LAPAROSCOPIC (KEYHOLE) REMOVAL of the ADRENAL GLAND

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.

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

http://rb.gy/6cgwc

KEY POINTS

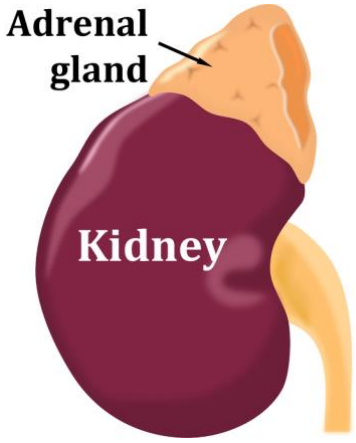
- The aim of this operation is to remove your adrenal gland
- You normally have two adrenal glands in the body, one sitting above each kidney (pictured below)
- Reasons for removing your adrenal gland include benign tumours that produce hormones and suspected (or confirmed) adrenal cancer

What does this procedure involve?

This involves removal of your adrenal gland through several small (keyhole) incisions.

What are the alternatives?

- **Observation** – this may be an option when your tumour is very small, and the risk of progression is felt to be low
- **Partial adrenalectomy** – this involves removal of the tumour only and preserving the rest of the adrenal gland; it is an experimental technique and is not widely available



Published: Jul 2024
Review due: Aug 2026
Leaflet No: 024/051
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- **Open surgery** – this involves conventional removal of your adrenal gland through a single incision

What happens on the day of the procedure?

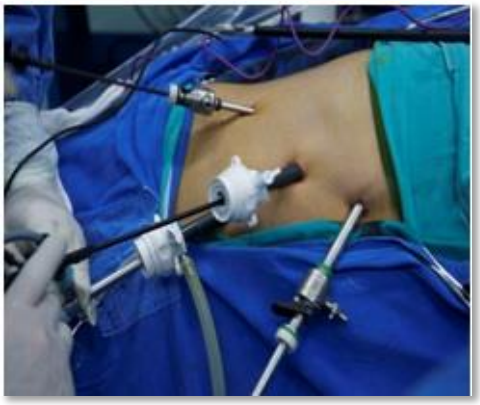
Your urologist (or a member of their team) will briefly review your history and medications, and will discuss the surgery again with you to confirm your consent.

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 an 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

- we normally use a full general anaesthetic and you will be asleep throughout the procedure
- you will be given an injection of antibiotics before the procedure, after you have been checked for any allergies
- we inflate your abdominal cavity with carbon dioxide gas through a special needle
- we place a telescope and operating instruments into your abdominal cavity (tummy) using three or four small incisions (pictured)



- one incision may need to be enlarged to remove the adrenal gland
- we normally insert a bladder catheter during the operation to measure urine output
- a drainage tube may be placed through the skin into the space left after removal of the adrenal gland
- 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 prevent blood clots forming in your legs)
- your wound drain and catheter are normally removed after 24 to 48 hours
- the average hospital stay is one to two days

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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
Temporary insertion of a bladder catheter and wound drain	 Almost all patients
Conversion to open surgery due to failure to progress or intra-operative complications	 Between 1 in 10 & 1 in 50 patients
Bleeding requiring further surgery or blood transfusion	 Between 1 in 10 & 1 in 50 patients
Wound infection	 Between 1 in 10 & 1 in 50 patients
A hernia forming in one of your port incisions	 Between 1 in 10 & 1 in 50 patients
Entry into your lung cavity requiring insertion of a temporary drain	 Between 1 in 50 & 1 in 250 patients

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Involvement of, or injury to, local structures (blood vessels, spleen, liver, kidney, pancreas, bowel) requiring more extensive surgery (either immediate or deferred)		Between 1 in 50 & 1 in 250 patients
The abnormality in the adrenal gland may turn out not to be cancer		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. Individual hospitals may have different rates, and the medical staff can tell you the risk for your hospital. You have a higher risk if you 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
- there may be minor discomfort from the small incisions in your abdomen but this can normally be controlled with simple painkillers such as paracetamol
- all the port incisions are closed with absorbable stitches which do not require removal, but may take two to three weeks to disappear
- if you develop a temperature, increased redness, throbbing or drainage at the site of the operation, you should contact your GP immediately.
- it will take 10 to 14 days to recover fully from the procedure

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- most people can return to normal activities after two to four weeks.
- a follow-up outpatient appointment will normally be arranged for you at 6 to 12 weeks after the operation when we will let you know the results of pathology tests on the removed adrenal gland.
- it will be 14 - 21 days before the biopsy results on the tissue removed are available. All biopsies are discussed in detail at a multi-disciplinary meeting before any further treatment decisions are made. You and your GP will be informed of the results after this discussion.

Your remaining adrenal gland will function normally on its own. It is sometimes necessary to take drugs to help the remaining gland recover (e.g. in patients with Cushing's syndrome). If both glands have to be removed (this is very rare), you will need to take drugs to replace their function.

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, 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

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- 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.

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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.

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