How is a kidney removed?

There are usually three connections to the kidney: an artery (a blood vessel that carries blood from the heart to the kidney), a vein (a vessel that carries filtered blood from the kidney back to the heart) and a ureter (the drainage tube that carries urine to the bladder). Once the kidney is separated from everything around it, the ureter is clipped and cut. The artery is then doubly clipped and cut. Finally, the vein is clamped and cut. The kidney is then removed.

The surgery to remove a kidney can be done in one of three ways. Sometimes it is done through an incision along the side of the body over one of the lower ribs. This surgery requires a relatively large incision (8 – 10 inches) and it usually causes more pain and a longer period for healing than laparoscopic kidney removal. But in some situations, the open flank incision is best for removal.

Today we usually remove the kidney laparoscopically using a smaller incision in the abdomen. Hand-assisted laparoscopy is done by making a vertical incision near the belly button through which a hand is inserted to hold and then remove the kidney. One port (a tube through which instruments or cameras can be placed) about the size of an index finger and two ports about the size of a pencil are placed to the side of the incision.
Once the kidney is separated from everything around it, the artery and vein may be clamped to stop blood from flowing into the kidney temporarily. Part or parts of the kidney are then removed. The areas where tissue has been removed are closed. If the drainage system of the kidney is opened during the surgery, a stent [small plastic catheter about the size of a pencil lead] is placed into the ureter [the tube that carries urine down to the bladder] to prevent urine from leaking out of the kidney. The stent is held in place by a coil on each end, one end in the bladder and the other end in the kidney. This stent is usually left in place for a few weeks to allow the kidney drain system to seal closed. When it is time for the stent to be removed, your surgeon will take it out using an instrument somewhat like a pickle fork inserted through a small telescope placed in your urine channel.

Once the kidney has been removed, the surgical site is carefully examined to make sure there is no bleeding or injury to organs in the area. The incisions are closed by sewing the muscle tissue together with stitches that dissolve over about three-months. The skin is usually closed with stitches that will dissolve. Steri-Strips (small strips of adhesive tape) are then put crosswise over the incision line.

What are the possible complications of having a kidney removed?

Although we try our best to do everything possible to make the surgery safe, there are potential complications of the procedure. The most common complication of a laparoscopic kidney removal is called “conversion.” We cannot guarantee that every time we attempt to remove part of a kidney laparoscopically that we will be successful. Rarely, a situation arises in which it becomes necessary to make a larger incision, usually under the ribs, to take the tissue or mass out. When we try to remove part of a kidney, sometimes we find that the tumor is larger than expected and that it is safer to remove the whole kidney.

Anytime we operate around large blood vessels, there’s always a possibility of some bleeding. If bleeding occurs, a blood transfusion or a second surgery may be necessary. This is relatively uncommon. Infection is also possible following major surgery such as this. If an infection occurs following a kidney removal, antibiotics may be necessary. It might also be necessary to place a drain catheter or to perform a second surgery to drain an infection pocket.

Because other organs lie near the kidney, they need to be moved in order to remove the kidney. It is possible that those organs (the spleen, stomach, intestine, etc.) could be injured during the surgery. If so, a repair surgery would be required. This is quite rare. It is possible that the muscle tissue might not heal together following any surgery causing a hernia. If that happens, a hernia repair surgery would be necessary. Fortunately, this is very rare. If the entire kidney must be removed and something happened to the remaining kidney to cause it to fail. If this were to happen, then you would need to go on dialysis or receive a kidney transplant. This is extremely rare.
As with any major surgery, it is possible that a blood clot in the leg, a blood clot traveling to the lung, or pneumonia could develop following kidney donation. We take special precautions to try to prevent such complications. This includes having patients cough and take deep breaths regularly to keep the lungs opened up. We also encourage patients to walk starting the day following the surgery. Other more rare complications could also occur. If you have specific questions, please ask your surgeon.

