Urology department

Open removal of stone from the pelvis of the kidney

What is the evidence base for this information?
This leaflet includes advice from consensus panels, the British Association of Urological Surgeons, the Department of Health and evidence based sources; it is, therefore, a reflection of best practice in the UK. It is intended to supplement any advice you may already have been given by your urologist or nurse specialist as well as the surgical team at Addenbrooke’s. Alternative treatments are outlined below and can be discussed in more detail with your urologist or specialist nurse.

What does the procedure involve?
This involves the removal of a stone in the collecting system of the kidney with an incision in the side or abdomen and possible placement of a plastic tube in the ureter.

What are the alternatives to this procedure?
Telescopic removal, laparoscopic removal, shock wave treatment, observation to allow spontaneous passage.

What should I expect before the procedure?
You will usually be admitted on the same day as your surgery. You will normally undergo pre assessment on the day of your clinic or an appointment for pre assessment will be made from clinic, to assess your general fitness, to screen for the carriage of MRSA and to perform some baseline investigations. After admission, you will be seen by members of the medical team which may include the consultant, junior urology doctors and your named nurse.

You will be asked not to eat or drink for six hours before surgery and, immediately before the operation, you may be given a pre-medication by the anaesthetist which will make you dry-mouthed and pleasantly sleepy.

An x-ray to confirm the position of your stone(s) will normally be performed shortly before your operation.

You will be given an injection under the skin of a drug (dalteparin) that, along with the help of elasticated stockings provided by the ward, will help prevent thrombosis (clots) in the veins.

Please be sure to inform your urologist in advance of your surgery if you have any of the following:

- an artificial heart valve
- a coronary artery stent
- a heart pacemaker or defibrillator
- an artificial joint
- an artificial blood vessel graft
- a neurosurgical shunt
- any other implanted foreign body
- a prescription for Warfarin, Aspirin, Rivaroxaban, Dabigatran, Apixaban, Edoxaban or Clopidogrel, Ticagrelor or blood thinning medication
- a previous or current MRSA infection
- high risk of variant CJD (if you have received a corneal transplant, a neurosurgical dural transplant or previous injections of human derived growth hormone)

**What happens during the procedure?**

Normally, a full general anaesthetic will be used and you will be asleep throughout the procedure. In some patients, the anaesthetist may also use an epidural anaesthetic which improves or minimises pain post operatively.

You will usually be given injectable antibiotics before the procedure, after checking for any allergies.

The incision is usually made in your loin, just at the lower edge of your ribs. The kidney is identified and an incision made into the pelvis of the kidney through which the stone is removed.

A wound drain is usually inserted at the end of the procedure, together with a bladder catheter to monitor urine output; it may also be necessary to insert a stent into the ureter at the time of surgery or to use a kidney drainage tube inserted into the back (a nephrostomy tube).
What happens immediately after the procedure?
Absorbable stitches are usually used and do not require removal; if the stitches used are not absorbable, we will arrange for them to be removed either on the ward or by your district nurse after seven to 10 days.

You may have a further x-ray after the procedure to confirm that the stone(s) have been completely removed and to check the position of the nephrostomy tube/stent if this has been inserted. If stones remain in the kidney, we may use an irrigating fluid through the nephrostomy tube in an attempt to dissolve them.

If a nephrostomy tube has been inserted, this will normally be removed after seven to 10 days. An x-ray using contrast medium is often performed through the nephrostomy tube before it is removed.

The average hospital stay is 12 days.

Are there any side effects?
Most procedures have a potential for side effects. You should be reassured that, although all these complications are well recognised, the majority of patients do not suffer any problems after a urological procedure.

Please use the check boxes to tick off individual items when you are happy that they have been discussed to your satisfaction:

Common (greater than one in 10)
- Temporary insertion of a bladder catheter and wound drain
- Need to stent the ureter with a temporary plastic tube
- Further procedure to remove the ureteric stent, usually under local anaesthetic
- Bulging of the wound due to damage to the nerves serving the abdominal wall muscles

Occasional (between one in 10 and one in 50)
- Bleeding requiring further surgery or transfusions
- Possibility of further or recurrent stones

