

# Prostate Cancer: Internal Radiation Therapy (Brachytherapy)



Prostate cancer may be treated with radiation therapy. It's also called radiotherapy. It works by sending radiation to the cancer sites. This can kill cancer cells or stop them from growing.

There are two types of radiation therapy for prostate cancer:

- **External-beam radiation therapy (EBRT).** This uses a machine similar to an X-ray machine to send radiation to your prostate.
- **Internal radiation therapy or brachytherapy.** This uses tiny radioactive seeds or tubes that can hold a radioactive wire placed directly into the prostate.

## Types of internal radiation therapy

Internal radiation therapy (brachytherapy) can be given two ways. Both ways use a needle to place the radioactive material into the prostate. Anesthesia will be used to keep you comfortable. Your healthcare provider will talk to you about the type of anesthesia they will use. Follow your provider's instructions on how to get ready for either procedure:

- **Permanent brachytherapy (seed therapy).** With this type of therapy, a long, hollow needle is placed through the skin between the scrotum and anus, guided by imaging. The needle is used to put small radioactive metal seeds into the prostate. Each seed is about the size and shape of a grain of rice. The number of seeds depends on the size of the prostate. The seeds give off radiation to nearby tissues. The seeds stay in place in your body and are not removed. But the radiation gets weaker over weeks and months and will eventually stop radiating. So, it delivers all the necessary dose to kill the tumor upfront, and then is inactive long-term.
- **Temporary brachytherapy.** With this type of therapy, a long, hollow needle is placed through the skin between the scrotum and anus. The needle is used to put soft nylon tubes into the prostate. The tubes stay in place only during treatment. They are then removed after a short time. Temporary brachytherapy may be either high or low dose. High-dose rate temporary brachytherapy may stay in for several minutes. It may be done over several sessions. Low-dose rate temporary brachytherapy may stay in for several days. You need to stay in the hospital for this treatment.

## Your treatment plan

Treatment with brachytherapy depends on several factors, including prostate size, urinary symptoms before treatment, and before prostate procedures. Internal radiation therapy alone may be a choice if your prostate cancer:

- Is growing slowly, is early stage, and considered lower risk or favorable intermediate risk
- Has not spread outside the prostate gland

A radiation oncologist will create a treatment plan for you. This healthcare provider specializes in treating cancer with radiation therapy. Each person's treatment plan is different. Your plan will include the type of radiation you will have. It will also include how often and for how long you will have the treatment. Brachytherapy may be used alone in early stage and low risk prostate cancer, or it can be combined with external beam radiation therapy, androgen deprivation therapy, or both for higher risk prostate cancer.

## Getting ready for your therapy

Before having internal radiation therapy:

- You may need a lymph node biopsy. This is to see if your cancer has spread outside the prostate gland. One or more lymph nodes are removed to see if they contain cancer. Usually this is done if there is a lymph node that is cause for concern on an imaging scan, such as a PET/CT scan.
- You'll have tests to find exactly where to place the seeds. These tests may include a CT scan, ultrasound scan, or an MRI scan.

## During the procedure

Internal radiation therapy is done in a hospital or clinic.

For permanent therapy:

- You may get anesthesia in your spine. This will cause the lower half of your body to be numb. Or you may have general anesthesia. This prevents pain and causes you to sleep through the procedure.
- Needles are used to place tiny seeds in your prostate and are guided into the prostate by imaging.
- You are brought to the recovery room until the anesthesia wears off.
- You might be able to go home the same day. Or you may spend a night in the hospital or facility.

For temporary therapy:

- You will be given anesthesia during the procedure. This prevents pain.
- Thin tubes (catheters) are placed in your prostate for a few days. Radioactive material is put into the tubes for a short time. You will stay in the hospital or other facility. You may have several treatments. The catheters are removed when treatment is complete.

## What happens after internal radiation therapy?

After you finish your therapy, your oncologist and other healthcare providers will closely watch your health. You will have regular lab tests and scans. Make sure you tell your healthcare providers about any symptoms you have. Make sure to go to all your follow-up appointments.

If you had permanent brachytherapy, the seeds will give off small doses of radiation for at least several weeks to months. These low doses are not likely to be harmful to others. But to be safe, your healthcare provider may advise you to not have close contact with pregnant women and small children for a time. Your healthcare provider may also advise other safety measures, such as wearing a condom during sex.

If you had temporary brachytherapy, no radiation stays in your body after treatment. You don't need to take special precautions after the radiation source is removed. However, you may have to limit certain types of visitors while receiving treatment in the hospital. Pregnant women or children may not be allowed to visit during your hospital stay. You may also need to keep a certain distance from other visitors or keep visits short.

## Side effects of internal radiation therapy

Radiation therapy attacks normal cells as well as cancer cells. This can cause side effects. The side effects depend on the amount and type of radiation. Some side effects may occur during treatment. Others may occur in the weeks or months after treatment.

Side effects may include:

- Pain, bruising, or swelling in the area where the needles were inserted
- Feeling tired
- Blood in the urine or semen for a short time after treatment

The bladder and intestines are near the prostate, so these organs can also be affected by the radiation. This can lead to side effects, such as:

- Diarrhea or intestinal cramping
- Rectal pain or burning
- Blood in your stool
- Trouble starting urination
- A feeling of urgency before urinating, dribbling of urine, or a feeling of incomplete emptying once you've completed urinating
- Feeling the need to urinate often
- Burning feeling when you urinate

These side effects often go away over time but, in some men, they might not go away completely. Talk with your healthcare providers about any side effects you have and the potential for long-term, permanent side effects. They may be able to help reduce them.

## **Erectile dysfunction (ED) after radiation therapy**

Another possible side effect is problems with erections of the penis. This is known as erectile dysfunction (ED). The risk of this depends on many factors. These factors include a person's age and ability to have erections before treatment. The risk of ED is about the same as most prostate cancer treatments. After radiation therapy, ED can occur but does usually improve significantly over time. This is different from surgery, where long-term rates of ED tend to be worse than with radiation. Compared to external beam radiation, brachytherapy has fewer long-term sexual side effects.

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