

Urinary symptoms

Brachytherapy may not be suitable for men who have severe problems passing urine because the treatment can make the symptoms worse. Your specialist team will ask you to fill out a questionnaire about any urinary problems and you may have a urine flow test and bladder scan to assess the flow of your urine stream. Your specialist will work with you to try to reduce any urinary problems you may have. Changing your drinking habits or taking medication may help. If not you may be offered surgery (TURP) or laser treatment. This would be done at least three months before starting brachytherapy. You can read more about problems passing urine by reading our fact sheet on **Urinary continence and prostate cancer**.

TURP

A Trans Urethral Resection of the Prostate (TURP) is a minor operation to treat a non-cancerous (benign) enlargement of the prostate (Benign Prostatic Hyperplasia). This is carried out in order to help relieve any urinary problems you may have. If you have had TURP surgery you may have to wait three to six months before brachytherapy treatment can begin. Ask your specialist team for advice about your individual situation.

If you would like to speak to a brachytherapy specialist before deciding on a course of treatment, please call our free and confidential Helpline for details of your local brachytherapy centre.

How does brachytherapy treat prostate cancer?

Tiny radioactive seeds are placed directly into the prostate gland using thin needles. They are inserted through the area of skin between the testicles and back passage (perineum). There is no cut (incision) but there are small puncture wounds which heal quickly. Each radioactive seed is the size and shape of a small grain of rice. These seeds can be implanted individually or as part of a strand of seeds. Sometimes the specialist will use both individual seeds and strands of seeds to make sure the whole prostate is treated.

Because the seeds are concentrated inside

the prostate, they give a higher dose of radiation than is possible with external beam radiotherapy, while limiting damage to the surrounding tissues. The seeds give off radiation over several months, with most of the radiation being released in the first three months of treatment. The seeds are permanent but after around ten to 12 months, almost all of the radiation has been released and the seeds are no longer active.

There are two main ways to implant the seeds into the prostate; either as a one-stage or two-stage procedure. Your treatment centre may offer their own variation of one of these procedures so ask your specialist team for details of the treatment you will receive. Both the one-stage and two-stage methods use similar doses of radiation and are equally successful at treating the cancer.

The two-stage procedure is the most common method and has been used in the United Kingdom and United States for the last 20 years. The treatment commonly involves two hospital visits and two anaesthetics. The first stage is the pre-implant planning session, known as a 'volume study'. During this procedure the specialist team measure your prostate using an ultrasound probe and then calculate how many seeds they will need to implant. Two to four weeks later, you go back to hospital for the second stage when the seeds are implanted.

The one-stage technique has been used for 12 years in the USA and six years in the UK. Currently, very few NHS treatment centres in the UK offer the one-stage method although it is available in many private facilities. The technique combines the planning session and the implant into a one day procedure. You visit the hospital just once for treatment and you may not need to stay in hospital overnight.

What are the advantages and disadvantages?

Advantages

- Treatment takes just one or two days
- Recovery is quick so you can return to your normal activities soon after treatment
- The radiation is targeted to the gland, giving high doses to the prostate while

minimising damage to the urethra, bladder and rectum

- Suitable for men who have bowel problems such as inflammatory bowel disease

Disadvantages

- Can cause problems passing urine
- Requires one or two anaesthetics depending on the method used
- Can take up to two years after treatment for the PSA to fall to its lowest level
- Surgery after brachytherapy is rarely possible if the treatment fails to treat the cancer successfully

What does treatment involve?

Planning session

You will visit the hospital for a planning session (also called a 'volume study') to measure the size and position of the prostate and to work out how many seeds will be used in the implant. If you are having the two-stage technique, this will take place two to four weeks before you have your treatment. If you are having the one-stage technique the planning is done at the same time as the treatment so you will only visit the hospital once.

The brachytherapy team includes:

- A Clinical Oncologist and/or Urologist
Doctors who specialise in treating prostate cancer
- Physicists
Responsible for the brachytherapy equipment and planning of the seed implantation
- Radiologist
Specialist in ultrasound
- Radiographers
Specialists in delivering radiotherapy to treat prostate cancer
- Specialist nurses
Responsible for your care before and after the treatment

