

Percutaneous nephrolithotomy (PCNL)

This leaflet explains more about the PCNL procedure to clear kidney stones, including the benefits, risks and any alternatives and what you can expect when you come to hospital. If you have any further questions, please speak to a doctor or nurse caring for you.

What is a PCNL?

A PCNL is an operation to remove stones from the kidney. It is carried out through a small incision (cut) in the skin which means you will have a small scar of less than two centimetres afterwards. The operation is done under general anaesthetic.

Why do I need a PCNL?

Your tests and scans have shown that you have a stone or several stones in your kidney.

If nothing is done about these stones, they will continue to grow and could damage your kidney.

Any stones taken out in this procedure will be sent for testing to help try and understand what caused them. We may then be able to give you advice on how to stop new stones forming.

What are the risks?

There are risks with all types of surgical procedures.

Your doctor will explain these risks to you in detail before you are asked to sign a consent form.

Some risks are to do with having a general anaesthetic and some with the operation itself.

Problems related to the anaesthetic include chest infection, a blood clot forming in the legs or in the lungs, a stroke or a heart attack.

Risks to do with the operation itself are:

Bleeding: some bleeding is normal and expected. In very rare cases (less than two in 100) a blood transfusion is needed. In about one in 200 cases bleeding doesn't stop so we need to do an angiogram to block the vessel that is bleeding. This is a specialist treatment done in the x-ray department.

Infection: this can usually be treated with antibiotics. Sometimes admission to intensive care is needed for closer monitoring.

Bowel perforation: in less than 1% of cases the bowel may be damaged during the operation.

Injury to the lung cavity: there is a small chance of pockets of air or fluid collecting around a lung, if the needle is inserted toward the upper part of the kidney. This can be treated by draining the fluid with a chest tube.

Urine leak: sometimes a small amount of urine can leak from the kidney and collect in the abdomen. The fluid is normally absorbed by the body without needing treatment, but it may need to be drained if it continues to build up. This is usually done in the x-ray department. In some cases a stent may also need to be put in to make sure urine drains from the kidney to the bladder.

Further treatment: sometimes not all stones can be removed during the operation, so more treatment is needed for you to be completely free from stones.

Are there any alternatives?

The consultant caring for you has recommended that a PCNL is the most suitable option to remove your stone(s). Possible alternatives include:

- extracorporeal shock wave lithotripsy (ESWL)
- ureteroscopy (URS)
- open surgery.

A PCNL generally treats larger stones than ESWL and URS and has a shorter recovery time than open surgery. Everything depends on your individual circumstances though and your consultant will discuss these options with you in more detail if appropriate.

Please ask any questions you have if you are unsure about anything.

How can I prepare for surgery?

Smoking increases the risk of chest infection or deep vein thrombosis (DVT) and can delay wound healing. If you smoke, you may be asked to stop and if you would like help with this please speak to your nurse or call the NHS Smoking Helpline on **0800 169 0 169**.

You will usually need to stop anti-coagulant medications such as warfarin, aspirin, clopidogrel and dipyridamole up to one week before surgery, but please discuss with your specialist. **Do not make any changes to your usual medicines, unless your specialist has told you to do so.**

When the date for your surgery is set you will be sent a pre-assessment appointment to assess your suitability and fitness for surgery and the anaesthetic. This usually takes place between two and four weeks before your operation. At the pre-assessment appointment you will also be able to ask any further questions you have before you come into hospital for the procedure. The pre-assessment appointment is an important appointment which you must come to. If you don't, we may have to delay or cancel your surgery.

Because of the risk of infection following stone surgery, if you have an infection before the operation the surgery will be postponed. We will get a urine sample from you at least two weeks before your operation, to check on this and treat you in time if necessary.

If you think you may have an infection whilst waiting for your operation, contact the specialist nurse, Kristoffer Ohlin on 020 8725 0163 to arrange an appointment for a urine sample to be taken. If the urine sample confirms infection we will prescribe a suitable antibiotic.

Asking for your consent

It is important that you feel involved in decisions about your care. Before your surgery, you will be asked to sign a consent form to say that you agree to have the treatment and understand what it involves. You will be marked to identify which side your operation will be. This consent gives the consultant permission to operate on you and confirms that you understand what the procedure involves. If you do have any questions or concerns, please ask your doctor or nurse before you sign the consent form. You can withdraw your consent at any time, even if you have said 'yes' previously. If you would like more details about our consent process, please ask for a copy of our policy.

What happens before the surgery?

Your admission to hospital for your PCNL will either be:

- onto a ward, usually a few days before your operation
- via the surgical admissions lounge (SAL) on the day of your operation.

You will be told in advance, either at your pre-admission appointment or by letter, which one will apply to you.

If you are to be admitted to the ward, you will receive a phone call on the morning of your admission to tell you which ward to come to. When you arrive at the ward you will be welcomed and shown to your bed by a nurse. You will need to shower on the morning of your operation.

If you are admitted via the surgical admissions lounge (SAL) or the day surgery unit (DSU), you will be given a SAL information leaflet at your pre-admission appointment and will be told when to stop eating and drinking before your operation. You should have a shower or bath at home before arriving at the hospital.

When you arrive in the surgical admissions lounge, the nurses will show you around, fill in any ward paperwork and carry out any tests that are needed. Even though you will have given a urine sample already, your urine will be tested again in case an infection has developed since. If you do have an infection, your operation may have to be postponed.

You will be able to eat and drink as normal the evening before your surgery, but as you are having a general anaesthetic **you must not eat for six hours before your surgery**, including sweets and chewing gum. You can have non-fizzy water up to two hours before your operation.

Please bring all your prescription medication and any medication you have bought yourself including alternative medicines or herbal remedies. Unless your doctor or nurse tells you otherwise, take your medication as prescribed, with a small sip of water, on the day of surgery.

