Open removal of stone(s) from the kidney: procedure-specific information

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 GP or other healthcare professionals. 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 stone(s) from the collecting system of the kidney with incision(s) into the kidney.

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

What should I expect before the procedure?
You will usually be admitted on the same day as your surgery. You will normally receive an appointment for pre-assessment, approximately 14 days before your admission, 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, Specialist Registrar, House Officer and your named nurse.

You will be asked not to eat or drink for 6 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 (Clexane), 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 or Clopidogrel (Plavix®)
- 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.

![Image: Forceps used to remove stones from within the kidney]

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 some of the stones are removed. Stones within the kidney may need additional incisions into the kidney and this usually requires the artery to the kidney to be clamped for up to 30 minutes to prevent bleeding. Contact X-rays are often taken at the time of surgery to confirm complete removal of the stone.

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 drainage tube into the kidney itself (a nephrostomy) at the time of surgery.

**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 7-10 days.

You may have a further X-ray after the procedure to confirm that the stones have been completely removed and to check the position of the nephrostomy tube 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 7-10 days. An X-ray using contrast medium is often performed through the nephrostomy tube before it is removed.

The average hospital stay is 10 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 1 in 10)**
- Temporary insertion of a bladder catheter and wound drain
- Need to stent the ureter with a temporary plastic tube
- Insertion of a nephrostomy 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 1 in 10 and 1 in 50)**
- Possibility of further stones

**Rare (less than 1 in 50)**
- Severe kidney bleeding requiring transfusion, embolisation or surgical removal of kidney.
- Long term drainage of urine from drain site due to slow healing of the opening in the kidney
- Infection, pain or hernia of incision requiring further treatment
- Scarring or stricture of collecting system requiring further surgery
- Damage to lung, bowel, spleen, liver requiring surgical intervention.
- No guarantee of removal of all stones & need for further operations
- Need to do further open surgery or radiological procedures to remove stone(s)
- Anaesthetic or cardiovascular problems possibly requiring intensive care admission (including chest infection, pulmonary embolus, stroke, deep vein thrombosis, heart attack and death)

**Hospital-acquired infection (overall risk for Addenbrooke’s)**
- Colonisation with MRSA (0.02%, 1 in 5,000)
- Clostridium difficile bowel infection (0.04%; 1 in 2,500)
- MRSA bloodstream infection (0.01%; 1 in 10,000)

(These rates may be greater in high-risk patients e.g. with long-term drainage tubes, after removal of the bladder for cancer,
after previous infections, after prolonged hospitalisation or after multiple admissions)

**What should I expect when I get home?**

When you leave hospital, you will be given a “draft” 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 6 weeks after the procedure and you will need at least 8 weeks off work after this operation.

Most patients with kidney stones have associated infection of the urine and you will usually be discharged with instructions to continue taking antibiotics for several weeks post-operatively.

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 6-8 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.

If there are any small stones remaining in your kidney, shockwave lithotripsy may be arranged at a later stage.

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 3 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.

**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 & 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 & BCG) 01223 274608
- Prostate cancer Nurse Practitioner 01223 247608 or 216897 or bleep 154-548
- Surgical Care Practitioner 01223 348590 or 256157 or bleep 154-134

**Non-Oncology Nurses**
- Urology Nurse Practitioner (incontinence, urodynamics, catheter patients) 01223 274608 or 586748
- Urology Nurse Practitioner (stoma care) 01223 349800

**Patient Advice & Liaison Centre (PALS)**
- Telephone +44 (0)1223 216756 or 257257
  +44 (0)1223 274432 or 274431
- PatientLine *801 (from patient bedside telephones only)
- E mail pals@addenbrookes.nhs.uk
- Mail PALS, Box No 53
  Addenbrooke's Hospital
  Hills Road, Cambridge, CB2 2QQ
What should I do with this form?

Thank you for taking the trouble to read this information sheet. 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 form 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 information sheet and I accept the information it provides.

Signature..................................................................................Date..............................................
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How can I get information in alternative formats?

Please ask if you require this information in other languages, large print or audio format: 01223 216032 or patient.information@addenbrookes.nhs.uk

Polish Informacje te można otrzymać w innych językach, w wersji dużym drukiem lub audio. Zamówienia prosimy składać pod numerem: 01223 216032 lub wysyłając e-mail: patient.information@addenbrookes.nhs.uk

Portuguese Se precisar desta informação num outro idioma, em impressão de letras grandes ou formato áudio por favor telefone para o 01223 216032 ou envie uma mensagem para: patient.information@addenbrookes.nhs.uk

Russian Если вам требуется эта информация на другом языке, крупным шрифтом или в аудиоформате, пожалуйста, обращайтесь по телефону 01223 216032 или на вебсайт patient.information@addenbrookes.nhs.uk

Cantonese 若你需要此信息的其他语言版本、大字體版或音頻格式，請致電 01223 216032 或發郵件到: patient.information@addenbrookes.nhs.uk

Turkish Bu bilgiyi diğer dillerde veya büyük baskıda ya da sesli formatta ister seniz lütfen şu numaradan kontakt kurun: 01223 216032 veya asagidaki adrese e-posta gönderin: patient.information@addenbrookes.nhs.uk

Bengali এই তথ্য বাংলা, বড় অক্সফর্ড আর অধিক টেপে পোস্টে চাইলে দর্শা করে 01223 216032 নম্বরে কোন করে বা patient.information@addenbrookes.nhs.uk চিকানার ই-মেইল করেন।

Addenbrooke’s is smoke-free. You cannot smoke anywhere on the site. Smoking increases the severity of some urological diseases and increases the risk of post-operative complications. For advice on quitting, contact your GP or the NHS smoking helpline free on 0800 169 0 169

Document history

Author(s) Nikesh Thiruchelvam (on behalf of the Consultant Urologists)
Department Department of Urology, Box No 43
Addenbrooke’s Hospital
Cambridge University Hospitals NHS Foundation Trust
Hills Road
Cambridge, CB2 2QQ
www.addenbrookes.org.uk
Contact number 01223 216575
Fax number 01223 216069
Dept website www.camurology.org.uk
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