Rare (less than one in 50)
- Long term drainage of urine from the drain site due to slow healing of the opening made in the renal pelvis to remove stone
- Scarring or stricture of ureter requiring further surgery
- Infection, pain or hernia of incision requiring further treatment
- No guarantee of removal of all stones
- Need to do further open surgery or radiological procedures to remove the stone
- Anaesthetic or cardiovascular problems possibly requiring intensive care admission (including chest infection, pulmonary embolus, stroke, deep vein thrombosis, heart attack and death)
What should I expect when I get home?
When you leave hospital, you will be given a discharge summary of your admission. This holds important information about your inpatient stay and your operation. If, in the first few weeks after your discharge, you need to call your GP for any reason or to attend another hospital, please take this summary with you to allow the doctors to see details of your treatment. This is particularly important if you need to consult another doctor within a few days of your discharge.
You will feel slightly uncomfortable for at least six weeks after the procedure and you will need at least four weeks off work after this operation.
It is advisable that you continue to wear your elasticated stockings for 14 days after your discharge from hospital.
If a ureteric stent has been inserted, this usually needs to remain for four to six weeks to allow complete healing of the incision in the ureter. Stent removal is normally performed in the day surgery unit under local anaesthetic and we will arrange this for you.

Approximately 60% of patients with stents experience some discomfort, similar to cystitis, until the stent is removed. Simple painkillers will usually help but there is nothing to be gained from treatment with antibiotics unless there is a proven urinary infection.

After surgery through the loin, the wall of the abdomen around the scar will bulge due to nerve damage. This is not a hernia but can be helped by strengthening up the muscles of the abdominal wall by exercises.

What else should I look out for?
If you develop a temperature, increased redness, throbbing or drainage at the site of the operation, please contact your GP.
If you develop any unexpected abdominal pain, loin pain or other symptoms, you should contact your GP immediately.

Are there any other important points?
A follow-up outpatient appointment will normally be arranged six to eight weeks after the operation. A further kidney x-ray or radioisotope measurement of kidney function may be requested at that stage to assess the recovery of the kidney following stone removal.

It is not unusual to experience twinges of discomfort with any incision on your abdomen and these twinges can go on for several months.
You can prevent further stone development by implementing changes to your diet and fluid intake. If you have not already received a written leaflet about this, contact your named nurse, the specialist nurse in outpatients or your consultant.

Driving after surgery
It is your responsibility to ensure that you are fit to drive following your surgery.
You do not normally need to notify the DVLA unless you have a medical condition that will last for longer than three months after your surgery and may affect your ability to drive. You should, however, check with your insurance company before returning to driving. Your doctors will be happy to provide you with advice on request.

**Privacy & dignity**
Same sex bays and bathrooms are offered in all wards except critical care and theatre recovery areas where the use of high tech equipment and/or specialist one to one care is required.

**Hair removal before an operation**
For most operations, you do not need to have the hair around the site of the operation removed. However, sometimes the healthcare team need to see or reach your skin and if this is necessary they will use an electric hair clipper with a single-use disposable head, on the day of the surgery. Please do not shave the hair yourself or use a razor to remove hair, as this can increase the risk of infection. Your healthcare team will be happy to discuss this with you.

**References**
NICE clinical guideline No 74: Surgical site infection (October 2008); Department of Health: High Impact Intervention No 4: Care bundle to preventing surgical site infection (August 2007)

**Is there any research being carried out in this field at Addenbrooke’s Hospital?**
There is no specific research in this area at the moment but all operative procedures performed in the department are subject to rigorous audit at a monthly audit and clinical governance meeting.

**Who can I contact for more help or information?**

**Oncology nurses**
*Uro-oncology nurse specialist*
01223 586748

*Bladder cancer nurse practitioner (haematuria, chemotherapy and BCG)*
01223 274608

*Prostate cancer nurse practitioner*
01223 274608 or 216897 or bleep 154-548

*Surgical care practitioner*
01223 348590 or 256157 or bleep 154-351

**Non-oncology nurses**
*Urology nurse practitioner (incontinence, urodynamics, catheter patients)*
01223 274608 or 586748 or bleep 157-237
What should I do with this leaflet?

Thank you for taking the trouble to read this patient information leaflet. If you wish to sign it and retain a copy for your own records, please do so below.

If you would like a copy of this leaflet to be filed in your hospital records for future reference, please let your urologist or specialist nurse know. If you do, however, decide to proceed with the scheduled procedure, you will be asked to sign a separate consent form which will be filed in your hospital notes and you will, in addition, be provided with a copy of the form if you wish.

I have read this patient information leaflet and I accept the information it provides.

Signature................................................Date...........................................
We are now a smoke-free site: smoking will not be allowed anywhere on the hospital site. For advice and support in quitting, contact your GP or the free NHS stop smoking helpline on 0800 169 0 169.

Other formats:

If you would like this information in another language, large print or audio, please ask the department where you are being treated, to contact the patient information team: patient.information@addenbrookes.nhs.uk.

Please note: We do not currently hold many leaflets in other languages; written translation requests are funded and agreed by the department who has authored the leaflet.

Document history
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