

**RADIOACTIVE
SEED IMPLANTS FOR
PROSTATE CANCER**

***INFORMATION FOR PATIENTS
AND THEIR FAMILIES***

INTRODUCTION

Today, there are several methods of treatment available for cancer of the prostate. This booklet is intended to discuss the Radioactive Seed Implant, an option that can be offered to many men with early stage prostate cancer. It will describe the nature of the procedure, the necessary preparations, the possible side effects, the follow-up care involved, and some basic precautionary measures.

CANCER OF THE PROSTATE

Cancer of the prostate, like other cancers, is a disease of the body's cells. All cells reproduce themselves by dividing. Normal growth and repair of tissue takes place in an orderly manner. Cancer is a kind of abnormal growth, which may invade and destroy nearby tissues and organs or spread to other parts of the body.

Cancer may arise in any part of the prostate gland, but is most commonly found in the outer portions. It is more common in older men. Its cause is unknown.

How does radiation treat cancer?

In order to kill the cancer, your physicians place (implant) radioactive "seeds" into your prostate gland. These radioactive seeds (either Iodine 125 or Palladium 103) give low energy x-rays that are just right for destroying the cancer in the prostate, but leave the rest of the body alone.

Iodine 125 (also called I^{125}) and Palladium 103 (also called Pd^{103}) give up about 90% of their radioactivity within a short time, six months and two months, respectively. By one year, the radioactivity can be considered gone.

The radioactive seeds are about the size of a grain of rice. Typically, your physician will place about 70 to 150 of the seeds into your prostate gland. The exact number depends on the actual size of the prostate gland.

Even though the cancer is only visible in a portion of your gland, there may be tiny amounts of cancer throughout your gland. For this reason, the entire gland is treated.

PLANNING FOR THE IMPLANT

Before the implant procedure, your radiation oncologist will make a map of your gland from a prostate ultrasound scan (similar to a x-ray), called a volume study.

A radiation physicist and your radiation oncologist, aided by sophisticated computers, will use the volume study to determine both the number of seeds needed to treat the cancer and exactly where the seeds should be placed.

How is the implant done?

The implant procedure is a joint procedure done by your Radiation Oncologist and Urologist, but is not an operation requiring a surgical incision. Instead, tiny needles are passed into the prostate gland through the skin between the scrotum and the rectum. As the needles penetrate through the prostate, they are seen on the screen of the ultrasound machine and can be accurately guided to their final position. While the needles are being inserted, the ultrasound probe is in the rectum. The number of needles and seeds required varies from patient to patient depending on the size of the prostate gland. When each needle is in its correct position in the prostate, the needle is slowly withdrawn while individual seeds are injected into the prostate gland. Both the probe and the needles are removed when the procedure is completed.

What will the procedure be like?

The radioactive seed implant procedure lasts about one hour. It is done in the operating room. You receive general anesthesia or spinal anesthesia, which makes you temporarily numb from the waist down, while the procedure is performed. You may also receive medication through an intravenous (I.V.) line, which will make you drowsy.

After the seeds have been implanted, a catheter might be placed temporarily in your bladder to drain urine.

After the implant, you will go to the recovery room for about one hour, until you are awake or have regained the feeling in your legs. While in the recovery room, you will have an ice bag placed between your legs to help reduce swelling of the implant site. The urinary catheter will be removed only when you have regained feeling in your legs. Occasionally the catheter will be left in place for 24 hours. You may be scheduled to have a post implant CT scan done shortly after surgery before the catheter is removed.

There is surprisingly little discomfort after the implant, although some mild soreness is expected between your legs for one or two days. If you do feel discomfort, pain medication will be available for you.

What preparation is required before the procedure?

Before the implant, you will be given specific instructions regarding some diet changes and the use of enemas. The enemas will help clear your lower bowel and rectum, so that the ultrasound of your prostate will be clear.

After midnight on the night before the implant, you should not eat or drink anything until after the procedure.

Approximately one to three weeks prior to the implant, you may have blood tests done and possibly an electrocardiogram (EKG) and chest x-ray. Your doctor will determine which tests are necessary. The test results are used to inform the anesthesiologist of your ability to tolerate anesthesia.

You will be asked to arrive at the hospital ***one hour*** prior to surgery. If you use aspirin or any anti-inflammatory drugs for any reason, you must stop taking them altogether, ***two weeks*** prior to the implant, in order to prevent bleeding. Discuss any over-the-counter medication that you take with your physician.

What happens afterward?

Once you have regained full feeling in your legs if you received spinal anesthesia, you may get up and walk. Initially, you should do this with your nurse's assistance.

