Surgery to remove the bladder

Surgery to remove the bladder to treat cancer is called radical cystectomy. A radical cystectomy is a very major operation, often involving the removal of other organs as well as the bladder itself. This is to give the best chance of successful removal of the bladder cancer.

To give an idea of the scale, a radical cystectomy is similar in many ways to e.g. a heart bypass (coronary artery surgery), surgery on the aorta (the body’s biggest artery).

It is much bigger than e.g. a hip replacement, back surgery, hysterectomy, removal of a section of bowel.

During the operation the surgeons will remove your bladder and, in many cases, several of the surrounding organs to prevent future spread of the disease. They will then create an alternative method of getting rid of urine.

Urinary stoma and bladder reconstruction

If you have a radical cystectomy, your body will still need a way of getting rid of urine. As part of the same surgery as the removal of the bladder, we will create an alternative way for this to happen. There are two ways of doing this:

- Formation of a urinary stoma (ileal conduit), where urine is passed through a channel
Some form of bladder reconstruction, where a pouch is made from bowel, so that urine is stored. The pouch is emptied either by passing urine via the waterpipe (urethra) in the usual way, or by use of a catheter that is passed into the pouch.

**Partial cystectomy**

For rarer forms of bladder cancer such as adenocarcinoma, surgeons may carry out a partial cystectomy and remove part of the bladder. This type of operation is not suitable for many patients, so is not carried out very often.

**Muscle-invasive bladder cancer**

If your bladder cancer is known to be in the muscle wall of your bladder (muscle-invasive cancer), we may also consider chemotherapy, as well as surgery to give you the best chance of cure. There is information about chemotherapy under [Cancer services](#).
Preparing for surgery

It is very important that you understand your operation and the implications for your life after surgery. We will do our best to explain all aspects, so that you know what to expect. Please ask us any questions that you may have. It is a good idea to write questions down before you come to see us, to help you remember and get the most out of your appointments.

We recommend that you speak to, or meet someone who has already had this type of operation so you can talk with them about their experiences. We encourage people who have had surgery to join the group of our patients who offer this help and support to people who are facing what they have already been through. You can also view videos of patients talking about their experiences.

In the days before your operation, we will discuss with you in detail the plan for your hospital stay. We will also let you know what to eat and drink before your admission. Unless you have diabetes, we recommend that you have special high carbohydrate drinks the night before surgery and early (5am) on the morning of surgery. These help to promote recovery of the function of your stomach and intestines after surgery. If these drinks are suitable for you, you will be given them at a clinic visit, to keep at home for just before your surgery.

You'll need to come to Addenbrooke’s for a pre-assessment appointment, where some investigations and a check for MRSA are done. You should let us know if you have:

- 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)

A specialist nurse will see you, either before you come into hospital for surgery, or on the day of your admission. If you are having a urinary stoma, they will mark the place where your stoma will be. If you are having a bladder reconstruction, they will still make a mark. On rare occasions, during surgery, it becomes clear that a planned reconstruction is not possible. In this case we will need to create a stoma for you, so we need to prepare for this.
Surgery to remove the bladder
During surgery

A radical cystectomy is a major operation and takes several hours.

You will be given a full general anaesthetic and an epidural to help with pain after the operation. Special drips are placed into large veins, and into an artery, so that you can be carefully monitored during and after surgery. You will be positioned very carefully on the operating table so that the effects of pressure on your skin are minimised. Your breathing is done for you, with a machine called a ventilator.

You will be covered almost completely (apart from your abdomen) with operating drapes that ensure a sterile area for surgery, and also help to keep you covered and warm. A warming air blanket is used also to keep you warm.

During surgery the anaesthetic team will check you very carefully, monitoring your temperature, heart rate, blood pressure, and how the breathing machine is working. Blood tests are done during surgery to check on your body’s response to surgery. You will be given fluid through the drips, to replace fluid that is lost, and a few patients are given a blood transfusion during surgery. The operating theatre team will check your body position carefully during surgery and move your arms gently from time to time, to help avoid them being stiff after surgery. Inflatable boots are used to squeeze your calves very gently at intervals during surgery, to reduce the risk of a blood clot in the veins.

If you are a woman, and have been through the menopause (change of life) and have not previously had surgery to remove your womb (hysterectomy), the surgeons will usually remove:

- the bladder
- the womb
- both ovaries and fallopian tubes
- the top part of your vagina

Part of the vagina will be left in place, so that if you wish to be sexually active after the surgery, this should be possible.

If you are a man, the surgeons will usually remove:

- the bladder
- the prostate
- the sperm sacs (seminal vesicles)
- in some cases, the urethra
If the position of your cancer permits, the surgeons may try to preserve the nerves that are involved in producing erections. These run very close to the prostate, and they usually suffer some damage during the operation.