On the morning of your surgery, you will be asked to change into a hospital theatre gown and elasticised stockings. These stockings help to reduce the possibility of clots (deep vein thrombosis or DVT) forming in your legs during surgery and should be worn throughout your hospital stay.

What happens during the operation?

You will be under general anaesthetic, which means you will be asleep throughout the operation. The whole operation normally takes two hours.

The operation begins by inserting a telescope-like instrument (a cystoscope) into the bladder. A tube is then passed up the ureter into the kidney. This tube allows the kidney to be filled with dye (contrast medium) to allow your surgeon to see the kidney clearly with x-rays.

You are then moved into a position lying face down, and the kidney is punctured with a fine needle. An x-ray machine is used to help. The needle position is checked by either outflow of urine or dye from the needle. Once the kidney has been entered, a 1.5cm incision is made in your back and a telescope is passed into the kidney.

Tools for breaking up the stone are inserted, the stone broken up and the pieces removed.

After the operation, a tube is left in the kidney (a nephrostomy tube) and a catheter is left in the urethra (the tube which carries urine from your bladder and out of your body) to ensure good urinary drainage. These are removed over the next few days when the surgical team say it is time.

What happens after the operation?

After your operation you will be taken to the recovery room until you come around from the anaesthetic in an hour or two.

You will then be taken back to your ward. If you are in pain or you feel sick in the recovery room, let the staff know and they will give you medicine to help.

You will need to stay in bed first and will be asked to move your feet and ankles and wiggle your toes to help increase circulation in your legs. This will also reduce the risk of blood clots.

When you have recovered you can eat and drink as normal and we will encourage you to sit out of bed and walk around on the ward as soon as you feel well enough. This will help prevent chest infections and blood clots.

The nephrostomy tube from your kidney will be attached to a collection bag to drain your urine. The nurses will empty this regularly and measure the amount. The tube is normally clamped on the second day after your operation and you will then have a test to make sure there are no blockages in the ureter.

If the result of this test is good, the tube is removed and you can go home. If the result isn't good, it will either be done again the following day or you may be discharged home with the nephrostomy tube still in and be asked to come back for another test.

You may also have a urethral catheter for the first 24 hours or so after your operation. If this is uncomfortable tell your nurse who will help with this.

You will normally stay in hospital for two to three days after this operation.

Will I feel any pain?

For the first two days after your operation you may have quite bad pain. Let the nurses know if you need extra pain relief.

You will also probably be in some pain for a few weeks after your operation.

What do I need to do after I go home?

You may notice blood in your urine for up to two weeks. Try to drink two litres (about three and a half pints or eight cups) of water, squash or fruit juice a day to help clear your urine. Do not drink more than two cups of tea or coffee a day, and avoid drinking alcohol while you are recovering.

You may feel sore around the operated area for several weeks and we will prescribe you pain relief medication to help.

Eat a healthy, balanced diet after your operation to avoid becoming constipated, as straining to open your bowels increases the risk of bleeding. Eat plenty of fruit, vegetables and other high-fibre food, such as wholemeal bread, pasta and rice. If you need help with your diet, ask your specialist nurse or doctor.

Avoid lying down for long periods, as this will increase the risk of developing pneumonia or blood clots in your legs.

Avoid heavy lifting and straining for four weeks, and give yourself two to four weeks before returning to work. If your work involves heavy lifting or exercise, please speak to your consultant.

Only start driving again when you are able to perform an emergency stop with no hesitation or pain. Check with your insurance company to make sure you are covered to start driving again.

Contact the hospital if you have any of the following after you have left hospital:

- persistent bleeding or leaking of urine from the operation site
- large amounts of fresh blood in your urine (some bleeding is normal after the operation)
- excessive pain
- a temperature over 38°C (100.4F)
- difficulty passing urine.

Will I have a follow-up appointment?

You will be contacted by a specialist nurse on the Monday after your surgery.

You will have a follow-up appointment with a consultant about six weeks after your procedure.

You may need X-rays of your kidney and bladder before this appointment, and if you do we will contact you. The consultant or a member of the team will continue to see you in future clinics.

Useful sources of information

British Kidney Patient Association

<http://www.britishkidney-pa.co.uk/patient-info>

The British Association of Urological Surgeons (BAUS)

http://www.baus.org.uk/patients/conditions/6/kidney_stones

Contact us

If you have any questions or concerns about urinary stones, surgery or if you're feeling unwell, please contact Kristoffer Ohlin, clinical nurse specialist in urology on 020 8725 0163 (Monday to Friday, 9am to 5pm). You can also contact Kristoffer Ohlin through the bleep system by ringing 020 8672 1255 and bleeping 7456 or by email kristoffer.ohlin@stgeorges.nhs.uk

Out of hours please contact Vernon ward on 020 8725 3197.

For appointment or administrative enquiries, contact the urology secretary on 020 8725 3305.

For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit www.stgeorges.nhs.uk

Additional services

Patient Advice and Liaison Service (PALS)

PALS can offer you on-the-spot advice and information when you have comments or concerns about our services or the care you have received. You can visit the PALS office between 9am and 5pm, Monday to Friday in the main corridor between Grosvenor and Lanesborough Wing (near the lift foyer).

Tel: 020 8725 2453 **Email:** pals@stgeorges.nhs.uk

NHS Choices

NHS Choices provides online information and guidance on all aspects of health and healthcare, to help you make decisions about your health. **Web:** www.nhs.uk

NHS 111 Tel: 111

You can call 111 when you need medical help fast but it's not a 999 emergency. NHS 111 is available 24 hours a day, 365 days a year. Calls are free from landlines and mobile phones.

