



“Smart Bomb” Implant Surgery / HDR Temporary Brachytherapy

Option One

The first surgery

You will come to the surgery center about two hours early. At surgery, your doctor and urologist will perform a surgery called Transperineal Ultrasound and fluoroscopically guided implantation of plastic (flexiguide) after-loading catheters into the prostate. The actual surgery in the operating room takes about an hour followed by an hour of recovery time.

After recovery you will be transferred to Radiation Therapy at the Cancer Center: Once recovered from anesthesia, you will be allowed to eat and drink, but be kept flat, although you can roll from side to side about 30 degrees. You cannot sit with all the instruments in your bottom. If you have pain, let the nurses know, and they will give you medicine prescribed by your doctor.

At the Radiation Department of the Cancer Center you will first be taken directly to the CT room. The CT will confirm the accurate positioning of the HDR catheters. You will then be taken back to a recovery room, where your family or others can sit with you.

During this time, the physicist and doctor will be reviewing the computer to recheck the implant and reviewing all data required to program the HDR Computer.

When everything is ready, you will be moved to the HDR room. You will be placed on a special mechanical couch and brought to the HDR Room, which houses the Nucletron HDR Remote Afterloader. The HDR machine has many outlets, and one outlet will be attached to each after-loading flexiguide catheter.

For the first treatment, the computer driven HDR machine will first insert a test wire into one catheter and then follow it with the actual treatment wire. You will feel the wires going in and out of each catheter. Even though no one will be in the room with you, we will be in constant contact by video monitor and sound system. However, occasionally, the test wire will find a flaw, requiring us to enter the room and clear the problem. This is a fail-safe mechanism to protect you.

When completed, you will be taken back to the holding area and await the second HDR insertion.

Approximately, 4-6 hours later, the HDR insertion procedure will be repeated.



After the second insertion, the catheters and holding template and Foley (urine catheter) will be removed. You will be encouraged to move about. Once you are able to urinate, you will be discharged.

You may notice some bladder irritation, tiredness, and tenderness in your bottom as well as a bruising after the procedure. It can be quite uncomfortable for some people, but most do well enough to go back to almost normal activity. If you cannot return to normal activities, let your doctor know.

For the remaining treatments...

[Second Surgical Catheter Implant: If all goes as planned, the surgery to implant the plastic flexiguide catheters, and 2 HDR insertions with treatments #3 and #4 are repeated about a week later.]

CCOI: Please rewrite what happens with second, third and fourth treatments

Option Two

You will need to schedule an appointment with the Radiation Oncology Department.

I. You will first be scheduled by the Radiation Oncology Department for a CT scan.

II. The following day you will be scheduled for a simulation. This is the process in which the therapist takes you into an X-Ray room and localizes the area to be irradiated. The therapist will ask you to drink some barium in order to identify your small bowel on X-Ray.

III. The therapist will be making marks on your skin with a felt tip pen to "map" out the area to be treated. Films will be taken.

IV. You will be scheduled to return the next day or so to begin treatment. The first day in the treatment room, X-ray films called port films will be taken to verify once again that the area "mapped" out is the area that is being targeted for treatment.

V. Your treatments will be scheduled Monday through Friday for approximately 5 weeks. This means you will make approximately 23 to 25 visits to see us for treatment.

When is the surgery scheduled?

Approximately 2 - 4 weeks following your external beam radiation course, your surgery will be scheduled.



What happens on the day of surgery?

- I. The patient arrives in the Ambulatory Surgery Unit (ASU) and is admitted for the surgery.
- II. The implant is performed in the surgery department by your urologist and the radiation oncologist.
- III. After the surgical procedure of inserting the radioactive pellets is completed, you are taken to the recovery room.
- IV. You are released from the recovery room when you are able to urinate on your own. Then you will be allowed to go home. You will need someone to drive you home.

Surgical Procedure

The ultrasound probe is inserted into the rectum during surgery. Attached to the top of the probe is a template with holes to guide the insertion of the catheters into the prostate. These catheters will hold the radioactive seeds to evenly separate them.

Below is a diagram of the B&K Ultrasound probe inserted in the rectum with the template attached to the probe

The diagram above shows a single catheter through the template. Up to 19 catheters may be used during an implant. The average is 16 catheters. The diagram inset on the left highlights the radioactive seeds and spacers within the catheter. The other inset diagram on the right highlights the grid of the template. The entire prostate gland is embedded with catheters to predetermined locations.

Insertion of Radioactive Seeds

The radioactive seeds are loaded into hollow needles or catheters. These catheters are inserted into the template with ultrasound guidance.

With the use of the grid and the ultrasound guidance, all the catheters are inserted evenly covering the prostate gland and in some cases the seminal vesicles. Once all the catheters are in place, the short insert is removed and

a longer one replaces it. The hollow needle is then pulled outward to meet the long insert, depositing the radioactive seeds within the patient's prostate gland.



The catheters and the transrectal probe are then removed leaving all the radioactive seeds permanently in place within the prostate gland.

Cystoscopy Procedure follows Implant

Finally, the urologist performs a cystoscopy procedure on the patient. This is the placement of a scope through the urethra into the bladder to assess the status of the bladder at the end of the implant and to remove any radioactive seeds that may be in the bladder. The patient may experience some blood in the urine immediately following the surgery. This is considered normal.

The patient goes home after leaving the recovery room and when he is able to urinate on his own. The patient will return to the Radiation Oncology Department one week after the implant for radiographic films to document and verify placement of the radioactive seeds.

Short Term Side Effects

You may experience some short term effects of the radiation for the immediate month to month and a half following the implant. These may include burning upon urination, frequency in urination, the need to urinate at night, loose bowels, and/or diarrhea. You may also experience some discomfort in the bladder, rectum, and urethra commonly referred to as the "sunburn effect."

Long Term Effects

With the normal male aging process, men may develop impotence or urinary obstruction. The various treatments offered to patients with prostate cancer such as Surgery, External Radiation or Radioactive Implants, may hasten these problems.

Even though long term side effects are not common, they could appear after a period of three months to a year. As the prostate tumor cells are killed and the gland shrinks, urinary obstruction may be problematic. Scar tissue along the urethra may account for narrowing of the passage of urine from the bladder. Other more severe side effects include rectal injury, rectal-urethral fistula, rectal-vesicle fistula and in the worst situations, even lead to a colostomy. Again, these problems are unusual, but you should be aware of them.