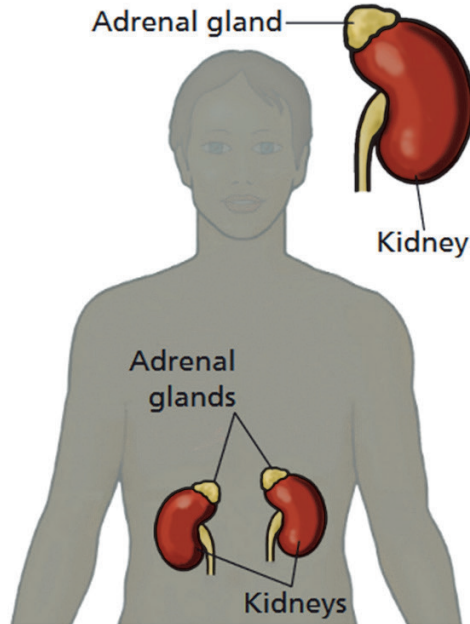


Laparoscopic Removal of the Adrenal Gland (Adrenalectomy)

Department of Urology

What is the adrenal gland?

The adrenal glands are two small organs which sit on top of your kidneys.



Their main role is to produce and release hormones into the body. These hormones include ones that control blood pressure, sex hormones, regulate metabolism and contribute to the immune system function.

What is Laparoscopic removal of the adrenal gland?

Laparoscopic Adrenalectomy is a minimal invasive procedure or 'key-hole surgery' to remove an adrenal gland which was traditionally done by the 'open' method. It involves the use of three or four 'port holes' or cuts about 1cm each which allows access to the organ. A thin tube with a light and a camera on the end and surgical instruments can then be passed through these incisions. The camera sends pictures to a screen so that the surgeon can see the adrenal gland and surrounding tissue and remove the gland. One of the incisions is enlarged to enable it to be removed.

Why remove the Adrenal gland/s?

The main reasons to remove either one or both of the adrenal glands are due to:

- Suspected or proven cancer
- Excessive hormone production
- Change in size

Cancer can start in the adrenal gland, or spread (metastasise) to the adrenal gland from another site, for example the kidney.

Overproduction of the stress hormones (adrenaline and noradrenaline) is called a Pheochromocytoma. This can cause very high blood pressure, palpitations and headaches.

If the Adrenal gland produces too much aldosterone (known as Conn's Syndrome) it can cause high blood pressure and low potassium levels.

Cushing's Syndrome is where one or both of the adrenal glands produce too much steroid hormone, known as Cortisol. This can cause weight gain and easy bruising and increases the risk of getting diabetes, high blood pressure and osteoporosis. Sometimes after having one or both of the adrenal glands removed patients need to go onto temporary or long-term steroids. Your doctor will discuss this with you.

What are the advantages of laparoscopic surgery?

Most surgery is carried out this way now. This is because:

- Avoids open surgery and large scars
- Shorter hospital stay
- Less risk of bleeding and infection
- Less pain after surgery
- Quicker recovery and earlier return to normal activities/ work.

What are the potential risks and complications of surgery?

Although this procedure has proven to be very safe, as in any surgical procedure there are risks and potential complications. The safety and complication rates are similar when compared to open surgery. The impact of these varies from patient to patient so you should discuss this with your surgeon.

Potential risks include:

- **Pain:** Most patients experience temporary shoulder pain and abdominal bloating for 24hrs after the operation. This is due to the gas inserted into your abdomen.
- Insertion of a temporary bladder catheter and wound drain.
- **Conversion to Open Surgery:** The surgical procedure may require conversion to an open operation if difficulty is encountered during the laparoscopic procedure. This could result in a larger incision (scar), longer hospital stay and possibly a longer recuperation period.
- **Bleeding:** all operations carry a risk of bleeding either during or after surgery. It is very rare to lose a significant amount of blood requiring a blood transfusion.
- **Infection:** All patients are treated with intravenous (straight into a vein) antibiotics, prior to starting surgery to decrease the chance of infection from occurring after surgery. If you develop any signs or symptoms of infection after the surgery (fever, drainage from your incisions, pain or anything that you may be concerned about) please contact us at once. A chest infection may occur as a complication of the anaesthetic. You can help prevent this by deep breathing.
- **Hernias:** sometimes the deep tissue layers do not heal completely and can cause a bulge over the port site, known as a hernia. This is rare, but can result in requiring another operation to repair it.
- **Tissue / Organ Injury:** Although uncommon, possible injury to surrounding tissue and organs could happen. These include your bowel, kidney, vascular structures, spleen, liver, pancreas, diaphragm and gallbladder could require further surgery. Injury could possibly occur to nerves or muscles related to positioning during the operation.
- **Deep vein thrombosis (DVT) / Pulmonary embolism (PE):** all patients having a general anaesthetic are at risk of getting a blood clot in their lungs (PE) or legs (DVT). To reduce this risk we give you stockings to wear on your legs and encourage you to be active following surgery. We also may give you injections of a blood thinning medication.
- Sometimes it can take a while for the remaining adrenal gland to produce enough hormones for your body so you may need tests and steroid replacements to help with this. If both of your adrenal glands are removed you will need to take steroid medication for life.

What are the alternatives to surgery?

Sometimes medication can stop the excessive production of hormones but they do not cure the problem and may have side effects. This type of medication does not treat cancer.

What happens before the operation?

You will attend a pre-assessment clinic to assess your suitability for surgery. Blood tests, urine tests, ECG (heart reading) and infection screening e.g. MRSA will be carried out. Please bring a list of your medications with you.

