

## Robotic Assisted Laparoscopic Cystectomy

This leaflet is designed to give you information on why this procedure may be suitable for you, and what to expect from it. It outlines the advantages and possible risks. It will hopefully answer the common questions usually raised. More detailed information is available from your consultant if you wish.

### What is a radical Cystectomy?

A radical cystectomy is the surgical removal of your entire bladder along with surrounding fatty tissues, and lymph nodes.

### What is an Open radical Cystectomy?

This whereby the surgeon uses a large incision approximately 15-18cms in length to carry out the procedure.

### What is Robotic Assisted Laparoscopic Cystectomy?

It is the above procedure but is carried out using much smaller incisions and the use of a robot to make the surgery a more precise procedure.

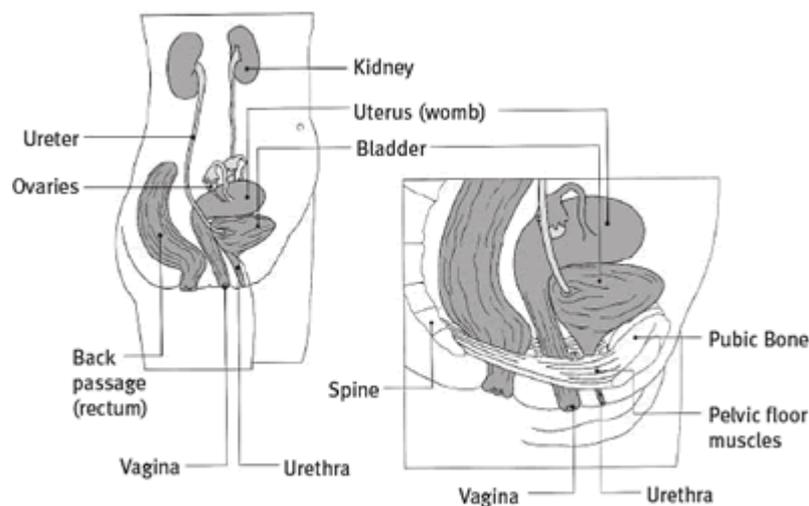


Fig 1. The anatomy of the female pelvic organs

## What does it involve?

You will require a general anaesthetic; the procedure is as long as an open procedure that is 4-5 hours, and you will be anaesthetised for the entire procedure.

This surgery begins with the urologist making 5-6 small incisions in the patient's abdomen. (The incisions are about 1cm in length, compared to a single 15 –18cm long incision for traditional surgery.) A laparoscope – a long, thin, lighted telescope – is then inserted through one of the incisions.

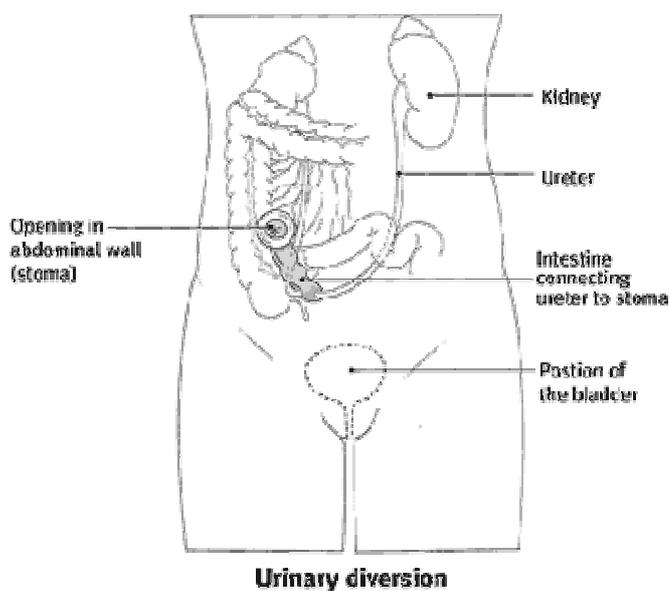
Tiny surgical instruments, held by robotic arms, are inserted into the other incisions. The surgeon uses the daVinci® Surgical System to control their movements. Mini-cameras on the instruments send images to video monitors. These images are larger than life, magnified many times, allowing the surgery to be extremely precise.

Radical cystectomy literally translated means removal of the entire bladder. In recent years, it has emerged as the most effective treatment for bladder cancer that has invaded the muscle layer surrounding the bladder.

The internal lymph glands that lie within the pelvis are also usually removed during the operation.