**How long will I stay in the hospital?**

Most kidney patients are ready to leave the hospital 2 days after surgery. Of course, each patient is unique, so your hospital stay could be longer. When you are eating regular food, when your pain is controlled with pain pills and when you are able to do the physical activities necessary at home, you will be ready to leave the hospital.

**How much pain will I have? What can you do to control the pain? How long will the pain last?**

These are some of the most difficult questions to answer because each person experiences pain in a different way. Following your surgery, you will be given pain medicine through an intravenous line so you won’t need a shot. Your surgeon may order a computerized pump (Patient Controlled Analgesia or PCA). This will allow you to take a dose of pain reliever when you feel you need it. It is important that **only you use the pump**. We usually use PCA until the second day following surgery. Some patients will receive ketorolac (a strong cousin of ibuprofen) through an intravenous line for pain. Within one or two days after surgery we will start pain pills that you can take at home. Most people need to take pain medicine at home for 3-4 weeks following the surgery. However, because each person is unique, it is impossible to predict how long you’ll need to take pain pills.

**When will I be able to eat?**

Before your surgery you will take a strong laxative that will clean out your bowels. You will need to drink only clear liquids the day before surgery. This will make help keep your intestines away from the kidney during surgery. After surgery you can drink liquids if you feel up to it. Starting on the day after surgery you can resume your normal diet. Many patients notice that their appetite isn’t as strong for a few days following surgery.

**When can I drive again?**

We recommend that you not drive for three weeks following the surgery. We also recommend that you avoid driving until you no longer need narcotic pain medication.

**When can I go back to work?**

If your kidney was removed laparoscopically, you can probably return to work in about one month. If your kidney was removed through a flank incision, you should plan to take about 2 months off work. These are the average times for kidney patients. Some patients are ready to go back to work sooner and some are ready later than four weeks. You will need to listen to your body to know when you are ready. It may be helpful to return to work part-time or doing light work at first. If you need a letter for your employer, let us know.

**What physical activities can I do following the surgery?**

After you get home from the hospital, you should plan to do a little walking every day. Start slowly and gradually build up your endurance. If you overdo it, you will be sore. Listen to your body and use your head. Starting 2-3 weeks following the surgery, you may begin to do some stretching exercises that will help you to stay limber. Starting three weeks following the surgery, you may begin to do some light exercise. Gradually build up your exercise plan over the next four weeks.

One of the most frustrating things that patients complain about is lack of energy. Major surgery takes a lot out of a person. When you think about spending 3-4 weeks at home, away from work, you will probably think of some projects around the house that you’d like to finish such as cleaning out a closet, organizing the garage, doing some yard or housework, etc. We advise you to put all those plans on hold for a while. It will be better for you to plan to read some good books, watch movies, listen to music or try some low energy hobbies. Plan to do things that will keep your active mind busy while your body is healing.

**When can I shower?**
You can take a brief shower (5-10 minutes) starting two days following the surgery. You may let the water run over the incision. One week after your surgery, you can stay in the shower or bath as long as you like.

**How long will it take before I feel “normal?”**

Most kidney patients tell us that it takes approximately 6-10 weeks before they feel back to “normal.” Remember, there is a lot of variation from one person to another. Don’t get discouraged if you don’t feel back to 100% six weeks following your surgery.

**Will I need to eat a special diet after the surgery?**

No. You can eat anything you would like. Of course, we recommend that you eat a healthy diet including plenty of fresh fruits and vegetables.

**Can I drink alcohol?**

Yes. As with your diet, we recommend moderation.

**What about sex?**

As with other physical activities, you should take it slowly. Wait until you’re ready and don’t overdo it. Listen to your body. You may want to try some non-intercourse sexual activities until you’re feeling better.

**What if I have other questions?**

We’re happy to answer all of your questions. It may be best to write down questions as you think of them. Please call your surgeon with any questions you may have.

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