



Laparoscopic surgery in urology

Laparoscopy is a technique that enables surgery to be performed through a series of “keyhole” incisions.

Laparoscopy is a surgical technique in which the abdominal and pelvic organs can be examined and operated on through a series of “keyhole” incisions rather than one larger incision required for traditional “open” abdominal cavity surgery. This surgical approach is used in different surgical specialties. Many surgeries of the urinary system can be performed using this technique.

Traditionally, operations have been carried out through an incision large enough to expose the affected organ. This requires cutting muscle and tissue layers which can weaken them and result in a long recovery period. Today, a video camera attached to a narrow “scope” can be introduced into the abdominal cavity to visualize surgery performed with specialized instruments through keyhole incisions. The smaller “keyhole” incisions produce less pain and shorten recovery from surgery and return to normal function.

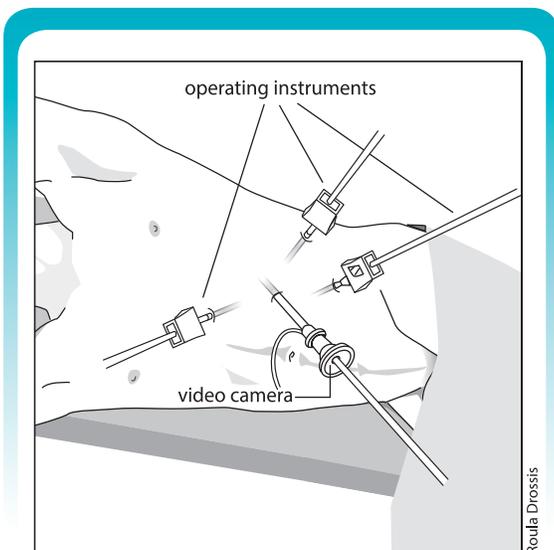
In urology, laparoscopic techniques can be used to remove, biopsy or repair damaged or diseased portions of the urinary system, including the adrenal glands, the kidneys, their drainage system, the bladder and the prostate. Kidney donation for transplantation can be carried out laparoscopically. Some young boys with an undescended testicle can be managed with this approach.

As technology improves, laparoscopic techniques will be applied to more complex types of surgery. These procedures, however, are not appropriate for all patients or all types of surgery; some problems and some patients are still best managed with open surgery. In some cases, during laparoscopic surgery a surgeon may decide that the procedure would be completed more safely or effectively through a larger incision, necessitating conversion to traditional “open” surgery.

Before your laparoscopic surgery

The preparation for laparoscopic surgery is similar to that of traditional surgery. If you are taking blood thinners, you should discuss this with your urologist. You may be asked to stop taking aspirin, ibuprofen (e.g. Advil™), blood thinners and any vitamin or herbal supplements before surgery to reduce the risk of bleeding and unexpected drug interactions. Other medications should be continued as usual. Please ask your urologist if you have any question regarding medications.

Laparoscopic surgery is carried out under general anesthesia (you will be “put to sleep”). You will receive specific instructions regarding fasting and limiting oral fluids for several hours before your surgery. Your health status may be reviewed pre-operatively with the doctor managing your anesthetic, the anesthesiologist. Additional investigations may be recommended if there is any concern about your heart or lung function which may be stressed with surgery.



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The laparoscopic procedure

Laparoscopy requires enlarging the operating space inside the abdomen or pelvis to allow room to see the target organ(s) and to manipulate the surgical instruments. This space is created by inflating the abdominal cavity with carbon dioxide gas through a small needle. The abdominal wall is raised – much like lifting a tent roof – to allow the surgery to proceed. This inflation is maintained at a carefully controlled pressure until the surgery is completed.

Once the abdominal cavity is inflated, narrow instruments are introduced through a number of small incisions each of which is usually no more than 1-2 cm ($\frac{3}{4}$ in) long. A video camera attached to a scope provides the surgeon and his assistants with a magnified view of the surgical field on a television screen. One of the incisions may be lengthened to allow removal of an organ (e.g. a kidney) when this is necessary. Upon completion of the surgery, the abdomen is deflated by letting the gas out and each incision is repaired with stitches and/or staples.

Some surgeons prefer to perform **hand-assisted laparoscopic surgery** in which the usual laparoscopic instruments are used while one incision is enlarged to allow placement of the surgeon's hand into the abdominal cavity to assist the surgery. With this approach, the surgeon can use his sense of touch and use the same incision to remove the diseased organ.

After laparoscopy

Following laparoscopic surgery there is usually much less discomfort than from larger surgical incisions used for open surgery. Frequently, mild abdominal discomfort may be due to a small amount of remaining carbon dioxide gas or from the manipulation of the bowel during surgery. Shoulder pain may occur for a few hours after the surgery as a result of irritation of the diaphragm (the muscle that separates the lung cavity from the abdomen) by carbon dioxide.

Diet and activity are resumed over the next few days. Most patients can be discharged from hospital after a few days to complete their recovery at home. Return to usual activity and work is often possible after several weeks.

Risks of laparoscopic surgery

Even if laparoscopic surgery can be performed through small incisions, it is still major surgery and complications are possible. Laparoscopic surgery is technically more challenging, requires specialized training and experience, and is often more time-consuming than open surgery. The risks of a laparoscopic approach to your surgery are often very similar to those of traditional "open" technique, although post-operative breathing problems or other complications related to the pain of open incisions are less frequent.

Other risks that are unique to the laparoscopic procedure include injury to blood vessels or to the bowel when placing the small instruments into the abdominal cavity. The gas used to inflate the abdominal cavity can track under the skin and even into the scrotum of men.

Abdominal inflation can sometimes create difficulties with lung or heart function and, in rare cases, this may require your surgeon to convert to the open approach. Bleeding may require blood transfusion and infection may necessitate the use of antibiotics.

Your surgeon will have explained that there is no guarantee that your surgery will be completed laparoscopically. Conversion to open surgery may be required due to problems with exposure, scar tissue from previous surgery, unexpected findings, or bleeding.

Laparoscopic surgery is a minimally invasive form of surgery that has been adapted to correct many urinary tract problems. Compared to "open" surgery, the smaller incisions usually result in less postoperative pain and a more rapid return to normal activities.

This publication is produced by

Canadian Urological Association
The Voice of Urology in Canada



Association des Urologues du Canada
La voix de l'urologie au Canada

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