



## KEYHOLE REMOVAL of a URETERIC STONE (LAPAROSCOPIC URETEROLITHOTOMY)

Information about your procedure from  
The British Association of Urological Surgeons (BAUS)

This leaflet contains evidence-based information about your proposed urological procedure. We have consulted specialist surgeons during its preparation, so that it represents best practice in UK urology. You should use it in addition to any advice already given to you.



<http://rb.gy/hhql9>

To view this leaflet online, scan the QR code (right) or type the short URL below it into your web browser.

You can find further information about stones on the BAUS website under: [“I think I might have kidney stones ...”](#) & [“Frequently asked questions about stones”](#).

### KEY POINTS

- The aim of the procedure is to remove a large stone from your ureter (the tube connecting your kidney and your bladder)
- This helps by relieving pain and removing the blockage to urine flow down the ureter towards the bladder
- It is done through several keyhole incisions
- Sometimes, we may need to convert to “open” surgery and make a larger incision to remove the stone

### What does this procedure involve?

It involves removing a stone in your ureter through several keyhole surgical incisions in your abdomen (tummy). You will need to have a temporary stent put in your ureter after the procedure. This makes sure that the flow of urine is uninterrupted and aids safe healing.

### What are the alternatives?

- **Observation** – small stones (less than 5mm across) may pass of their own accord

- **Ureteroscopic (telescope) removal** – passing a telescope up towards the kidney, through the bladder, and breaking the stone up with a laser
- **Extracorporeal shockwave lithotripsy (ESWL)** – breaking the stone into small fragments with external shockwaves
- **Percutaneous stone removal** – puncturing your kidney through a small hole in your back, and passing a telescope down into the upper part of the ureter
- **Robotically-assisted stone removal** – similar to laparoscopic removal but involves robotic ports and instruments that are remotely controlled by the surgeon

## What happens on the day of the procedure?

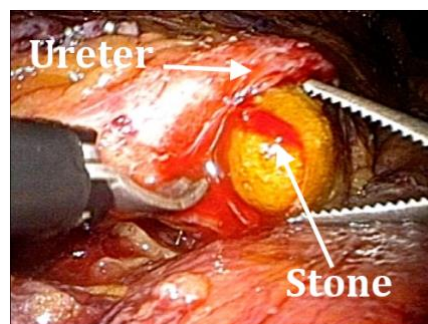
Your urologist (or a member of their team) will briefly review your history and medications and will discuss the surgery again with you to confirm your consent.

An anaesthetist will see you to discuss the options of a general anaesthetic or spinal anaesthetic. The anaesthetist will also discuss pain relief after the procedure with you.

We may provide you with a pair of TED stockings to wear, and we may give you a heparin injection to thin your blood. These help to prevent blood clots from developing and passing into your lungs. Your medical team will decide whether you need to continue these after you go home.

## Details of the procedure



- you will usually have an X-ray before the procedure to determine the position of the stone
- we normally use a full general anaesthetic and you will be asleep throughout the procedure
- we inflate your abdominal (tummy) cavity with carbon dioxide gas using a special needle
- we usually make three small cuts (ports) in your abdomen (tummy): one for the camera and two for manipulating instruments; occasionally, we use a fourth port
- we find your ureter and trace it down to the point where the stone is stuck











- we cut into the ureter directly over the stone, lift the stone out (pictured) and remove it through one of the ports.
- we close the cut in the ureter with absorbable stitches
- we normally put a catheter into your bladder, during the operation, to measure urine output.
- we put a temporary stent in your ureter to speed up healing
- we usually put a drain close to the kidney to collect any fluid which forms around the surgical site; the drain is normally removed the following day
- your drainage tube will be connected to an external drainage bag for overnight monitoring
- we close the keyhole incisions with absorbable sutures which do not require removal and normally disappear after two to three weeks
- you will be given fluids to drink immediately after the operation and we will encourage you to move as soon as you are comfortable (to help prevent blood clots forming in your legs)
- we normally remove your wound drain and catheter after 24 to 48 hours
- the average hospital stay is between one and two days

### Are there any after-effects?

The possible after-effects and your risk of getting them are shown below. Some are self-limiting or reversible, but others are not. We have not listed very rare after-effects (occurring in less than 1 in 250 patients) individually. The impact of these after-effects can vary a lot from patient to patient; you should ask your surgeon's advice about the risks and their impact on you as an individual:

After-effect	Risk
Shoulder tip pain due to irritation of your diaphragm by the carbon dioxide gas	 Almost all patients
Temporary abdominal bloating (gaseous distension)	 Almost all patients

