Prostatic Artery Embolisation (PAE) for Benign Prostatic Hyperplasia

An Innovative Treatment

References
3. Can prostate artery embolisation (PAE) reduce the volume of the peripheral zone? MRI evaluation of zonal anatomy and infarction after PAE. Yen-Ting Ling et al., Eur Radiol 2016; 26:3466-3473.
WHAT IS BENIGN PROSTATIC HYPERPLASIA?

BPH is a non-cancerous increase of prostate volume, and commonly causes obstruction of the bladder outflow. Benign Prostate Hyperplasia (BPH) is the most common disease of the prostate and is very common in middle-aged and elderly men. It can affect 50% of men at age 60, and 90% of those aged over 85 years.¹

The condition can cause very debilitating symptoms that have an impact on the quality of life. Some men may remain asymptomatic and require no active treatment, despite having significant prostatic enlargement.

WHAT ARE THE MOST COMMON SYMPTOMS OF BPH?

- Increased frequency of urination with voiding small amounts of urine, particularly at night.
- Weak and/or interrupted urinary stream.
- Sensation of incomplete bladder emptying after urination and/or difficulty in starting urination.
- Urinary urgency with difficulty in controlling urination.
- Inability to urinate, resulting in urinary retention and leading to catheterisation.
- Blood in the urine.
- Erectile dysfunction, generally caused by the medication.

The brochure informs you about prostate artery embolisation (PAE) as treatment for benign prostate hyperplasia (BPH). It explains the indication for this non-surgical treatment, the procedure and the advantages for patients suffering from BPH. This information does not replace the discussion between you and your doctor but can act as a starting point for such. If you have any questions about the procedure, please ask the doctor who has referred you or the department which is going to perform it.

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**WHAT IS BENIGN PROSTATIC HYPERPLASIA?**

BPH is a non-cancerous increase of prostate volume, and commonly causes obstruction of the bladder outflow. Benign Prostate Hyperplasia (BPH) is the most common disease of the prostate and is very common in middle-aged and elderly men. It can affect 50% of men at age 60, and 90% of those aged over 85 years.¹

The condition can cause very debilitating symptoms that have an impact on the quality of life. Some men may remain asymptomatic and require no active treatment, despite having significant prostatic enlargement.
HOW IS BPH DIAGNOSED?

The diagnosis is made based on the patient’s medical history and a detailed physical examination, including:

- **Medical History**
  - for evaluation of the prostate’s volume & structure
  - for screening of BPH indicating components (e.g., PSA*)

- **Rectal UltraSound**
  - for evaluation of the prostate’s volume & structure

- **Blood Test**
  - for screening of BPH indicating components (e.g., PSA*)

- **Digital rectal examination**

WHAT ARE THE TREATMENT OPTIONS OF BPH?

There are several suggested treatments, according to the severity of the symptoms:

- **“Watchful-waiting approach” & lifestyle changes**
  - Patients with mild symptoms
  - Patients with moderate symptoms

- **Drug therapy**
  - Patients with severe symptoms / not able to benefit from drug therapy

- **Surgery**
  - Surgical treatment options are:
    - prostatectomy (rarely performed)
    - transurethral resection of the prostate (TURP)
    - laser surgery (HoLEP and Green Light laser)
    - thermotherapy
    - electrovaporization

Alternative non-surgical treatment: Prostatic Artery Embolisation (PAE)

If left untreated, BPH causes urinary retention and can lead to severe complications such as urinary tract infections, bladder stones, hematuria, and renal failure.

PROSTATIC ARTERY EMBOLISATION (PAE): PROCEDURAL DETAILS

PAE is a minimally invasive technique and represents an alternative treatment for BPH (NICE** recommended). It is a relatively new application of a longstanding technology. Embolisation has been performed successfully for several decades in Interventional Radiology.

PAE resolves the problem rapidly, is long lasting, and preserves the prostate. The objective of PAE is to partially stem the blood flow supplying the prostate. Without blood flow, the abnormally enlarged prostatic tissue decreases and symptoms improve or disappear.1,2

EmboliSation is performed under local anesthesia and involves no blood loss.

