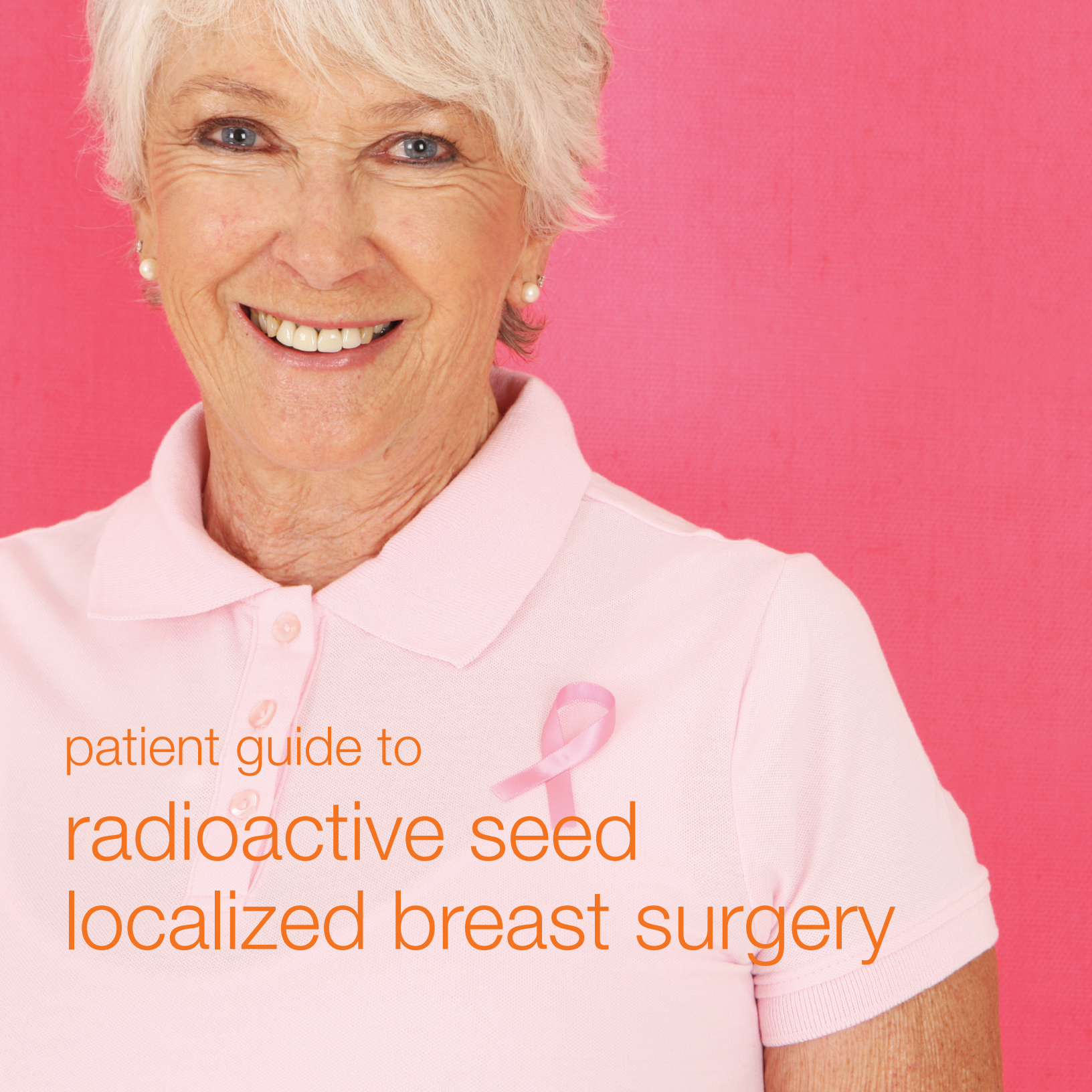


patient guide to

radioactive seed localized breast surgery

Breast imaging technology has become more refined, allowing many breast abnormalities and cancers to be detected before they can be felt with a physical exam. While this allows us to identify problems earlier than ever, it also makes the affected tissue more challenging to precisely locate and remove.