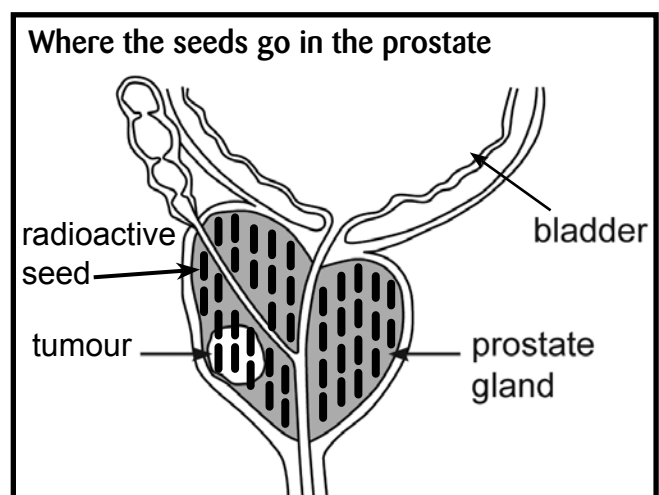
The team will explain the procedure to you and tell you if you need to change any of your regular medicines, such as warfarin, before having the treatment. Do not stop taking any medicines without speaking to your specialist team. You may need to take a laxative the day before the planning session to clear your bowels.

You will have an anaesthetic so that you do not feel any pain during the procedure. You may be asleep during the procedure (general anaesthetic) or you may be awake and not able to feel anything (spinal or epidural anaesthetic). An ultrasound probe is then gently inserted into the back passage (rectum). The computer makes a three dimensional image of the prostate, which the physicist uses to work out how many seeds are required to implant and where to place them. The process only takes a few minutes and you can go home the same day if you are not having the implant straight away. Ask a friend or family member to take you home, as you will not be able to drive for 24 hours after a general anaesthetic.

Seed implant

You may need to take another laxative at home the day before the implant to clear your bowels or you may be given an enema just before the procedure. You will be given a general, epidural or spinal anaesthetic for the seed implant. An ultrasound probe is placed into the back passage so that the specialist can see where the seeds are to be implanted. Thin needles are placed into the prostate through the area of skin between the testicles and the back passage (perineum). The specialist then passes the seeds through the needles into the prostate, following the plan that was put together at the planning session.

Between 60 and 120 seeds are implanted into the prostate, as shown in the picture below. Some seeds are implanted individually in the middle of the gland. Others are placed around the edges of the gland as part of a strand that holds the seeds together.



The seed implant takes 30 to 45 minutes using the two-stage method, or one and a half to two hours if you are having the planning session at the same time (one-stage method). Depending on what time of day you have your treatment, you may need to stay in hospital for one night or you may be able to go home the same day.

After the procedure

You will come round from the anaesthetic in the recovery room, before going back to the ward or discharge area. Your specialist team will give you any medicines that you may need at home. These may include painkillers, drugs to help prevent urinary problems (such as tamsulosin) and antibiotics to prevent infection.

If you are having the two-stage method, you are likely to have a catheter for a few hours but this will be taken out before you go home. A small number of men (around one in 20) are unable to completely empty their bladders (urinary retention) immediately after the treatment. You may need to take a drug called tamsulosin which helps to prevent this from happening. If you are not able to empty your bladder you may need to have a temporary catheter. Alternatively, you may be shown how to use a fine catheter yourself to regularly drain urine from your bladder. If you are unable to empty your bladder after you have gone home you should contact your hospital straight away for advice.

What happens afterwards?

Your follow-up appointment

Four to six weeks after the treatment, your specialist team will invite you back to the hospital for a CT or MRI scan to check the position of the seeds (called a dosimetric analysis). Some teams do this shortly after the treatment instead. Use this opportunity to tell the team if you are having any bowel symptoms, sexual problems or difficulty passing urine.

After treatment

Your PSA level and any symptoms will be checked regularly either at the hospital or at the GP surgery. It can take two years for the

PSA to reach its lowest level (nadir) and you may find that your PSA level falls and rises (PSA bounce) during this time. PSA bounce is not related to the success of the treatment but speak to your specialist nurse or doctor if you are worried about your PSA level.

Brachytherapy appears to be as effective as radical prostatectomy or external beam radiotherapy at successfully treating prostate cancer. However if your PSA level continues to rise, you may need to have further treatment such as external beam radiotherapy, cryotherapy or, less commonly, radical prostatectomy or hormone treatment. Contact our free and confidential Helpline for more information on these treatments.

The months following treatment can be a stressful time while you wait for the results of PSA tests and the outcome of your treatment. Family and friends can be very supportive during this time. You may also find it helpful to speak to someone who has been through the same experience. If you would like to be put in touch with someone who has had brachytherapy you can call our Helpline on 0800 074 8383.

Precautions to take

It is perfectly safe for you to be around other people. However, as a precaution, you should avoid close contact with pregnant women or children under the age of two for the first three months after treatment. For example, avoid letting young children sit on your lap for long periods of time. Your specialist team will give you advice on this.

It is possible, but rare, for you to pass a seed in your urine. Ask your specialist team what to do if this happens. Some hospitals advise you to flush the toilet twice if you think you have passed a seed.

