Royal Cornwall Hospitals
NHS Trust

Prostate artery embolisation (PAE)

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Who is this leaflet for?

This leaflet is for people considering a procedure called prostate artery embolisation (PAE) for benign prostate hyperplasia at the Royal Cornwall Hospital. It aims to explain what is involved, the reasons for having the procedure and the possible risks.

As a planned procedure PAE involves quite a lot of discussion, where you should have plenty of time to discuss the situation with your urology consultant, the interventional radiologist who will be performing the procedure and your own GP if you want to. This leaflet is intended to support these discussions.

What is prostate artery embolisation?

This is a way of treating an enlarged prostate by blocking off the arteries that feed the gland to make it shrink. It is performed by an interventional radiologist, rather than a surgeon and is one alternative to a TURP (trans-urethral resection of prostate) operation.

PAE was first performed in 2009, and has been available in the UK since 2012. Well over a thousand men have undergone the procedure since then and it has been studied for its effectiveness by UK doctors in the British Society of Interventional Radiology (BSIR). As a centre of excellence the Royal Cornwall Hospital is able to offer the procedure amongst a range of other options.

Why do I need it?

You have been offered this procedure as your symptoms and test results have shown that you are suffering from an enlarged prostate. Your urologist and your GP should have explained the various options available that could be used to manage your symptoms. In your case, your doctors think that PAE is one possible option. This leaflet has been given to you to read before meeting your interventional radiologist as a starting point to help you decide if this is the treatment you want.

What are the benefits?

PAE is done to reduce the symptoms of bladder outflow obstruction. Symptoms can be surprisingly varied but include having to urinate frequently and in small amounts, or having a poor urine flow. These symptoms can severely affect men and their partners by waking them several times a night to urinate and limit lifestyles by forcing men to plan around when they might need to urinate. Although PAE rarely eliminates all symptoms, it typically helps 4 out of 5 patients significantly improve their quality of life.

Are there any alternatives?

PAE is one of a range of treatments. These include TURP (Transurethral Resection of the Prostate), HOLEP (Holmium Laser Enucleation of Prostate), Urolift® and Rezum® amongst others. Any of these options may be offered if they are appropriate for you. The risks and benefits can then be discussed with you, to ensure you can make an informed choice.

Who will be performing the procedure?

A specially trained doctor called an interventional radiologist will perform the procedure with the help of a dedicated team. Interventional radiologists are experts in performing operations and procedures using image guidance (such as X-ray and ultrasound). The rest of the team includes radiographers who are specially trained in operating the machinery and help with parts of the procedure at times. Interventional radiology nurses will be both helping with the procedure and constantly monitoring your health and wellbeing during the procedure. Occasionally medical, nursing and radiographer trainees will be present to observe the procedure. These staff will introduce themselves clearly to you.

Where will it take place?

The procedure will be carried out in the Hybrid Operating theatre in the Newlyn suite at The Royal Cornwall Hospital. This is a technologically advanced operating room designed for a wide range of specialised procedures.

How do I prepare for it?

First you will have a specialised planning CT scan. You will then meet your interventional radiologist who will talk through the procedure with you, to make sure it is the right choice for you.

You will be asked not to eat for **four hours** before your procedure, though you may be told that it is alright to drink some water. You will be asked to put on a hospital gown when you arrive. Because the procedure is generally carried out using an artery in the groin on one or both sides you will need to shave or trim the hair around this area, but don't worry this can be done for you on the day if needed.

If you have any allergies, are diabetic or are taking medication that can cause you to bleed easily such as Aspirin or Warfarin, you must let us know whenever asked.

Can I still take my usual medications?

It is recommended that some medications are stopped as follows:

- Warfarin is stopped 6 days prior to your procedure
- Aspirin is stopped 7 days prior to your procedure
- Clopidogrel is stopped 7 days prior to your procedure
- Rivaroxaban (Xarelto) and Apixaban (Eliquis) are stopped 2 days before your procedure
- If you are taking phendione, acenocoumarol or Dabigatran (Pradaxa) please consult your doctor or contact the Medical Imaging Department.

These medications should only be stopped if you have been told by your GP or urologist that it is safe to do so. If you are unsure about any of this you can contact the Interventional Radiology Newlyn suite, who can help make sure you are properly prepared for the procedure.

Other medication should be taken as normal.

Can I bring a friend or relative?

Yes, but for reasons of safety they will not be able to accompany you into the X-ray room.

