Radioactive seed localization

What is radioactive seed localization?

A radioactive seed is a titanium seed containing a small quantity of the radioactive element Iodine-125, which has a half-life of 60 days and emits 27 keV of gamma radiation. You will soon be undergoing breast surgery to remove the lump in your breast. Because your tumor cannot be localized by feel, the lump will need to be localized for the breast surgeon. The lump can be seen with breast ultrasound or mammography, and so it can be localized using either modality for guidance.

Using ultrasound or mammographic guidance, a radiologist will place a seed into your breast lump. The seed is the size of a small grain of rice, and will not be felt by you or your surgeon. Because the seed emits a tiny amount of radiation, a radiation detector called a gamma probe can detect it. The radiation dose is minimal, equivalent to two mammogram images when it is in the breast for 5-7 days. The seed is placed in your breast several days before surgery, and will be removed at surgery. The seed is localized in your breast when you are in the operating room. Using the gamma probe, your breast surgeon will find the seed in your breast, and accurately localize the lump in which the seed is located.

The surgeon localizes your tumor in the operating room using the same gamma probe that is used to identify the sentinel lymph node in your axilla (armpit). Because the energy of the seed is different than the one used to identify the sentinel lymph node, your surgeon can identify both the seed and the sentinel lymph node with high accuracy using the gamma probe.

This procedure causes no harm to your breast, and is of such a low radiation dose that there is no risk of harm to you, your family or the environment.

It has been shown in several studies that the use of radioactive seeds to localize breast tumors allows for more accurate removal of breast cancers, and reduces the need for additional surgery if the tumor is not all removed at the first surgery. Another advantage is that you can have the seed placed in your breast several days before surgery, which avoids having a wire placed in your breast on the actual day of surgery, and decreases the amount of time waiting before the surgery.

Do I need to follow any special instructions to be ready for a radioactive seed placement?

You will be scheduled for the radioactive seed localization procedure a few days before your surgery. You are not required to have any special preparation for the seed placement and should not be fasting (as you will be required on the day of surgery).

If you are taking anticoagulants (blood thinners) such as Coumadin or Aspirin (ASA) or other ASA containing medications, you should consult your physician, as it may be necessary to adjust your medication for one week prior to the procedure.

If you are unable to keep your appointment, please let us know as soon as possible 613-761-4831 option 5.

The procedure will be done at the Women’s Breast Health Center (see map).

Who will perform the procedure?
The procedure will be performed by a radiologist who specializes in breast imaging (a specialist medical doctor) or a resident (radiologist-in-training) or fellow (breast specialty radiologist-in-training) under supervision. A specially trained x-ray technologist will assist during the procedure.

What happens to me during the procedure?
You will need to change into a hospital gown (from the waist up). You will then be asked to be on your stomach or sit in a chair depending on what type of imaging will be used to guide the doctor. The skin will be washed with an antiseptic solution and “frozen” with some local anesthetic. The breast radiologist will place the seed in your breast using either ultrasound or mammographic guidance. You may have more than one seed placed in the breast if there is more than one tumor, or the extent of the lump is such that the surgeon requires the edges to be localized. Once the seed is placed in your lump, the radiologist will obtain images of the lump containing the seed(s) with a unilateral mammogram.

The localization procedure takes about 30-45 minutes. When the procedure is complete, pressure will be applied to the site for 5-10 minutes and a small dressing will be applied. A bracelet indicating your name and that a radioactive seed is in your body will be placed on your wrist. This will be removed at surgery.

Should I expect any after effects as a result of the procedure?
It is unlikely that there will any significant side effects from this procedure. There may be a small amount of bruising and a tingling sensation or discomfort in the breast as the local anesthetic wears off. You may take Tylenol in case of mild discomfort.

Strenuous activity (i.e. heavy lifting, tennis, golf, aerobics, etc.) should be avoided for 48 hours. There is a small risk that the seed can move within the breast and this will cause discomfort. There is also a small chance that the seed will not be placed right in the tumor and another seed will need to be inserted. The seed will be removed during the surgery and another procedure will be scheduled.

There are no restrictions on diet. You do not require any special instructions about radioactive exposure to others. If for any reason your surgery is postponed, the seed is good for 60 days, and you will be provided with a surgical date within this time frame. You will undergo the surgery to remove the seed and the lump.