Radioactive Seed vs. Wire localization

Wire localization has previously been the only option to localize non-palpable breast lesions. However, there are several limitations associated with its use. Placement of the wire must be performed the same day as surgery. This complicates surgical scheduling and is cumbersome for the patient to be transferred with the wire in their breast. The majority of wires are placed under mammographic guidance and the procedure is very uncomfortable for the patient. The wire may shift or be dislodged, decreasing the accuracy of the localization. The location where the wire exits the skin does not always reflect the location of the tumor, making incision planning difficult. Finally, the wire placement shown on mammograms provides a limited two dimensional view of the location of the tumor, which can make removal of the tissue less accurate.

Radioactive seed localization (RSL) offers a new alternative with multiple benefits over wire localization. A very low-energy radioactive seed is placed under ultrasound or mammographic guidance by an experienced radiologist. The seed can be placed one to five days before surgery, making the scheduling and transportation easier and reducing the wait time for the patient. The seed placement is also better tolerated by patients than the wire. During the surgery, the surgeon uses a handheld gamma probe to more precisely identify and remove the tumor by obtaining a three dimensional view of the tumor's location. This also allows for accurate and alternative planning of the surgical incision.

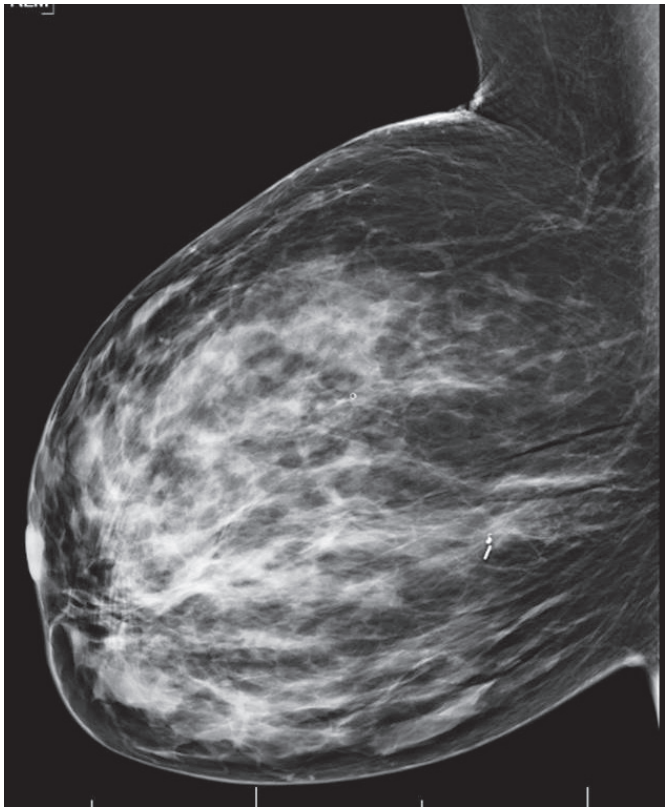
Seed Implantation and Removal

A specially-trained radiologist performs the seed implantation. The seed placement procedure is very similar to a needle biopsy procedure. The

radiologist injects a local anesthetic to numb the area before starting the procedure. Ultrasound or mammography is used to guide placement of the seed. During surgery, the surgeon removes the abnormal tissue or tumor along with the radioactive seed.

What is the seed?

Each seed is only 5mm long, which is about the size of a grain of rice. The seed is a titanium shell containing a very low amount of iodine. The level of iodine in each seed is too small to be considered a treatment and is only used as a diagnostic tool. The seed acts as a marker for the surgeon because the iodine inside can be detected by the gamma meter being used during the lumpectomy, and the seed itself can be seen on ultrasound. The seeds give up their radiation where they are placed and the patient's body acts as a natural shield. The seed does not present an exposure risk to care givers, family members, or others who come in contact with the patient, therefore special isolation measures are not required. These same seeds are used in much higher "doses" and quantities (up to 150 seeds) for treatment of prostate cancer and stay in the body permanently. With this procedure, once the seed is removed with the breast tissue, the entire radioactivity is gone.



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