A further procedure to remove the stent in your ureter, usually under local anaesthetic	 Almost all patients
Infection, pain or hernia in one (or more) of the port sites, requiring further treatment	 Between 1 in 10 & 1 in 50 patients
Minor bleeding during the procedure	 Between 1 in 10 & 1 in 50 patients
Bleeding or other operative difficulty needing conversion to open surgery or requiring blood transfusion	 Between 1 in 10 & 1 in 50 patients
Narrowing (stricture) of the ureter, at the site of the stone, requiring further surgery	 Between 1 in 50 & 1 in 250 patients
The stone may break into pieces, some of which move back into the kidney, requiring further investigations or surgery	 Between 1 in 50 & 1 in 250 patients
Recognised (or unrecognised) injury to nearby local structures (blood vessels, spleen, liver, kidney, lung, pancreas, bowel) requiring more extensive surgery	 Between 1 in 50 & 1 in 250 patients
Anaesthetic or cardiovascular problems possibly requiring intensive care (including chest infection, pulmonary embolus, stroke, deep vein thrombosis, heart attack and death)	 Between 1 in 50 & 1 in 250 patients (your anaesthetist can estimate your individual risk)

## What is my risk of a hospital-acquired infection?

Your risk of getting an infection in hospital is between 4 & 6%; this includes getting *MRSA* or a *Clostridium difficile* bowel infection. This figure is higher if you are in a “high-risk” group of patients such as patients who have had:

- long-term drainage tubes (e.g. catheters);
- bladder removal;

- long hospital stays; or
- multiple hospital admissions.

## **What can I expect when I get home?**

- you will be given advice about your recovery at home
- you will be given a copy of your discharge summary and a copy will also be sent to your GP
- any antibiotics or other tablets you may need will be arranged & dispensed from the hospital pharmacy
- it will take 10 to 14 days to recover fully from the procedure and most people can return to normal activities after two to four weeks
- you may return to work when you are comfortable enough and when your GP is satisfied with your progress
- if you develop a temperature, increased redness, throbbing or drainage from any of the keyhole sites, you should contact your GP immediately
- your stent may cause pain in your kidney area, especially when you pass urine, or pain in your bladder; this usually settles quickly but, if you feel unwell or feverish, you should contact your GP to check for a urine infection
- your stent will be removed four to six weeks after the procedure, usually under local anaesthetic

## **General information about surgical procedures**

### ***Before your procedure***

Please tell a member of the medical team if you have:

- an implanted foreign body (stent, joint replacement, pacemaker, heart valve, blood vessel graft);
- a regular prescription for a blood thinning agent (e.g. warfarin, aspirin, clopidogrel, rivaroxaban or dabigatran);
- a present or previous MRSA infection; or
- a high risk of variant-CJD (e.g. if you have had a corneal transplant, a neurosurgical dural transplant or human growth hormone treatment).

### ***Questions you may wish to ask***

If you wish to learn more about what will happen, you can find a list of suggested questions called "[Having An Operation](#)" on the website of the Royal College of Surgeons of England.

You may also wish to ask your surgeon for his/her personal results and experience with this procedure.

### ***Before you go home***

We will tell you how the procedure went and you should:

- make sure you understand what has been done;
- ask the surgeon if everything went as planned;
- let the staff know if you have any discomfort;
- ask what you can (and cannot) do at home;
- make sure you know what happens next; and
- ask when you can return to normal activities.

We will give you advice about what to look out for when you get home. Your surgeon or nurse will also give you details of who to contact, and how to contact them, in the event of problems.

### ***Smoking and surgery***

Ideally, we would prefer you to stop smoking before any procedure. Smoking can worsen some urological conditions and makes complications more likely after surgery. For advice on stopping, you can:

- contact your GP;
- access your local [NHS Smoking Help Online](#); or
- ring the Smoke-Free National Helpline on **0300 123 1044**.

### ***Driving after surgery***

It is your responsibility to make sure you are fit to drive after any surgical procedure. You only need to [contact the DVLA](#) if your ability to drive is likely to be affected for more than three months. If it is, you should check with your insurance company before driving again.

## **What should I do with this information?**

Thank you for taking the trouble to read this information. Please let your urologist (or specialist nurse) know if you would like to have a copy for your own records. If you wish, the medical or nursing staff can also arrange to file a copy in your hospital notes.

## **What sources have we used to prepare this leaflet?**

This leaflet uses information from consensus panels and other evidence-based sources including:

- the [Department of Health \(England\)](#);
- the [Cochrane Collaboration](#); and
- the [National Institute for Health and Care Excellence \(NICE\)](#).

It also follows style guidelines from:

- the [Royal National Institute for Blind People \(RNIB\)](#);
- the [Information Standard](#);
- the [Patient Information Forum](#); and
- the [Plain English Campaign](#).

### DISCLAIMER

Whilst we have made every effort to give accurate information, there may still be errors or omissions in this leaflet. BAUS cannot accept responsibility for any loss from action taken (or not taken) as a result of this information.

**PLEASE NOTE:** the staff at BAUS are not medically trained, and are unable to answer questions about the information provided in this leaflet. If you have any questions, you should contact your Urologist, Specialist Nurse or GP in the first instance.