This means that almost all men who have cystectomy will not have spontaneous, usable erections after the operation. We will talk to you about this in detail before you have surgery, and will explain the treatments we will be able to give you which may help.

Following the removal of your bladder, your surgeon will either create a urinary stoma, or a bladder reconstruction. The details of this part of the surgery are covered in the relevant sections.
Recovery in hospital

After surgery you are most likely to wake up in the recovery area of our operating theatres. The following day you will be moved to the urology ward. In a few cases, where there are certain problems following surgery, you may spend some time on the intermediate dependency area before moving to the ward.

Most patients spend from seven to ten days in hospital after their operation. We will carefully monitor your recovery. Your epidural is important and if it works well, you should have very little, or no pain, and you should be able to move your legs normally. Sometimes the epidural does not work so well, and the Acute Pain team help to get the epidural to work as well as possible. A few patients need a pump that allows them to give themselves doses of pain-killing medication via a drip. We leave the epidural in place for four days after surgery, and then remove it and replace it with other pain-killers.

You will also be offered at least three special, nutritional drinks a day, to help combat loss of weight and muscle that can follow surgery.

Our nursing staff and physiotherapists will help you to get out of bed and start moving as soon as possible. This will reduce the risk of blood clots forming in your legs and lungs and will also help to prevent chest infections. We also give you compression stockings to wear to encourage blood to drain from the legs, and daily injections to make the blood less likely to clot. We continue these injections for six weeks after surgery and will teach you how to do this when you are on the ward, so that you give yourself the injections after you go home.

Being more mobile will also encourage your bowel to start working, which normally takes a few days. During this period you will need to find a balance between eating and drinking enough to regain your strength, but not overfilling your stomach, which may make you feel sick. One of the ways that we know when the bowel is starting to work is that you pass wind through your back passage. Although it is not something that is generally discussed outside hospital, it is a simple and helpful indication of how the gut is working, so please bear with us when we enquire about this delicate matter after your operation.

It may take up to 6 weeks for the bowels to get back to normal after surgery. Five to ten percent of people find that their bowel habit changes permanently after surgery. If this does happen, typically the bowels will work once or twice more each day than before, and may be a bit looser.

Walking is an important activity following your operation, and we will strongly encourage you to walk as much as and as soon as possible after your operation. The nurses and physiotherapists on the ward will help you become increasingly independent, rather than
lying in bed all day, even though this may seem daunting at first.

Being upright and mobile helps your body to get back to “normal business” and helps to reverse some of the changes that happen following major surgery like this.

The wall of the main ward corridor is marked with 10m markers, so that you can estimate how far you walk. One end of the ward to the other and back is around 100m. Before you are ready to go home, we will expect that you are able to walk at least 100m, and climb one flight of stairs. This means getting moving quickly after surgery. Many patients walk a good deal further than this, with repeated “laps” of the corridor, walking up to and over 1km in a day.

This exercise will also require that you rest well in between walking, so a mixture of resting in bed, and walking is good.

While you are on the ward, the nurses will help you to get the hang of how to look after your stoma, bladder substitute or catheterisable reservoir, depending on which operation you have chosen. You will need to be able to manage whichever drainage system you have chosen, and although it will be very unfamiliar, you will quickly learn how to manage it. The Urology specialist nurses will help whilst you are on the ward and in the clinic afterwards.
Recovery at home

Once you leave hospital, it is usual to feel tired. Your body will continue to react to the surgery for several weeks. Also, in hospital, the ward staff will have been playing a big part in your care. Even small tasks at home like going to get yourself a drink, will seem to be more of an effort than they usually do.

Your physical recovery will progress in the weeks that follow your surgery, although this may be in fits and starts, rather than a steady improvement. After a relatively quick start, it is normal for recovery to slow down and be more gradual.

You may have bad days where it feels as if things are getting worse, rather than better, but this is not usually a sign of a problem. It is important to try not to get downhearted. Your energy, appetite, how food and drink goes down, how the bowels work, how you sleep and what your mood is like, will all get better over time.

When you get home, you will need to ensure that someone is able to accompany you out of the house each day, increasing your walking distance each day as much as you can manage, so that by two or three weeks after getting home, you are walking at least half a mile each day, and preferably more. Many patients find that after their operation they are walking further than they have done for some years, and feeling much better for doing so. Some patients come back to clinic a month after their surgery and are walking two or three miles each day at that stage.

The following are important milestones in your recovery, if your wound heals normally:

- heavy lifting: for the first six weeks after surgery, you should avoid lifting anything heavier than a full kettle - we will need to check your wound in clinic before you do this
- recovering your energy: your energy should be starting to return by six weeks
- driving: you should be able to make a gradual return to driving from around six weeks - we will need to check your wound first and you should feel confident that you can make an emergency stop. We recommend that somebody accompanies when you first return to driving

Full recovery is likely to take from three to six months. If you had chemotherapy before your surgery, you can expect the recovery to be around six months. By this time most people will have returned to their normal activities without feeling more tired than usual.
Aftereffects

Any major surgery will mean changes for your body, and can affect how you feel about
yourself. This is completely normal and is something we can help with. Our specialist nurses
can give you advice and answer questions, and will be able to put you in touch with local
organisations which can give you extra support.