You will also be told what medications to continue and to stop and when to do so. You may eat and drink as you desire the evening prior to surgery. You will have nothing to eat 6 hours before your operation and clear fluids e.g. water for 2 hours before.

What happens on the day of the operation?

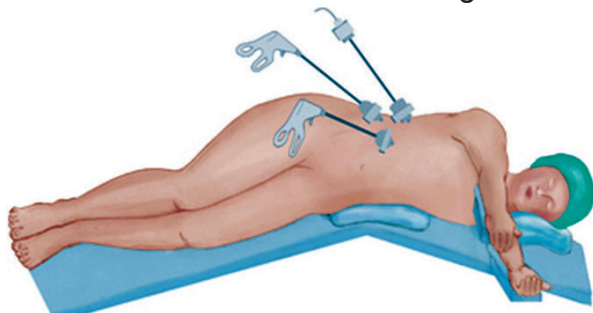
Most patients will be admitted to the ward on the day and introduced to the nursing team looking after you for the day. Some patients need to be admitted before, for example patients with a phaeochromocytoma may need extra monitoring before the anaesthetic. You will have your blood pressure, pulse and temperature checked. You will be asked to change into an operation gown and also be asked to wear anti-thrombus stockings which help prevent clots forming in your legs during surgery.

You will be seen by your operating consultant who will take your consent for the operation and discuss any questions you may have. You will also be seen by the anaesthetist. You will then be escorted to theatre by the theatre staff.

What happens during the operation?

The surgery will be carried out under general anaesthetic so you will be asleep during the procedure. You may also receive an epidural anaesthetic into your back which can minimise or improve pain after surgery. You will not feel anything during the operation. The surgeon

will make 3-5 key-hole incisions. The operation usually takes 1-3 hours but can vary depending on your specific case. A catheter is normally inserted into your bladder whilst you are asleep so we can measure your urine output during the operation and after once you are back on the ward. You may also wake up with a drainage tube which is placed through your skin into the space where the adrenal gland was. This will be removed when there is little or no fluid being drained into the bag.



What happens after the operation?

After the operation you will be moved to the recovery area where you will wake up. They will make sure you are comfortable and well enough before you are taken back to the ward area or the High Dependency Unit (HDU) if you require closer monitoring. It is important you tell the person looking after you if you have pain or nausea (feel sick) so we can give you the appropriate medication. You may have a drip into your vein to give you fluids until you are able to eat and drink normally. You can usually drink straight after the operation if you feel able, and gradually increase your fluid and food intake.

You will be encouraged to get up and about as soon as you are comfortable to help prevent blood clots in your legs. You will have some blood tests and monitoring to make sure you are recovering as we expect and to check what your hormone levels are.

When can I go home?

The average length of hospital stay is between 3 and five days, however some patients can go home sooner, and some need to stay longer. You will receive a copy of your discharge summary which also goes to your GP. You may be prescribed some medications to take home with you, for example antibiotics or pain killers.

An appointment to speak with the surgeon will be made for 4-6 weeks' time. At this appointment we will let you know the results of the pathology tests on the removed adrenal gland. All results are discussed at a multi-disciplinary team meeting before any further treatment decisions are made.

The ward staff can give you a FIT note (sick note) for during your stay in hospital and your GP can provide you with further ones.

You may experience minor discomfort from the small wounds on your abdomen which can normally be controlled with mild painkillers. All of the incisions are closed using absorbable sutures which do not need to be removed. They may take a few weeks before they disappear. If you develop a temperature, red rash, heat, throbbing or leakage at the site of the operation or increasing abdominal pain you should contact your GP immediately.

When can I get back to normal life / work?

It can take 2-3 weeks to recover from your operation. Most people can resume normal activities after 2 to 4 weeks. During this time it is important to exercise gradually. Start with a short walk on flat ground, and then gradually increase this to longer distances before adding inclines.

You should not drive for the first 2-3 weeks. Once you are comfortable and able to complete an emergency stop it is your responsibility to ensure you are safe to drive. You need to check with your insurance company on their policy regarding being insured following an anaesthetic. Insurance companies have different policies on this so it is best to contact them directly.

Going back to work is dependent on what job you do. You should not do any heavy lifting for 4-6 weeks. Most people have 2-3 weeks off work, however if you have a manual job you may need longer.

Sexual activity can resume 3-4 weeks after surgery when you feel comfortable.

What is the long term monitoring following an adrenalectomy?

If you have only had one adrenal gland removed your remaining gland will function normally on its own. Sometimes you will need to take some medication to help the remaining gland recover, for example if you have Cushing's. If both glands have been removed you will need to take medication for life to replace their function.

Patients are usually followed up by an endocrinologist. If the adrenal gland was removed because of cancer, you may be seen by an oncologist (cancer doctor).

Useful Telephone numbers

The Princess Royal Hospital

Urology Nursing Team

01444 441881 Ext. 65457

Ansty ward

01444 441881 Ext 8240/8241

Urology Consultants:

Mr. Nawrocki's secretary

01444 441881 Ext. 65962

Mr. Coker's secretary

01444 441881 Ext. 68043

Mr. Symes's secretary

01444 441881 Ext. 67809

Mr. Larner's secretary

01444 441881 Ext. 67808

Mr. Alanbuki's secretary

01444 441881 Ext. 67810

Mr Zakikhani's secretary

01444 441881 Ext. 67809

NHS

111 24 hour advice

<https://111.nhs.uk/>

Macmillan Cancer Support

www.macmillan.org.uk

0808 808 0000

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Ref number: 1031.1

Publication Date: July 2020 Review Date: July 2023



carer and patient information group approved