Valuables

Patients are encouraged to leave their valuables at home. It is your responsibility to ensure all valuables are on your person before leaving the Medical Imaging Department.

How long will it take?

Every patient's situation is different and it is not always easy to predict how complex or long each procedure will be. As a guide the procedure usually takes around 1-2 hours, but expect to be in the Medical Imaging Department for about three hours, before a period of observed bed rest.

You may need to stay in hospital overnight, or you may be able to return home the same day – this depends on your individual situation.

What does it involve?

You will lie on the X-ray table, usually flat on your back. You need to have a drip (also known as a cannula) put into a vein in your arm, so that you can be given medications such as a sedative and painkillers should you need them. You may also have a monitoring device attached to your chest and finger, and might even be given oxygen through small vents into your nose. The interventional radiologist will keep everything sterile covering you with a sterile theatre drape and will wear a theatre gown and operating gloves. The skin near where they are working will be swabbed with antiseptic, and be exposed in a small hole in the sterile theatre drape.

The skin and deeper tissues over the artery in your groin will be made numb by a local anaesthetic, then a short slim access tube is inserted into the artery. A guide wire is placed through the access tube followed by a cannula (thin plastic tube).

At times throughout the procedure small doses of a special X-ray dye (contrast medium) are injected into your arteries. You may get a warm feeling from this, which you may find a little unpleasant. Many people are convinced that they have wet themselves when it happens but be assured that this is very rarely the case and is not caused by the dye if it has. However, this feeling quickly passes and need not concern you.

The interventional radiologist will use the X-ray equipment to make sure that the catheter and the wire are guided into arteries feeding your prostate. These arteries are quite small. Once the prostate blood supply has been identified, a fluid containing thousands of tiny particles is injected through the catheter into these small arteries which supply the prostate. These clog up the small blood vessels so that the prostate is starved of its blood supply.

Both the right and the left prostate arteries need to be blocked in this way but both sides can usually be treated from one groin. At the end of the procedure, the catheter is withdrawn and the tiny hole is either plugged with a small device or the radiologist presses firmly on the skin entry point for ten minutes to prevent any bleeding. You will be asked to lie still for some time at the end of the procedure where the nurse will closely monitor you and make sure your groin puncture settles properly.

Will I have any pain or discomfort?

When the local anaesthetic is injected, it will sting to start with, but this passes in a matter of seconds as the skin and deeper tissues begin to feel numb. The procedure itself can cause some discomfort caused by the prostate being successfully treated but rarely enough to be a problem. A nurse or other member of staff will be standing next to you to listen to you if you are having any problems and you can easily be given enough painkillers until the procedure is tolerable again. You do not have to tolerate pain for the procedure.

What happens afterwards?

You will be taken back to the recovery area on a trolley. Nurses will carry out routine observations, such as taking your pulse and blood pressure to make sure that there are no untoward effects. They will also look at the groin puncture to make sure there is no bleeding from it. Once any pain is controlled you will be transferred to the ward. You will usually stay in bed for a few hours, or if you have had a plug in the groin this need only be about an hour until you have recovered. If suitable for a day case procedure you will usually be allowed home later in the day. If not, you will be kept in hospital overnight to go home in the morning.

Once you are home, you should rest for three or four days. You will be prescribed painkillers and sometimes other drugs if necessary. The reason for these medications will be explained to you before you are discharged.

What are the possible risks or complications?

Prostate artery embolisation for benign prostate hyperplasia is a relatively new procedure that has arisen from technology and medical advances. From the published data available today, it appears to be safe. This is not a procedure being performed as part of an experiment but we do collect information to improve our practice. Unless you do not agree to it, we will collect information about your case in order to improve both ours and the whole medical community's understanding of the procedure. Please be assured that there are no commercial interests in this information and it is stored following GDPR 2008 guidelines.

As with all procedures there are some possible complications and we will explain these to you to help you make your decision whether or not to go ahead. As the risk of these complications and the impact of them can vary from person to person, we will discuss your individual risks with you in your clinic appointment before your procedure. To help prepare you for this discussion, possible side effects and complications are listed below. If you have any specific concerns, please write this down and tell the doctor when you meet them. You may find it helpful to mark on this leaflet your thoughts so you can take it to your meeting as a reminder.