After you have recovered from anesthesia, you may go home. You may feel a little weak. It is recommended that you do not drive for at least twenty-four hours. You may resume eating and have visitors.

You may notice some blood in your urine; this is normal and should subside in approximately twenty-four hours. If, after twenty-four hours, significant bleeding persists or if you begin to pass blood clots, you should contact your urologist.

You should avoid heavy lifting or strenuous physical activity for the first two days once you are home. After that, if your urine is not grossly bloody, you may return to your normal activity.

RADIATION SAFETY

Many of our patients are concerned about the potential dangers of radiation exposure to their family and friends from the implant. Both Iodine 125 and Palladium 103 emit very low-energy radiation, which does not travel very far. In fact, the vast majority of the radiation is stopped inside the prostate itself.

However, very small amounts of radiation can reach other people from either a seed being passed in the urine or by a tiny amount of radiation that passes through the prostate and travels through the air. The amount that escapes is so small that it is not considered a risk for most people. There are no restrictions on a patient's travel or physical contact with other adults.

Small children and pregnant women may be more sensitive to the effects of radiation, and therefore, we recommend some additional precautions for these people when around implant patients. We recommend that during the first one month following an Iodine 125 implant and for two weeks following a Palladium 103 implant no close personal contact. If a child or pregnant woman is in the same room as the patient, they

should try to keep a distance of six feet or more. At this distance, the amount of radiation from the patient is negligible. Since the radiation is coming from the prostate, children should not sit on the patient's lap during the initial month.

Although it is rare, an occasional seed may be lost via urination. If a seed is passed in this way, it almost always occurs within the first week or two following the implant procedure. If a seed is passed, it can simply be flushed or be retrieved with tweezers, wrapped in a few layers of tin foil, and returned to the Radiation Oncology Department for proper disposal. Because of possible passage of a seed, we ask the patient to strain his urine for the first week following the procedure, so that any seed that is passed may be easily retrieved.

In a similar manner, a seed may be rarely passed with the ejaculate during intercourse. For this reason, we recommend that a condom be used during intercourse for two weeks following the implant procedure so that any passed seed may be easily retrieved. It is normal for the ejaculate to be discolored dark brown to black for up to several weeks following the procedure. This is a result of bleeding that may have occurred during the implant and is now being released into the ejaculate.

Although these precautions may seem elaborate the amount of radiation exposure to the patient and those around him are really quite minimal and do not represent an additional risk. Objects that a patient touches or items that are used do not become radioactive. Bodily wastes (urine and stool) are not radioactive

Are there any side effects from the procedure?

After the implant you may experience some slight bleeding or burning beneath the scrotum, or blood in the urine. The needles used to place the seeds cause these side effects. Usually, 20-25 needles are used. The seeds themselves and the catheter and other instruments used during the procedure also can contribute to these side effects. If you should experience severe pain or severe bleeding you should call your urologist.

A catheter might be placed into the bladder during surgery and is removed several hours later. In some instances it is left in overnight. It is normal to have some blood in the urine, which will drain from the catheter. This bleeding may continue for several days so do not be alarmed. If it becomes excessive, or is associated with large clots, call your urologist. Drinking plenty of water helps prevent blood clots and flushes the bladder.

After the catheter is removed, it is normal to experience some burning with urination. If you cannot pass your urine within six hours after removal of the catheter you will need to contact your urologist or go to the emergency room for care. This is particularly true if you are feeling fullness and discomfort in the bladder area.

Side effects after the implant are generally due to the radiation from the seeds in the prostate. It is very common to experience frequent urination, burning with urination, a sense of urgency, or a decrease in the force of the urinary stream. These symptoms will gradually decrease as the seeds lose their strength, but may be present to some degree for six to twelve months after the implant. Avoiding caffeine-containing beverages may help to diminish these symptoms. If they are bothersome, medications will be prescribed.

As with all medical procedures, there is a small chance that there will be longer term, even more permanent side effects. Your physician will discuss these risks with you.

What about follow-up visits?

If a CT scan was not done the day of the procedure, you will be asked to return for a CT scan within a few days. The CT scan will enable the physicians to determine the exact position of each seed in the prostate. This is necessary in order to determine that your prostate gland is receiving the proper amount of radiation throughout the entire gland. On rare occasions, it might be necessary to give an additional amount of radiation with either external radiation or another implant.

Follow-up visits with your urologist and radiation oncologist will be done on a regular basis. A follow-up visit schedule will be given to you at the time of your implant. A visit every three to six months is customary during the first five years. Physical examination, blood tests, and rectal ultrasound tests may be done at certain intervals as part of your follow-up visits.

Other questions you may have?

Use the space below to write down any questions you may want answered before your procedure.