1. A small opening measuring 1.5 mm in diameter is made in the groin, through which a thin catheter is inserted into the artery.2
2. The catheter is guided towards the prostatic arteries, while the radiologist watches the progress of the procedure using a moving x-ray (fluoroscope).2
3. Tiny microspheres, the size of grains of sand, are injected into the artery that is supplying blood to the prostate, cutting off the blood flow.2
4. The embolisation is then repeated for the prostatic artery on the opposite side, through the same opening and using the same catheter and microcatheter combination.2

The technique generally takes between 1 and 2 hours while the patient remains conscious. Most patients experience no symptoms during the procedure, but some may experience mild pain, burning, or a hot feeling of the urethra or around the anus, which are easily controlled by the appropriate medication. In general, six hours after the PAE, the patient can get out of bed and is encouraged to urinate. Usually the patient may be discharged from hospital in 1 to 3 days.

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1. NICE: National Institute for Health and Care Excellence (UK)
2. * PSA: Prostate specific antigen.
A non-surgical procedure performed under local anesthesia.
Safe and clinically proven treatment
Low rate of side effects
Effective and long-lasting treatment solving urination problems and other debilitating symptoms
Erectile and sexual functions are maintained

The advantages of Prostatic Artery Embolisation are:

- Hematoma at the puncture site.
- Bruising affecting the groin and upper thigh.
- Blood in the urine and urinary tract infection (uncommon, in 10% of treated patients): easily avoided by the prophylactic use of antibiotics prior to the procedure.
- Blood in the sperm or faeces (very rare, in 2% of treated patients).

Complications are those typically associated with any type of vascular intervention:

- Hematoma at the puncture site.
- Bruising affecting the groin and upper thigh.
- Blood in the urine and urinary tract infection (uncommon, in 10% of treated patients): easily avoided by the prophylactic use of antibiotics prior to the procedure.
- Blood in the sperm or faeces (very rare, in 2% of treated patients).

After a few days many of these adverse reactions disappear spontaneously. Occasionally, patients may require the placement of an urinary catheter, which can usually be removed before hospital discharge.

FREQUENTLY ASKED QUESTIONS (FAQs)

1. **When is PAE the best option for me?**
   PAE represents the best treatment option for you if you suffer from common symptoms caused by an enlarged prostate gland. It is also indicated if you do not benefit from drug therapy, cannot have general anesthesia and/or show prostate dimensions not suitable for surgical treatment. The results of the tests your urologist ordered (Prostate Lithoson with rectal probe, PSA level, Uroflowmetry, and sometimes cystoscopy and pressure study, known as Urodynamic) need to qualify you for embolisation. If embolisation is indicated, you will need a CT angiography to evaluate the pelvic vessels and determine whether or not you are a candidate for PAE treatment. After undergoing this examination you will be contacted by the hospital medical team and informed about your expected degree of treatment success.

2. **What are the contraindications for PAE?**
   Before embolisation, patients must be examined to rule out the presence of a malignant tumor, which contraindicates a PAE. Other contraindications include atherosclerosis and a tortuous (twisted) pelvic and/or prostatic vessel anatomy, as demonstrated by CT (computed tomography) angiography. Regardless of prostate enlargement, the patients must be symptomatic to qualify for PAE surgery.

3. **Who will be doing the procedure?**
   PAE is done by specially trained doctors called interventional radiologists (= Image-guided surgeons). They have special expertise in using X-ray equipment, and also in interpreting the images produced. They look at these images while carrying out the procedure. Interventional radiologists are the best trained people to insert needles and catheters into blood vessels, through the skin, and place them correctly.

4. **How do I prepare for prostate artery embolisation?**
   On the day of treatment, you will be admitted to the hospital. You should not eat for six hours before PAE. It is allowed to only drink water. You may receive a sedative to relieve anxiety. As the procedure is generally carried out using the artery in the groin or wrist, you will be asked to put on a hospital gown. It is very important that you inform your doctor about any allergies you might have and/or previous allergic reactions to contrast medium.

5. **Will my sexual function be affected?**
   Based on studies to date patients treated with PAE for BPH have not experienced a decline in sexual function. Sexual dysfunction is mostly associated with the side effects of the prescription medication therapy that patients used to treat BPH, prior to the PAE procedure.