Having a cystectomy involves surgery to the bowel as well as the bladder. A small portion of the bowel is used to make the urostomy. This is where the ureters or tubes that lead down from the kidneys are joined to a piece of bowel that is then brought to the surface of the skin and sutured in place, thus creating a raised pink fleshy area, called a "stoma". In future your urine will be collected in a small bag that will be attached to your abdomen by a ring of sticky paste (it lies flat to your stomach and cannot be seen through your clothes). In some patients an artificial bladder may be created from a section of bowel, in which case a bag is not necessary.

The bowel that is left for digestion and absorption will inevitably be shorter; this means that for some people their motions become looser after this type of surgery



## What is robotic surgery?

This is a technique whereby a robotic console is placed beside you. Attached to the console are 3 robotic arms; two for instrument attachments and the other holds a high magnification 3D camera to allow the surgeon to see within your abdomen (tummy). The two robotic arms have the ability to hold various instruments attached to them to allow the surgeon to carry out your operation. The instruments are approximately 7mm in length.

The instruments have a greater range of movement than a human hand does; and because of their size and the ability to view the operation in 3 dimensions; this allows the surgeon to carry out major abdominal surgery in a small space.

Previous surgeons made larger incisions to be able to carry out the operation. With robotic surgery the instruments are placed onto the robotic arms through small port holes into your abdomen; the surgeon is sat in the same room but away from the patient and is able to carry out more controlled and precise movements using robotic assistance

## Availability in the UK?

The daVinci® system has been used extensively throughout the U.S. and Europe; it is being used currently in many different areas of surgery. For example cardiac surgery Mitral Valve Repair, coronary bypass grafts; in gastric and Oesophageal surgery, Nissen Fundoplication for the treatment of gastric reflux and Gastric Bypass surgery for obesity. Other surgery includes Radical Prostatectomy (*daVinci*® Prostatectomy) for the removal of the prostate in prostate cancer patients.

At present there are two daVinci® robotic systems available in the U.K.

Guys Hospital is the only U.K trust that offers robotic assisted laparoscopic surgery for urological procedures.



- 1 Surgeon Console
- 2 Image Processing Equipment
- 3 Endowrist Instruments
- 4 Surgical Arm Cart
- 5 Hi-Resolution 3-D Endoscope

© 2000 How Stuff Works

Photo courtesy of Intuitive Surgical

## The laparoscopic technique

The procedure is carried out under a general anaesthetic - where you are asleep throughout the procedure.

You are positioned on the operating table at a 45-degree angle to the floor, head down. This positioning allows the bowel to stretch out which makes it easier for the surgeon to see all of the organs in the pelvis area.

The procedure is carried out through 3 keyhole incisions into the abdomen, one of which can later be extended to help create the stoma. It is through these incisions that the surgeon is able to place the instruments necessary for the procedure.

What are the risks of the procedure?

**As in any surgery there are a few risks of which the common ones are:**

1. During port placement: bleeding, damage to structures inside abdomen (tummy)-this is minimised by placing ports under vision. This means that the camera port is inserted first and following ports are watched on a monitor to see the ports entering the abdomen.
2. Leakage of carbon dioxide gas (used during surgery) into tissues.
3. During the operation: bleeding, conversion to open surgery, irregular heart beat, reduced urine volume, injury to structures in abdomen occasionally the rectum.
4. During exit from abdomen: bleeding
5. After the operation: bleeding, infection, hernia at port site, nerve compression may become evident, blood clots in legs that can migrate, shoulder tip pain due to referred pain of carbon dioxide trapped in your abdomen. Urine leaking from the join with the bowel and the ureters can happen and may cause a fistula (artificial passage between two separate areas).
6. The risk of dying from robotic assisted laparoscopic cystectomy surgery is between 1-2% (no higher than that of open cystectomy).

## Preparation before your surgery

Your consultant should discuss the details of the procedure with you in outpatients outlining the procedure as part of your consent.

You must also be aware that there is a chance that your procedure may have to be converted to an open procedure. For this reason if you do not want to have open surgery we are unable to proceed with this robotic assisted laparoscopic procedure.

Before your robotic assisted laparoscopic cystectomy a nurse and a doctor will see you in a pre-admission clinic. During this clinic session they will assess your suitability for the procedure and the anaesthetic and ensure that you have had the relevant tests and examinations performed prior to your admission.

They will give you some instructions to follow at home. You will have to eat a low fibre diet for a few days. The diet is important because your bowel must be clean before you have the surgery.

If you take aspirin or warfarin or any other medication that might thin your blood you will need to let the doctor and nurse know and they will give you special instructions. You may have to be admitted to hospital for 3-5 days prior to the surgery if you are on a high dose of aspirin or on warfarin, this will be arranged at your pre-admission clinic appointment.