Contact your brachytherapy team if you need unrelated surgery to your abdomen or bowel within a year of having brachytherapy. They will advise your medical team on the risk of being exposed to the radiation from the seeds. You will be given an advice card to carry at all times, which explains the treatment you have had.

Going back to work

You should be able to return to your normal activities within a few days. You can go back to work as soon as you feel able, but this will depend on how much physical effort your work involves.

Travel

If you have had a general anaesthetic, you should not drive a vehicle for 24 hours after treatment.

You will be given an advice card which states that you have had treatment with internal radiation. Take this card with you whenever you travel, especially by air, as the radiation in the brachytherapy seeds can set off the airport radiation sensors. Ask your specialist team if you have any concerns about holidays and travel plans.

Sexual activity

It is rare for any seeds to be passed in your ejaculate but, as a precaution, you should use a condom the first few times you have sex after treatment.

We do not yet fully understand how brachytherapy affects fertility. You may notice that you produce less fluid when you ejaculate but it is possible that you are still fertile. You should avoid fathering children for two years because the radiation may harm an unborn child.

Where to get help

Your specialist team will give you a telephone number to call if you have any questions or worries. Contact your team or visit your hospital's Accident and Emergency department if:

- Your urine is very bloody, has clots in it or you are having difficulty passing urine.
- You get a fever of more than 38°C or 101°F, or chills with a raised temperature. This may be a sign of infection.

What are the side effects?

You may not have any side effects for several days until the radiation from the seeds begins to take effect. Side effects are generally at their worst a few weeks after treatment, when the radiation dose is at its peak, but should

then improve over the following months as the seeds lose their radiation.

The most common side effects are described here but there is no way of telling which of these you may get or how bad they will be. Ask your specialist team for more information on the risk of side effects. They should be willing to show you their results and put you in touch with other men who have had the treatment.

In the first two to three days after the implant, you may have:

- Blood-stained urine. This usually clears up in a few days.
- Discoloured semen. This is caused by bleeding from the treated area and can last for a few weeks.
- Bruising in the area between your testicles and back passage (perineum) which can spread to your inner thighs and penis. This will disappear in a week or two.
- Pain or discomfort spreading to the tip of the penis.
- Discomfort when you pass urine and needing to pass urine more often, especially at night.

Some side effects may take several weeks to develop and are likely to be longer lasting. These may include problems passing urine, erectile dysfunction, bowel problems and tiredness.

Problems passing urine

Brachytherapy causes inflammation of the prostate, which can constrict the tube that you pass urine through (urethra) and may also irritate the bladder. This leads to symptoms such as needing to pass small amounts of urine frequently, needing to go urgently, hesitating before starting to urinate and poor flow. These symptoms can get worse in the first few weeks after treatment but usually start to improve after a few months.

Sometimes the inflammation can cause the urethra to narrow so that urine cannot pass easily out of the body. This is called urinary retention and it can affect up to one in ten men. If this happens you should contact your specialist team at the hospital or go to your local Accident and Emergency department. A catheter is inserted to drain the urine away. Your specialist team may advise you to keep

the catheter in for a few weeks until the inflammation reduces. Alternatively you may be shown how to use a temporary catheter yourself to drain off any excess urine. The inflammation normally goes down after four to 12 weeks.

Urinary incontinence is rare in men treated with brachytherapy but you may be at greater risk if you have previously had surgery to treat urinary problems. Up to four out of every ten men (40 per cent) who have had a major TURP (Trans Urethral Resection of the Prostate) operation to treat BPH (Benign Prostatic Hyperplasia) experience stress incontinence after brachytherapy. This is the leakage of urine caused by coughing, sneezing or sudden movement. Read our Tool Kit sheet on **Urinary continence and prostate cancer** for more information.

You are more likely to have problems passing urine if you have a large prostate or if you had urinary symptoms before treatment. Your risk is also increased if you are having external beam radiotherapy together with brachytherapy.

You may be given drugs, called alpha blockers and non-steroidal anti-inflammatories, to help ease problems with passing urine. Drink plenty of fluid (one and a half to two litres a day) but avoid drinks containing caffeine, such as tea and coffee, and fizzy drinks which can irritate the bladder. It is safe to drink alcohol in moderation. Try drinking less fluid in the evening to reduce the number of times you have to get up during the night. One or two glasses of cranberry juice each day may help to relieve some symptoms. However, if you are taking the drug warfarin to thin your blood, avoid cranberry juice because it can increase the effect of the drug.

Erectile dysfunction

Brachytherapy can damage the nerves and blood vessels needed for erections. This damage may gradually worsen over several years. This leads to an inability to get an erection strong enough for sexual intercourse.

The risk of long-term erectile dysfunction (ED) after brachytherapy is similar to external beam radiotherapy and lower than after radical prostatectomy. Your risk will

increase if you had any problems getting and maintaining an erection before treatment or if you are also having hormone therapy or external beam radiotherapy.

