

Use of Fiducial markers in the treatment of prostate cancer with radiotherapy

As part of the preparation for radiotherapy to the prostate your oncology doctor has recommended that you have markers implanted into the prostate gland. This leaflet will explain why we use markers (known as fiducial markers), the procedure and aftercare.

The prostate and fiducial markers

The prostate is an organ which moves slightly when you breathe. It can also be moved by daily changes within your bowel, for example, when you need to or have just had a bowel movement. If your prostate moves just 6mm (a quarter of an inch) from where we originally measured it, the beam of radiation we give you can miss it. The beam of radiation could then injure your rectum, bladder or other surrounding organs near your prostate.

Urologists (doctors who specialise in problems with the urinary system) are able to place fiducial markers into the prostate gland. They are usually implanted at least one to two weeks before the CT is carried out to plan your radiotherapy treatment.

The markers are used to ensure we can target the prostate with great accuracy. This will reduce the risk of side-effects and damage to the surrounding organs.

The markers are permanent and will remain in your prostate for the rest of your life. They should cause no problems to your body and you will be unaware of them. It is safe to have MRI scans and they don't interfere with airport security scanners.

When and how the markers are used

The markers, prostate and other organs are clearly seen on the planning CT scan which we use to design your radiotherapy.

Before each treatment the therapeutic radiographers will take x-ray images of your pelvis from the front and the side. The markers are clearly seen on these images and tell us exactly where the prostate is (whereas the prostate itself does not show up on the x-rays). This allows us to fine tune the position of the radiotherapy

treatment each day before we treat you. The measurements and adjustments are done by the radiographers outside of the treatment room. The checking usually only takes a minute or so. You may notice that the table you are lying on moves slightly just before we treat you. This is the fine tuning and is known as Image Guided Radiotherapy. You should lie still and breathe normally as treatment will be delivered immediately after.

Medication taken to thin the blood

Warfarin should be stopped three days before the procedure unless your oncology doctor advises against it. Restart Warfarin at your usual dosage the day after the procedure.

Clopidogrel should be stopped seven days before the procedure; restart **Clopidogrel** at your usual dosage the day after the procedure.

If you take **Aspirin** this should be continued. If you have any concerns please contact the cancer nurse specialists.

The procedure to insert fiducial markers

The markers are tiny grains of polymer (a type of plastic) which are about 2-3mm (an eighth of an inch) in size. The markers are implanted in the same way as when you had your prostate biopsy.

What happens on the day?

You will have received an appointment date and time. When you arrive at the Urology department (D11) please report in at reception. Please bring a sample of your urine with you in a clean screw-top container. We will need to check your urine to make sure you don't have a urine infection, as this could mean the procedure needs to be postponed.

You will be asked to take a seat in the waiting area and will be called for by the nurse.

The nurse will take you through to a changing room where you will be given a gown to wear. The clinician will talk with you about your understanding of the procedure and any concerns you may have. You will be given a dose of antibiotics to reduce the chance of developing an infection after the procedure. It should take about 10 minutes to place the markers.

You will need to lie on your side on a couch and the nurse will also be with you throughout the procedure. The Urologist will insert an ultrasound probe into your rectum (back passage) so that they can see exactly where the prostate is. Your prostate will then be anaesthetised (made to go numb) using a local anaesthetic.

It is normal for three markers to be inserted. These are put in place using a hollow needle which is passed through the ultrasound probe. The ultrasound gives the Urologist the ability to place the markers precisely in specific positions.

After the procedure you can sit up and get dressed, and we can give you a pad if you have any bleeding for the journey home. You will need to stay in the department for about half an hour after the procedure to check that you can pass urine and are comfortable prior to going home. You should be able to drive yourself to and from the hospital for this procedure as you will not be sedated (given drugs to make you feel sleepy) but you may prefer to come with someone.

Side effects

There are a few rare side effects from the implantation of the markers. These may include:

- **Infection** – There is a small risk (1 person in 500) for up to one week after the procedure, of developing a serious infection in your blood (septicaemia). This can cause you to feel very unwell with shivering, a high temperature and feeling very cold. If this happens, you should contact your emergency GP service or go to your nearest emergency department. You may need to be admitted to hospital for treatment with antibiotics through a drip.
- **Urine Infection** - Often, men have some discomfort passing urine after the procedure, but this usually settles quickly. If you have a burning sensation when you pass urine and this does not seem to be getting better after two days, this could mean that you have a urine infection. Please contact your GP to arrange a urine test.
- **Temporary local pain** - You may have some pain around the area where the procedure was carried out. You can take simple pain killers such as paracetamol or ibuprofen to help with this.
- **Blood in your urine, stools and semen- this is common but rarely serious**

Urine – you may see some blood in your urine after having the markers placed. This happens because the prostate is near to the bladder and urethra (the tube from your bladder to the end of your penis). This procedure can cause irritation of the urethra which can lead to bleeding into your urine. This can last from two days to two weeks, but it usually settles within one week. If your urine is red you should drink extra fluids (preferably water) to help wash the blood through.

Stools – you may also experience some blood in your stools after the procedure. Again this can last from two days to two weeks.

Semen – You may also see blood in your semen. This may last for several weeks, depending on how often you ejaculate. It is not dangerous and you can continue to have intercourse if this is happening.

If any of these side effects do not go away within three weeks please see your GP.

Useful contacts

Urology cancer nurse specialists 01225 824250

Urology outpatients department 01225 825990

Radiotherapy department 01225 824853

Other useful phone numbers/websites

Royal United Hospitals Bath NHS Foundation Trust
Combe Park, Bath BA1 3NG
01225 428331 www.ruh.nhs.uk

Please contact the Patient Advice and Liaison Service (PALS) if you require this leaflet in a different format, or would like to feedback your experience of the hospital. Email ruh-tr.PatientAdviceandLiaisonService@nhs.net or telephone 01225 825656.