Do not make any changes to your usual drug treatments, whatever they are for, without consulting your specialist first.

Before you are admitted to hospital, your consultant will also ensure you are referred to a Stoma Care Nurse Specialist. Their role is to ensure that you are well prepared for the surgery and are aware of how to manage your stoma afterwards. They will teach you how to look after it and will visit you while you are in hospital.

## **What should I expect during my stay in hospital?**

When you arrive in hospital, a nurse who will take some of your details and prepare you for theatres will see you. A member of the team of doctors that are looking after you will consent you for the operation; also an anaesthetist will also see you to discuss the anaesthetic.

Should you have any questions or concerns you should ask your team before signing your consent.

You will be admitted to hospital 2 days before your surgery, during this time you will be given 2 sachets of "Picolax", a special drink that will help to empty your bowel before the surgery, this ensures that the procedure is much cleaner. Picolax will cause diarrhoea as part of the cleaning out process. You will be able to eat a light diet and drink as normal on the first day of your admission. The day before the procedure you will be restricted to clear fluids only and you will also have a drip so that you remain well hydrated after taking the picolax to empty your bowel.

A minimum of 8 hours prior to your surgery you will need to be Nil By Mouth (NBM), which is to have nothing at all by mouth prior to surgery.

This is essential, as anaesthetic may make you nauseous, which may lead you to vomit and the possibility of stomach contents going into you lung, this is very dangerous and is why we insist that when you are made NBM, you **DO NOT EAT OR DRINK**.

The nurses will instruct you as to when you should commence being NBM.

## The day of your surgery

You may require an enema prior to surgery to ensure you bowels are empty; you will need to shower thoroughly and place a clean gown. Put your anti-thrombus stockings on and wait on your bed, you should be ready 1 hour before theatre.

A nurse will check list you ready for theatre, soon after a porter will arrive and you will be transferred on your bed to the theatre department.

You will be again check listed by theatre staff before being anaesthetised and taken into the operating room.

After the surgery is finished, you will be taken to the recovery room and remain there until you come around from the anaesthetic. This may take a few hours. You may be required to stay in overnight intensive care but will then return to your ward the following day.

If you have any pain or nausea then tell the recovery staff, they will be able to monitor you and give appropriate treatment prior to your return to the ward.

On the day of the surgery, friends and family members can wait in the ward day room and visit you afterwards. You should limit your visitors on the first night, as you will feel quite tired after a long anaesthetic.

Your Urologist will see you after you have returned to the ward and your nurse has settled you in.

When you wake up you will find that you have 2 drains, the first running into the empty bladder space via the urethra. The second running through the wall of your abdomen, the drains will help to get rid of any excess fluid that has collected as a result of the operation.

If there is no drain present in the urethra you may have a small amount of ooze from your urethra, this is nothing to worry about and will settle.

You are also likely to notice some swelling of the eyelids and face due to the "head down" position during surgery. This will resolve by itself usually within 48 hours.

Initially you will be connected to a drip that will keep you well hydrated until you are able to tolerate fluids (usually about 48-72 hours later). You will also have a tube coming out of your nose (down your nose and into your stomach) this will be passed while you are under the anaesthetic. This is there to prevent your stomach from filling with fluid that it is unable to absorb while your bowel is recovering from the surgery.

The doctors will check your stomach with a stethoscope every day listening for any bowel sounds "gurgling". They may also ask you whether you have passed any wind, these are both signs that your bowel is recovering from the surgery and also means that you will be able to start drinking again. If you start to eat and drink before this time you will feel nauseous and will probably be sick.

You will have 2 thin tubes coming through the stoma initially; the Stoma Nurse Specialist will remove these after you are discharged (usually around 14 days). They

are put there to ensure that the join between the ureters and the piece of bowel has healed and will not leak if urine passes over this join.

To keep any pain you might experience under control you will either come back to the ward with an epidural (an anaesthetic that is passed through a very small tube into your back to numb below the waist). Alternatively you may have a PCA –patient controlled analgesia pump. This delivers a small amount of painkiller into a vein every time you press a button, allowing you to be in control of when you receive pain relief. You will discuss both of these options with your anaesthetist prior to the procedure being carried out.

You will have some dressings over your wound sites that will be changed as required while you are in hospital

## **What to expect after robotic assisted laparoscopic cystectomy.**

You should be able to leave hospital around 7 –14 after the procedure is carried out. The drains will usually be taken out before you go home however

After discharge you should be able to return to normal activities at about 6 weeks. You should be able to return to a desk job around this time however if your work consists of heavy manual labour you will probably find you will need a little longer..

You should drink plenty of clear fluids 2-2.5 litres a day.