Reported rates of ED vary a great deal but up to half (50 per cent) of men treated with brachytherapy may be affected. This lack of certainty is due to the way that researchers collect the data, how they define ED and how long after treatment they measure the number of men with ED. Ask your specialist team for their ED rates. There are several treatments available to help improve erectile function. Read our Tool Kit sheet on **Sexuality and prostate cancer** for more information.

You may find that you ejaculate less fluid than before the treatment. This is a permanent side effect of brachytherapy or any prostate cancer treatment. Alpha blocker drugs, taken to help urinary symptoms, may also temporarily reduce the amount of fluid you ejaculate.

Bowel problems

Mild bowel problems such as inflammation, bleeding or change in bowel habit affect less than one in five men (20 per cent) in the first year after brachytherapy. However, some symptoms can start as late as two to three years after treatment. Inflammation of the back passage (proctitis) can cause some bleeding and needing to empty your bowels more often. If you are also having external beam radiotherapy you are more likely to experience bowel problems. Tell your specialist team about any symptoms as there are treatments available that can help.

Tell your brachytherapy specialist team if you need any treatment to your bowel after brachytherapy for prostate cancer. This is because the tissue of the bowel has been affected by the brachytherapy making further investigations or treatment in that area more difficult than usual.

Tiredness

The brachytherapy seeds will continue to release radiation for several months so you may find that you continue to feel tired after the seeds have been implanted. Your sleep may also be interrupted if you need to get up to go to the toilet during the night.

Questions to ask your specialist team

- Which type of brachytherapy will I have? The one day or two day procedure?
- Will I have external beam radiotherapy as well as brachytherapy? Will I have this before or after the implant?
- Do I need hormone treatment before brachytherapy?
- What are the chances of short term and/or long term side effects with this treatment?
- How will we know if the treatment has worked?
- What should my PSA level be after treatment and when will you be checking it again?
- If my PSA continues to rise, what other treatments are available?

More information

The Prostate Cancer Charity

This fact sheet is part of the Tool Kit. Call our Helpline on 0800 074 8383 or visit our website at www.prostate-cancer.org.uk for more Tool Kit fact sheets, including an **A to Z of medical words** which explains some of the words and phrases used in this sheet.

Bladder and Bowel Foundation

www.bladderandbowelfoundation.org
Nurse Helpline 0845 345 0165
(24 hour answerphone)
Counsellor Helpline 0870 770 3246
SATRA Innovation Park, Rockingham Road,
Kettering, Northants, NN16 9JH
For support and information on continence problems.

Health Talk Online

www.healthtalkonline.org
Watch, listen to, or read personal experiences of cancer diagnosis and treatment. Includes interviews with men who have had brachytherapy for prostate cancer.

'Going for a' website

www.goingfora.com
Virtual hospital from the Royal College of Radiologists. Interactive information on cancer treatment and scans. Includes descriptions from both staff and patients.

The Prostate Cancer Charity makes every effort to make sure that its services provide up-to-date, unbiased and accurate facts about prostate cancer. We hope that these will add to the medical advice you have had and will help you to make any decisions you may face. Please contact your doctor if you are worried about any medical issues.

The Prostate Cancer Charity funds research into the causes of, and treatments for, prostate cancer. We also provide support and information to anyone concerned about prostate cancer. We rely on charitable donations to continue this work. If you would like to make a donation, please call us on 020 8222 7666.

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First floor, Cambridge House,
100 Cambridge Grove, London W6 0LE

- Email: info@prostate-cancer.org.uk
- Website: www.prostate-cancer.org.uk
- Telephone: 020 8222 7622
- Fax: 020 8222 7639



Free and Confidential Helpline
0800 074 8383

Mon-Fri 10am-4pm, Wed 7pm-9pm

Calls are free of charge from UK landlines.
Mobile phone charges may vary.

- Email: helpline@prostate-cancer.org.uk

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Continued from page 7

National Institute for Health and Clinical Excellence (NICE)

www.nice.org.uk

Order line 0845 003 7783

NICE produces recommendations on whether a treatment is suitable for use in the NHS. Visit their website or phone their order line for information on brachytherapy (booklet number N0888).

Prostate Brachytherapy Advisory Group website

www.prostatebrachytherapyinfo.org

This website is written by health professionals and provides information about brachytherapy treatment.

Sexual Dysfunction Association

www.sda.uk.net/

Helpline 0870 774 3571

Suite 301, Emblem House, London Bridge Hospital,
27 Tooley Street, London, SE1 2PR

For information on treatments for erectile dysfunction.

References to sources of information used in the production of this fact sheet are available on our website.

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