

Radioactive seed implants for prostate cancer (low dose rate brachytherapy)

Information for patients



Radioactive seed implants (low dose rate brachytherapy) are a way of using radiotherapy to treat prostate cancer that is contained within the prostate gland. The aim of the treatment is to cure the cancer.

The main alternative treatments for localised prostate cancer are:

- Active surveillance (a close monitoring programme)
- Radical prostatectomy (surgical removal of the prostate)
- Radical external beam radiotherapy (external x-ray treatment)

Brachytherapy appears to be as effective a cure as radical prostatectomy or external beam radiotherapy in men who are suitable for the treatment.

During prostate brachytherapy the doctor places radioactive iodine seeds directly into the prostate gland. These seeds stay in the gland permanently.

They give out low-level radiation, for about one year. Each seed is about 5mm in length and 0.5mm thick. We often connect the seeds together in strands but may also implant seeds individually.

These seeds are positioned throughout the gland with a high degree of accuracy by using an ultrasound probe inserted in the rectum to guide the procedure.

Since only a small area is affected by the radiation from each seed, relatively little radiation reaches the other healthy organs nearby. This helps keep side effects to a minimum.

Occasionally urinary side effects can be troublesome and prolonged in a small number of men. Brachytherapy is not suitable for men who have severe difficulties passing urine because the treatment can make the symptoms worse.

Impotence can be a problem for 30 to 40% of men, but this is a lower risk than after a radical prostatectomy, and about the same as external beam radiotherapy.

Prostate brachytherapy – the procedure

We plan the treatment and perform the implant in one session, under a general anaesthetic. You visit the hospital just once for treatment and you do not usually need to stay in hospital overnight.

Initial outpatient ultrasound scan

You may be required to attend the hospital radiology department as an outpatient a few weeks before the implant to have an ultrasound scan of the prostate. This is not always necessary. It may be required in order to:

- check that a seed implant is an appropriate treatment for you
- accurately measure the volume of your prostate gland and assess how many seeds we need to order
- check the position of your prostate in relation to the bones in your pelvis

If we find your gland is too large (usually more than 60cc) to proceed with the implant straight away your doctor may recommend a three to six month course of hormone treatment to shrink the prostate before the implant. You would then have a repeat ultrasound scan. Very occasionally the doctor will decide that for technical reasons it is not possible to carry out an implant. If the prostate is behind the pelvic bones it is not possible to insert the seeds even if the gland is quite small. In this case we would talk to you about your other options for treatment.

Preassessment visit

Your preassessment appointment will take place at Southampton General Hospital around three or four weeks before the implant date. At this appointment we will run some routine medical checks which are required before having an anaesthetic, including blood tests and a heart tracing. We'll give you an antibiotic tablet and a bladder tablet (tamsulosin) to take the night before the implant.

You will also collect an enema from the pharmacy which you should bring with you on the day of the implant. An enema is used to ensure the back passage is clear of faeces, so that the doctors can see the prostate clearly while performing the implant.

Instructions about medication

If you are taking aspirin, clopidogrel or dipyridamole you should stop taking them one week before your implant, unless your doctor or nurse tells you otherwise. These drugs can make your prostate gland bleed excessively during your implant and this could affect its success.

If you are on warfarin this will also be stopped five days before the implant and alternative arrangements made.

The implant

The brachytherapy coordinator will arrange a date for your implant.

You will attend the ward as a day case on the morning of the implant at 7am.

Please bring all your medication with you to the hospital. We will ask you to use the enema to clear your back passage before the procedure.

The seeds are inserted under general anaesthetic and the procedure takes one to two hours. A urinary catheter is inserted into your bladder while you are under anaesthetic.

The ultrasound probe is inserted into the rectum and used to guide the procedure. This helps to give us high quality ultrasound pictures.

The seeds are loaded into special fine needles. The doctor inserts the needles through your perineum (the area of skin between the scrotum and the anus) and into your prostate gland.

The catheter is removed either before you wake up or shortly afterwards, unless there is any bleeding.

After the implant

When you wake up you may have swelling and bruising between your legs where the needles were inserted.

Due to the small risk that a seed can be passed in your urine, you are asked not to use the toilet. We will provide you with a commode and urinals.

This enables us to check your urine before we discard it. Once you are dressed in your own clothes you may move around the hospital as you wish, as long as you return to your room on the ward when you need to pass urine, so that you can use the urinal bottles provided.

Before you leave hospital the staff will advise you about how to manage any side effects. They will give you instructions about your medication and your follow-up clinic arrangements.

After a general anaesthetic you should not drive for 24 hours.

For the first few days afterwards you should not take part in any strenuous activity or heavy lifting, but after this you will probably be able to carry on as normal.

Medication

Tamsulosin: You will start to take this five days before your implant. It helps you to urinate. You might continue to take tamsulosin for two months or more, or until your symptoms settle. You should obtain a repeat prescription from your GP (family doctor).