The stoma nurse will ensure that you have everything that you need for your urostomy when you get home, and will explain how to obtain further supplies.

The ward nurses will arrange for a district nurse to visit you at home whilst you are recovering, initially to change your dressings if required.

We will send a letter to your GP and you should have a week's supply of any medication that you have been prescribed to take home with you.

## **What can I expect after getting home?**

In the first weeks after your surgery you might experience:

- Blood stained urine
- Bruising around your incision sites
- Red or sore areas around the stoma site

In the first few months you might experience:

- You will be closely followed up after the surgery and will be seen at 6 weeks, by the Consultant or one of his team. You will also have access to the Stoma Care Nurse Specialist who will be able to answer any questions you may have.

## **What is the cancer outcome following robotic assisted laparoscopic cystectomy?**

Recently published data has suggested that robotic assisted laparoscopic cystectomy is as successful at curing muscle invading bladder cancer as open cystectomy but has less complications (morbidity).

### **Advantages of robotic assisted laparoscopic cystectomy**

- The procedure requires a 1 – 2 week stay in hospital in comparison to 3 - 4 weeks following an open cystectomy
- Recovery is quicker - within 6 weeks, in comparison to 3 months or more following an open cystectomy
- There is significantly less bruising as the incisions are small in comparison
- So far, evidence suggests it is as effective as the open cystectomy
- Post-operative pain and analgesic need are much lower

One of the principle advantages of the laparoscopic procedure is that the average blood loss is around 150mls in comparison to the open procedure where blood loss is an average 1500mls. This reduces the possible transfusion rate after laparoscopic cystectomy in comparison to open cystectomy where the majority is transfused.

After robotic assisted laparoscopic cystectomy there is a shorter time between the operating day and the time at which the bowel starts to work again, this means that patients are able to start eating and drinking a lot more quickly.

### **What are the specific disadvantages of me having robotic assisted laparoscopic cystectomy as opposed to open cystectomy?**

The operation needs specialised training, as the surgeon is unable to “feel” your tissues or organs unlike open surgery.

World-wide data shows a mortality (death) rate of 2% similar to open cystectomy, rectal injury 2%, need to convert to open procedure 1.5%, fistula formation 1.5% and intestinal 4-5%.

## **What is Mr Dasguptas' experience?**

- The technique is an advanced technique for those well-versed in laparoscopic procedures. Mr Dasgupta has been performing laparoscopic surgery since 2000
- Mr Dasgupta has already performed over 15 laparoscopic cystectomies with Mr Rimmington at Eastbourne General Hospital, East Sussex. The total number of procedures carried out as of January 2004 is 25.
- Prior to commencing the laparoscopic programme at Guys. Mr Dasgupta has observed and participated in performing the technique at Eastbourne since April 2003.
- He has completed an advanced laparoscopic urology preceptorship funded by the British Urological Foundation at The Cleveland Clinic with Dr Gill, an international expert
- Mr Dasgupta and his team have received intensive training in urological robotics at the Vattikuti Institute, Henry Ford Hospital, Detroit, USA with Dr Menon the world leader in this field and also intense training in Paris.
- Mr Dasgupta already uses the AESOP robot for camera control during laparoscopic procedures.

## **Some Commonly asked questions?**

### **Does the robot do the surgery?**

No, the surgeon does the operation. The robot is an instrument that allows the surgeon to operate in small spaces in the body. It essentially makes the surgeon's hands two seven-millimeter instruments. The robot is controlled by the surgeon and does not work on its own.

### **How much pain will I be in?**

Since the surgery is done through a small incision, most patients experience much less post procedure pain than with open surgery. Patients tend to need much less pain medication. After one week, most are feeling no pain at all. Also, there is a decreased risk of post-operative hernias.

### **When can I exercise?**

Light walking is encouraged right after the procedure. After 2 weeks, jogging and aerobic exercise is permitted. After four weeks, heavy lifting can resume.

### **Can I shower or bath?**

Yes, the stitches in your tummy are dissolvable, we just asked that you rinse thoroughly the soap from your body as this may irritate the areas and that you pat yourself completely dry.

**When can I drive?**

When you are comfortable to do so; and when able to make an emergency stop.  
Please also check with you insurance company before returning to drive.

**When can I return to work?**

Please allow a couple of weeks' recuperation before returning to work, if you work entails lifting please speak to your consultant prior to leaving hospital.

*If you have any further questions that you wish to ask please do not hesitate to speak to the nursing or medical staff.*

*If you feel there are some questions that should be placed on this information leaflet please let us know or fill in a comment sheet prior to your being discharged.*