It may also be helpful to talk to your partner about the possible side effects of surgery. As
well as helping them to understand more about how you are feeling, it can also provide you
with extra reassurance and give you more confidence as you prepare for your operation.

There are also specific side affects relating to the different ways in which we may replace
your bladder. These are covered under the relevant sections.

Your sex life

In all cases, having a cystectomy will affect your sex life. For men, it can cause problems
getting an erection, whereas women often find it makes sex uncomfortable.

There are a variety of things we can try to help, such as tablets like Sildenafil (Viagra®),
injections and vacuum pumps for men or, in women, extra lubrication or a dilator which can
help stretch the vagina. We are experienced at helping people overcome these problems, so
please don’t feel embarrassed about discussing this.

Discovery of further cancer

When men have their bladder removed, around 30% are found to have unsuspected
prostate cancer. In almost of these men, the prostate cancer that is found is confined to the
prostate gland and because that has been removed, together with the lymph glands around
the bladder and prostate, no further treatment is needed, although regular checks of the
prostate blood test (PSA) are done.

Complications

Every operation has possible complications, meaning things that can go wrong. This risk
needs to be weighed up against the risk of the cancer and the benefit of surgery. The types
of cancer for which we may consider removing your bladder are all high risk. The benefits of
having the surgery are considerable. You may need, however, to consider other treatments
which may also have both risks and benefits, for example, radiotherapy. Weighing up the
risks and benefits of different treatments is often difficult.
In general, the bigger the operation, the more likely it is that there will be complications. There are two sorts of complication that can happen with surgery:

- general complications: these can happen after any surgery - the bigger the operation, the more likely they are to occur
- specific complications: these only happen after particular types of surgery, so in this case they are the complications which follow bladder cancer surgery - these will be different to the complications eg of heart surgery, hysterectomy etc

There is also a distinction between minor complications and major complications. This depends on the type of complication, which part of the body is affected and what the consequences of the complication could be.

Major complications are common after cystectomy, whichever form of urinary drainage is done afterwards. The likelihood depends on how healthy you are going into surgery ie whether you have other health problems alongside your bladder cancer eg heart or chest disease, diabetes, high blood pressure, kidney disease, or being considerably overweight, or combinations of these problems.

- 25 to 30% of patients whose general health is good before the operation will have at least one major complication after their surgery
- at least 30 to 50% of patients whose general health is not good will have at least one major complication after their surgery.

**General complications**

Some examples of common general combinations after cystectomy are:

- Blood clots in the legs (thrombosis) or the lungs (pulmonary embolism)
- Chest infection
- Wound infection or breakdown
- Slow recovery of bowel function (ileus)
- Abnormal heart rhythm, angina or a heart attack (myocardial infarction)
- A mini-stroke or a stroke

**Specific complications**

The specific complications of removal of the bladder relate mainly to the surgical joins made in the bowel where a part of the bowel is removed to make the urinary drainage system, or the joins between the tubes that drain the kidneys (ureters) to the bowel forming the drainage system, as well as other bowel problems. These are examples of the possible specific complications:

- Blockage or leakage of the joins in the bowel
• Blockage or leakage of the joins between the ureters and the bowel
• Injury to the lowest part of the bowel (rectum)
• Injury to the bowel (more likely after previous abdominal surgery or radiotherapy to the abdomen or pelvis)

There is also a risk of one or more complications that we are unable to treat successfully, and resulting in death hospital. This occurs in between one and two percent of patients.

As indicated above, the risks of surgery need to be weighed against the risk of the cancer and the benefit of surgery.
Follow up

For almost all patients who have surgery to remove their bladder, follow-up for life is sensible.

We follow patients up to check that

- there is no sign that the cancer has come back
- there are no long term side effects from the surgery

We see patients

- every three months in the first two years after surgery
- every six months in the next two years
- then annually for life

The follow-up consists of checking how you are and how you feel, together with combinations of blood tests, chest x-rays and scans.

For patients who come from other hospitals outside Cambridge, at some stage, we are often able to share this follow-up with your local hospital, if you would like us to.

Around 25% of patients who have their bladder removed and have a urinary stoma or a bladder substitute will need further treatment, usually surgery, in the few years after their operation. This is likely to be for problems unrelated to further cancer, including

- later narrowing of the joins between the ureters and the bowel forming the urinary drainage system
- hernias in the wound or around the stoma
- kidney stones
- bowel obstruction.

Around half of all patients who have a catheterisable reservoir require further treatment or surgery.