is delivered using a linear accelerator. This radiation delivery method produces a beam of high energy radiation directed toward the entire breast. Patients are typically treated five days a week during a three or six week period, starting about a month after cancer surgery.



Figure 1. Linear accelerator used to deliver conventional external beam radiation.

While WBRT has been shown to be highly successful in keeping the cancer from returning, the benefits can be associated with a range of potential side effects. The most common side effect is fatigue. You may have some dryness, itching, swelling and skin colour changes in the area receiving the radiation. There is also radiation delivered to nearby healthy tissue and organs. Ask your radiation oncologist to explain what symptoms may occur when receiving WBRT.

Today there is a Single DOSE Radiotherapy option.

Some women now have an option to receive an important new radiation treatment option called INTRABEAM intraoperative radiation therapy or IORT (figure 2). This innovative therapy is administered at the time of lumpectomy, following cancer removal. INTRABEAM IORT is delivered to your lumpectomy wound as a single dose at the time of your breast cancer operation.

ONE DOSE. ONE TIME



Figure 2. INTRABEAM system used for delivery of intraoperative radiotherapy.

INTRABEAM TARGETED

INTRAOPERATIVE RADIATION THERAPY

FAQS

How effective is INTRABEAM IORT?

In 1998, a group of international researchers began investigating this method of delivering radiotherapy for breast cancer. The primary study, called the TARGIT A Trial, tested the effectiveness of an intraoperative dose of radiation delivered using the INTRABEAM System compared with up to six weeks of conventional external beam radiation treatment (EBRT) for early-stage breast cancer. The results of the trial published in The Lancet journal in 2010 and again in 2013, show that the overall number of cancer recurrences for both the EBRT and IORT patients were very similar. Ask your specialist to discuss all the significant results from the trial named TARGIT A, including complications.

What if I will be receiving Whole Breast Radiation?

Some women undergoing conventional radiation treatment may have the choice of receiving INTRABEAM radiotherapy as a boost dose during cancer surgery, before the start of external radiation. This initial boost dose of radiation can be used in conjunction with standard course of external breast radiation.

How do you know you have removed all the cancer?

Your Surgeon will send the tumor to the laboratory. They will provide a report on the pathology of the tumour and confirm that there is healthy breast tissue all around the edges (or margins) of the tumour. This means that the entire tumour has been removed. The result can take up to two weeks before it is available.

What happens if some of the cancer is left behind?

If some of the tumor remains, then it is important to remove it. This will require a second operation. Your Surgeon and Radiation Oncologist will advise you if a boost treatment of IORT is appropriate or if standard radiation is better.

How is INTRABEAM Radiotherapy administered?

INTRABEAM IORT is delivered during breast-conserving surgery, in the operating room while you are still asleep. Radiation is typically delivered for 20 to 30 minutes. The treatment is delivered inside the lumpectomy wound which minimises radiation exposure to healthy tissue and organs.

Is INTRABEAM IORT right for me?

INTRABEAM IORT is suitable for women over 45 years of age with a grade 1 or 2 ductal breast cancer, that is less than 3cm, is estrogen receptor positive and has no lymph nodes positive for cancer.

Is this the only treatment option for me?

No, there are other treatment options to think about. You could choose to have a lumpectomy and standard radiation. Radiotherapy is usually started once your Surgeon confirms all the cancer has been removed. This treatment is known as the “rule of five” - five minutes per day, five days per week, for five weeks.

The other option is to remove the whole breast and this procedure is called Mastectomy. Your Surgeon will be able to take you through these options in detail.

Is IORT approved in NZ?

Yes it is. The INTRABEAM is registered with Medsafe and the WAND number is: 110726-WAND-6BJDBC (as a class 2b product). Zeiss have registered it here and also with TGA in Australia.

The TARGIT A Trial studies 3,541 patients in 33 centres in 11 countries to determine that IORT is safe in selected breast cancer patients.



What are the benefits about IORT?

1. The radiation is given once during surgery
2. If you need chemotherapy you can start straight away
3. The radiation is absorbed quickly over a depth of 1-2cm
4. The low radiation dose means healthy tissue and organs such as the ribs, lungs, heart and opposite breast are more protected
5. The single treatment means you can save on time and travel.

Are there any disadvantages?

A disadvantage of IORT is that the radiotherapy treatment is usually given at the time of surgery, before your pathology results are known. Those results may show that additional surgery is needed. This could include the need for standard radiation.

What are the side effects of IORT?

Most early side effects from IORT are similar to those seen with standard radiation. Symptoms can include:

1. Mild swelling and redness of the skin overlying the treated area
2. Mild tenderness within the breast
3. Fluid collection where the tumor was removed. This is treated by either leaving it alone or draining the fluid using a needle.

Very rarely, an ulcer can form in the skin and the wound could be slow to heal. Some of the fatty tissue in your breast could also harden due to the radiation. This is called fat necrosis and is requires no treatment.

Can my cancer grow back?

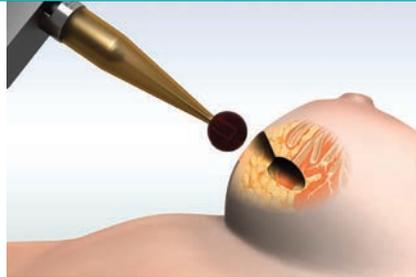
Yes there is always a risk of cancer growing back in the breast even if a mastectomy is performed. The results we have show that there is the similar chance (2% after 5 years) of cancer reappearing after IORT or standard radiation.



THE PROCESS

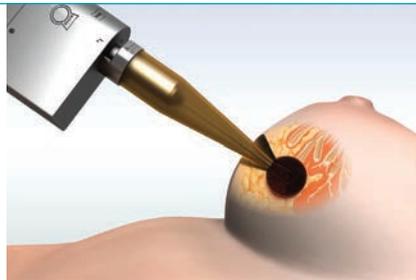
Step 1.

INTRABEAM therapy is delivered during breast cancer surgery.



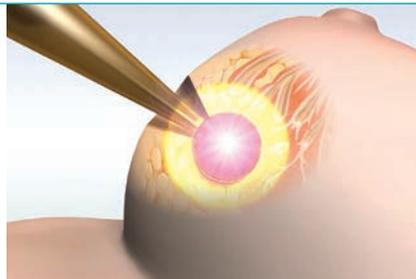
Step 2.

After the surgeon removes the tumor, the INTRABEAM applicator is placed precisely into the excision site.



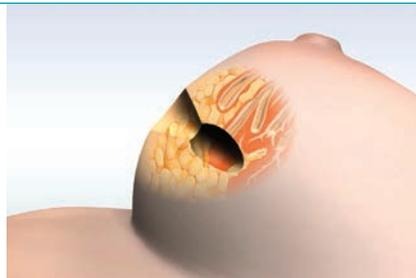
Step 3.

Low-energy radiation is delivered locally, minimizing exposure to healthy tissue.



Step 4.

Following a 20 to 30 minute treatment, the applicator is removed. The surgeon closes the incision, and the patient is brought to the recovery room.





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