

LAPAROSCOPY

Laparoscopy involves surgery using small scopes inserted through the skin. Sometimes referred to as “laser” surgery, or “keyhole” surgery, laparoscopy has been used for decades by gynecologists to diagnose and treat conditions such as endometriosis.

In the 1990’s, laparoscopy gained momentum with the general surgeons with the laparoscopic cholecystectomy, or gallbladder removal. This was truly revolutionary, and converted a three day hospital stay and an 8 inch incision into a day surgery with four 1/4 inch incisions.

Urologists at Regional Urology are now using laparoscopic therapies for:

- Kidney removal for cancer
- Kidney removal for benign conditions
- Cryotherapy (freezing) of kidney lesions
- Removal of kidney cysts
- Vaginal vault suspensions (Lifting a “dropped bladder”)
- Varicocelelectomy
- Adrenalectomy
- Stone Removal
- Reconstructive surgery for the urinary tract
- Partial nephrectomy

1, Kidney Removal for Cancer (Nephrectomy)

When the kidney has a large tumor, the patient may be deemed a candidate for kidney removal. This surgery, with the traditional techniques, requires an 8 - 12 inch incision either through or beneath the ribs. This generally requires a 3-5 day recovery time in the hospital.

With laparoscopic techniques, one of the two methods are employed, depending on the exact situation.

2. Hand-Assisted laparoscopic Nephrectomy (HALN) This technique is usually used for the masses of the kidney which are most likely malignant. This renders the same surgery as the open variety, with a fraction of the recovery.

For this surgery, a hand is actually inserted into the incision that will later be used for the removal of the kidney. With this hand used as an instrument, two 1/4 inch incisions are made, one by the belly button, and one under the ribs. The kidney and surrounding tissue are then dissected away from the body. Once this tissue is disconnected, it is removed through the incision, 3-4 inches long, in the patients’ groin. This allows a much quicker recovery, a much less painful incision, and equivalent cancer control to traditional surgery.

3. Partial Nephrectomy. With a laparoscopic partial nephrectomy, the patient has three or four 1/4 inch incisions. These incisions are used to place instruments which then extract the growth from the kidney. This growth is then removed from the body and tested to be sure all tumor is removed. Sometimes, it is combined with cryotherapy.

4. Kidney Removal for Benign Conditions (laparoscopic nephrectomy)

In certain situations, a kidney must be removed even when cancer is not suspected. Examples of this include kidneys which have ceased to function or kidneys which serve as a source of infection.

In this situation, the kidney is dissected free of the body by laparoscopic techniques, usually employing 3-4 1/4 inch incisions. The kidney is then removed through these incisions, and the patient is usually home the next day.

5. Cryoablation of Renal Tumors. When a small growth is detected on the kidney, the patient is faced with a fourfold decision:

6. a. Observe the growth over time b. Remove the entire kidney c. Remove a portion of the kidney d. Freeze the bad spot, and in so doing, kill it.

Cryoablation is the last of these options. To do this, three small (1/4 inch) incisions are made to introduce the instruments into the abdomen. The growth on the kidney is then approached utilizing and ultrasound to guide the dissection. Once the mass is exposed, a small needle is placed into it to obtain a biopsy. This allows us to determine exactly what the growth is- cancerous or benign. Since the results aren't always conclusive, the mass will always be frozen. This is somewhat analogous to a doctor freezing off a wart or skin tumor. Needles are placed inside the growth and argon gas under high pressure is introduced. This takes the temperature down below -70 degrees Celsius. The tissue is then thawed to body temperature, and the process is repeated.

Following the second thaw, the case is completed. The patient goes home that day or the following, and is back to normal activities within a couple of weeks.

7. Removal of Kidney Cysts. Cysts in the kidney are common, affecting >60% of the population. Normally, these cysts are no problem, but occasionally these cysts cause pain. When this happens, the cysts can be easily removed by a simple outpatient laparoscopic procedure.

8. Vaginal Vault Suspensions. One of the most effective methods of repairing a prolapse of the vagina is a sacrocolpopexy. This surgery employs a bridge made of a plastic mesh fabric. This mesh is attached to the top of the vaginal vault, then to the ligament overlying the sacrum, or tailbone. Usually, patients go home the next day. Recovery is the same as an open surgery, but the down time from surgery is much reduced.

9. Varicocelectomy. A varicocele is a condition similar to varicose veins. The veins draining the testes usually have a series of one-way valves so the blood returns to the heart from the testicle. Some men are born with valves that lack these valves. This allows the blood to flow backwards due to gravity. The result is blood accumulating in the veins of the scrotum. This causes pain, a mass in the scrotum, testicular atrophy (shrinkage), and even infertility. Time has shown us that the closer

to the heart one seals these veins, the better the chance of a permanent cure.

Laparoscopy allows a quick, day surgery approach to this problem. Three 1/4 inch incisions are required to introduce the instruments into the abdomen. The veins are sealed, and the body creates alternate routes to drain the blood from the testes. The old veins then get absorbed by the body. The end result-no varicocele.

10. Adrenalectomy. The adrenal gland is a small, chemical-producing organ that sits atop the kidney. On occasion, there may be need to remove one of these glands. The adrenal glands may grow benign tumors, which produce an excess of certain chemicals, or hormones. Less common are cancers of the adrenal glands. Due to the difficult-to-reach location of the adrenal gland, laparoscopy is an excellent technique to address this problem.

In the laparoscopic adrenalectomy, three or four small incisions are made. Through these, the offending problems is removed. Hospitalization is overnight, and the older method of making a 10-20 inch incision through the chest is replaced with a much quicker convalescence.

11. Stone Removal

Although not a common technique for removal of kidney stones, in certain situations laparoscopy can be beneficial for this condition. Laparoscopy can be used to remove a large stone from the area inside the kidney, known as the renal pelvis. This is referred to as a pyelolithotomy. Laparoscopy can also be used to remove a stone from the ureter-the tube which drains the urine from the kidney to the bladder. This surgery is a laparoscopic ureterolithotomy. Both of these surgeries are associated with either no hospital stay or a one night stay.

12. Reconstructive surgery for the urinary tract.

On occasion, there may be need to reconstruct part of the urinary system. One example which has been performed at Regional Urology is the pyeloplasty. In this surgery, the patient is born with a narrowing of the ureteropelvic junction. This simply means the tube that empties the kidney is too narrow for urine to drain normally. The cure is to excise the narrow portion and reconnect the good areas.

Another reconstructive surgery we have performed is the ureteroureterotomy. If the ureter, the tube between the kidney and the bladder, is damaged, say, by a stone or surgery, we can remove that damaged area, and similar to a pyeloplasty.

13. Partial Nephrectomy

While the "gold standard" for treatment of kidney cancer is still the radical nephrectomy, removal of the entire kidney, as time passes, we grow more accepting of the partial nephrectomy. This is somewhat analogous to a lumpectomy for breast cancer. The kidney tumor is removed along with a rim of normal tissue surrounding it. It is very important to realize that not every kidney tumor is a candidate for this procedure. The

growth must be of the right size and location in the kidney. Another important consideration is that this procedure is much harder on the patient than simply removing the entire kidney, so recovery is longer, and the rate of complications higher. In many patients, however, these risks are outweighed by the advantage of keeping as much good kidney tissue as possible.

In summary, the list of laparoscopic procedures is large and growing every day. While the answer for you may not be laparoscopy, you should always investigate the possibility. the main advantage is a much speedier recovery