Antibiotics: You will start to take these on the night before your implant. We give you these to prevent any risk of infection. You should take the full course as instructed.

Side effects of the implant

Immediately after the implant you may experience some of the following:

- Mild soreness, bruising and discolouration in the perineal area (between the scrotum and the anus).
- Burning when passing urine.
- Some discomfort and bruising in the perineum. Mild painkillers and a warm bath will ease this.

Urinary problems

You may see a slight trace of blood in your urine for several hours after the implant. This is quite normal so don't be alarmed. Drinking plenty of water, approximately one glass hourly during the day, helps to flush out the bladder and reduce any blood clots.

Approximately one week after the implant, the radiation reaction from the seeds begins. This usually causes increased frequency and urgency of urination which is sometimes painful. The urine flow may be slower than normal. In some patients these symptoms may be severe but can be helped with medication.

These side effects last for an average of four to six weeks and then gradually reduce in severity. Some urinary symptoms may persist for six to 12 months.

Urine flow

After the implant, the urethra (the tube that leads from the bladder through the prostate and penis) can become inflamed, causing some restriction of urinary flow. Drinking a total of two to two and a half litres of fluid per day (such as water and squash) helps to relieve some of the symptoms you could experience after the implant. It can also reduce the risk of urine infection.

Both tea and coffee contain caffeine, which irritates the bladder and can have an effect on your urine output. We advise you to restrict your intake of these until your urine irritations settle. Decaffeinated drinks are preferable.

If you are passing urine frequently during the night try reducing fluid intake a few hours before going bed, and have sips of water if required during the night. A covered hot water bottle sometimes helps the discomfort when placed over the bladder area.

If you have to wait before urine starts to flow, having a warm bath or placing your penis into a bowl of warm water can help. Many men get further improvement in their urine flow by increasing their tamsulosin to two per day. It is fine to take two tamsulosin tablets per day for a few weeks if necessary (one in the morning and one in the evening). You will only be given one month's supply but you may need tamsulosin for three months or more until symptoms settle. You can get a repeat prescription from your GP.

Incontinence

Incontinence (inability to control when you urinate) occurs in less than 2% of patients who have not had prior prostate surgery.

Retention of urine

A small percentage of patients (10%) may develop acute urinary retention (unable to pass urine) and require a catheter. This is a plastic tube inserted through the penis into the bladder to drain away the urine.

If you are feeling a strong discomfort in the lower abdomen and only passing a few dribbles or no urine at all, you may be experiencing urinary retention. You should attend your local emergency department, where a catheter may need to be inserted. We will give you a letter when you leave hospital to hand in at the emergency department if this should occur. If a catheter is necessary it usually needs to stay in for up to four weeks before trying without it. Rarely it may need to stay in for two to three months or longer, to allow things to settle.

Urinary retention usually begins in the first few weeks after an implant, but can occasionally happen later.

Once you have had a catheter inserted, please inform your consultant's secretary or specialist nurse so the appropriate ongoing support can be arranged for you. If pain relief is required, an anti-inflammatory medicine such as ibuprofen is recommended or alternatively paracetamol. You should check with your doctor or pharmacist if these medicines are suitable for you and do not interact with other medicines you are taking.

Contact your GP if you need stronger pain relief.

Bowel problems

Sometimes you may feel as though you are constipated. This could be the result of the swelling from the prostate. A high fibre diet and extra fluids are encouraged. Sometimes a bowel softener may be required if your stools are hard to pass (such as Lactulose or Movicol). These should be prescribed by your GP.

Occasionally, patients notice an increased desire to open their bowels. This gradually settles. Rarely, patients may pass a small amount of blood from the rectum. This usually stops on its own. If the rectum becomes inflamed (proctitis) and you experience a burning sensation after opening your bowels, then an anti-inflammatory medicine such as ibuprofen may help.

Rectal bleeding is rare. However, if it doesn't settle within a couple of weeks it may require investigation.

If you are to undergo investigation of your bowel in the future please contact us, or ask your consultant to contact us. A small area of the rectum overlying the prostate receives a high dose of radiation so **we strongly advise that you do not undergo a biopsy of this area.** This is because there is a risk that it will not heal properly after a biopsy.

Sexual activity

Impotence (inability to achieve satisfactory erections) occurs in 20 to 30% of patients under the age of 60. Impotence occurs more often in older men and men already having some difficulty. Your specialist doctor will discuss these risks with you. Treatment such as Viagra or Cialis is available for those men who do develop impotence and can often be successful. Your GP can prescribe some free of charge on the NHS. Most men will notice a reduction in the volume of their ejaculate following treatment, because the prostate produces fluid that is part of semen. Eventually the ejaculate may dry up altogether.

Summary of side effects

It is important to remember that these side effects are a general guide and you may not experience all of them. Also, the severity of these symptoms can vary. They usually last for up to eight weeks and after this most men will notice a marked improvement.