Possible risks or complications for PAE include:

- **Groin puncture** – there may occasionally be a small bruise, called a haematoma, around the site where the short tube has been inserted and this is quite normal. Rarely, you can develop a persistent bleed from the site which needs treating. This almost always happens during the observed period afterward and we have several good solutions to correct it.
- **Pain** – most patients feel some pain afterwards; this is usually mild and is treated with simple over the counter pain killers such as paracetamol. In particular the pain happens when you urinate in the early days after treatment. Very occasionally we might need to arrange prescription treatments, but this is unusual.

- **Bladder catheter** – occasionally a urinary bladder catheter may need to be placed for a few days after the procedure to make sure you can empty your bladder. This is temporary.
- **Haematospermia** – this is where you may notice some blood in any semen that you produce. This in itself is normal and should settle given time.
- **Prostatic tissue expulsion** – when the prostate shrinks, particularly in some of the more successful cases, parts of it can pull away (similar to a scab peeling) and may be passed though the urine. You may notice this as debris in your urine and this settles in time.
- **Infection** – occasionally, the shrinking prostate can develop an infection from the urinary passages. This happens in about 1 in 20 cases. This may require some antibiotics to manage.
- **Non-target embolisation** – rarely, the beads that are released can end up travelling to areas of the body they were not intended. This is a problem your radiologist is very skilled and experienced in avoiding. Since the procedure was developed, many techniques and lessons have been learned to minimise this risk but it can still happen. The vessels we are very careful to protect are the vessels of the bladder, lower bowel and penis, but others are possible. In the few cases where the bowel has been affected, people can suffer bowel habit changes and bleeding. This could last a few weeks and mostly gets better on its own and very rarely it needs an operation to sort out. If the bladder is affected, it can result in some pain too, but again should get better on its own. Rarely, in severe cases it might need a minor operation to correct. Penile arteries can cause the skin of the glans to be affected but this is the rarest problem documented and is treated similarly to the bladder, with pain relief until it resolves.

What can I expect following the procedure?

You may feel very tired for up to a week afterwards, though some people feel fit enough to return to work after only three days. You are usually advised to take at least one week off work following PAE.

What if I have any concerns afterwards?

Following your procedure, if you are worried about anything and would like to speak to someone you can either:

- speak to your GP
- in office hours you can contact the IR department at RCHT on 01872 253962 or radiology secretaries (call via switchboard). If they cannot answer your question, they may be able to arrange a call back from one of the interventional radiology consultants
- in an emergency call 999.

Will I have any follow up?

- **At 6 weeks** – a specialist urology nurse will arrange a telephone appointment to check how things are going.
- **At 3 months** – you will be offered a scan to look at what changes have occurred to your prostate. One of the interventional radiologists will contact you by telephone to see how things are going and discuss your scan.
- **After 3 months** – you will either be discharged to be looked after by your GP or you will be seen again by your urologist to consider other ways of helping you.

Will the procedure work for me?

There are an increasing number of studies expanding our understanding of this procedure. Two studies that compared PAE with TURP (Transurethral Resection of the Prostate) found PAE to have much less impact on people's lives than many alternatives. It had the advantage of not needing a general anaesthetic. On the other hand, it was shown to be less likely to be successful than TURP and was not usually as long lasting. The studies show that over 70% of people will have improvement in symptoms and flow rate following PAE.

If this procedure fails to help you, it does not prevent you trying the other options your urologist may have discussed with you in the future, such as TURP.

In Summary:

PAE is considered a safe procedure, designed to improve your symptoms and save you having a larger operation. There are some risks and complications involved and this leaflet is designed to help you get ready to meet your Interventional radiologist.

Cancelling your appointment

If you are unable to attend your procedure, we would be grateful if you could contact us on **01803 655649** as soon as possible. We can then offer your appointment to another patient. A further date and time will then be arranged for you. Please be advised that if you fail to attend your procedure, it may be necessary to remove you from the radiology waiting list.

Important note: If you have had D&V (diarrhoea and vomiting) you will need to contact us to rebook your appointment unless you have been clear for the past 48 hours.

Contact us

If you find reading this leaflet difficult or you need any further information, please call the Interventional Radiology Dept on **01872 253962** to talk it through.

Alternatively, you can write to us:

Rhys Llewelyn or Angela Rogers
Consultant Interventional Radiologists
Medical Imaging Department
Royal Cornwall Hospital
Truro
TR13LJ

If you would like this leaflet in large print, braille, audio version or in another language, please contact the General Office on 01872 252690

RCHT 1922

Printed 04/2022 V1 **Review due 04/2025**