However, it can take up to a year for some of the more irritating bladder symptoms to get better. The vast majority of patients return to normal urination within a year after the implant, but a very small number may still have some urinary symptoms.

Radiation information – radiation safety

Radiation safety is a concern for many patients. However, the radioactive iodine seeds that will be used give off very low levels of radiation and the body tissues absorb most of this radiation. The strength of the radiation reduces over time. The level of radiation outside your body, coming from the seeds, is not much greater than the level that is found in the normal environment. The risk to other people around you is therefore very low.

Your implant poses no significant risk to your family and friends. Although the seeds are radioactive, you are not.

However, small children or babies must not sit on your lap during the first two months of having your implant. We recommend that during this time you avoid sitting close to children under the age of puberty or anyone who is or may be pregnant. There are no restrictions on travel or physical contact with other adults.

The seeds are permanently embedded in the prostate gland but there is a remote chance of a single seed being passed during sexual activity. We advise you to use a condom for the first two to three times you ejaculate after the implant. Condoms should then be disposed of by double wrapping and placing in the dustbin. Your semen may be discoloured as a result of bleeding that may have occurred during the implant. Sometimes ejaculation may also be painful but this tends to settle in time. If you are experiencing stinging and burning sensations while passing urine in the first one to two weeks you should not have sex. As a result of this treatment in time the ejaculate will be of small volume or dry.

In the unlikely event that you pass a seed in your urine or find one in your clothing it should be flushed away in the toilet. Please contact a member of the physics brachytherapy team to let them know. Please do not bring the seed to the hospital.

Information card

Before you leave the hospital, a member of the physics brachytherapy team will give you an information card that has details about your implant and some contact telephone numbers. They will be able to advise on any questions you may have relating to radiation protection.

We ask you to carry this with you for twenty months. Please use it, for example, to remind your GP or doctor from another hospital should you require hospital care during this period. It will enable other medical professionals to obtain information from us. It is important that they know about your implant. Your next of kin should be told about the card so that they can act on it in the event of unforeseen illness or death. The card can be destroyed after twenty months.

The card will also be useful to you when travelling away from home. Many airports and seaports have security radiation detectors installed. These are very sensitive and may respond to your implant even though the radiation levels are very low. You can use your card to explain why this has happened. Please feel free to invite an official to telephone Southampton General Hospital, using the 24 hour number on the card, should this be appropriate. It might be useful to keep this information leaflet with you, as well as the card, if you are travelling abroad. We can provide you with a replacement card if you need one.

In the event of your death within twenty months of the implant a normal cremation is not allowed due to the radiation hazard. There are also hazards for hospital staff carrying out post-mortems, so it is essential that hospital staff and funeral directors are informed. They can then contact the hospital, using the information on the card, for advice.

Follow-up schedule

After a seed implant you will be monitored for a few years. Your first outpatient visit will be approximately six weeks after the implant. You will also have an

appointment for a CT scan of your prostate after the implant. This scan will not tell us how well the treatment is working, so you will not receive results. It allows us to check the position of the seeds and ensure that the quality of our implants remain at a high standard.

Periodic follow-up for the first five years will be arranged at the hospital, with your GP, or through the patient triggered follow-up programme. You will need a blood test before each visit to check your levels of prostate specific antigen (PSA).

PSA bounce or spike

The effectiveness of the treatment will be assessed primarily from your PSA (prostate specific antigen) blood test, which will be checked regularly.

The PSA will fall slowly over one to two years and may rise temporarily at times before going down again. This is a benign (non-cancerous) rise in the PSA, produced by cells in the prostate gland. This occurs most commonly in the second year after the implant, although it can occur earlier or later. The PSA rarely falls to zero.

Approximately one third of men experience this and PSA levels of up to ten have been reported. There is no way at the moment of distinguishing between a benign PSA rise and a PSA rise that happens when prostate cancer is active.

If the PSA continues to rise for over 12 months or rises three or more times after treatment, this may be due to recurrence of the cancer.

Alternative treatments if the seed implant fails

Surgery or external beam radiotherapy after a seed implant is rarely recommended because of the risk of side effects. Similarly, seed implantation after failure of surgery or external radiotherapy treatment also carries a considerable risk.

If prostate cancer recurs after brachytherapy, then hormone therapy may be needed. This usually helps to control the disease for many years but is not a cure for prostate cancer. Most patients who have a brachytherapy seed implant for prostate cancer are cured.

For more information contact:

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Physics brachytherapy

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Acknowledgement

Patient information adapted by Dr Heath with kind permission from the Prostate Brachytherapy Team and Medical Illustration Services at St James Hospital, Leeds.

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For help preparing for your visit, arranging an interpreter or accessing the hospital, please visit **www.uhs.nhs.uk/additionalsupport**

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