

removed. Occasionally, some fragments may remain and your doctor may decide to perform another procedure. Some fragments may be so small that they will likely pass on their own.

Recovery from percutaneous stone removal is usually rapid. Patients may return to normal but not excessively strenuous activity as soon as they leave hospital. Return to work is often possible within a week after discharge from hospital.

Major complications from PCNL are uncommon, but, potentially, these can be serious. Possible complications include:

- Injury to other organs, particularly the bowel
- Major bleeding requiring blood transfusion or additional procedures for control
- Infection
- Collection of fluid in the chest requiring drainage

You may be asked to take antibiotics for a period of time after percutaneous stone removal. A follow up visit with your urologist will be recommended. At that time you will have X-rays to determine if there are any residual stones.

Conclusion

PCNL is a surgical procedure to safely remove large stones from the kidney through a small skin incision allowing more rapid recovery.

Your percutaneous nephrolithotomy procedure has been scheduled for:

Day: _____

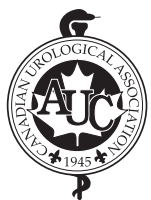
Date: _____

Time: _____

Location: _____

Notes: _____

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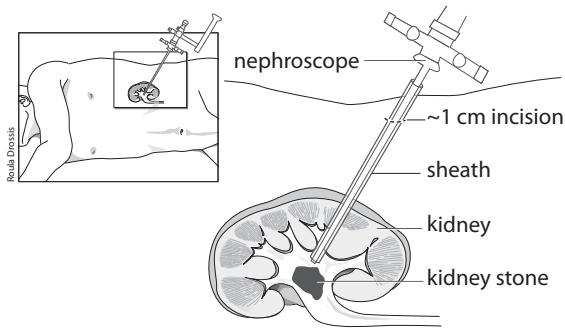
Percutaneous Nephrolithotomy



A percutaneous nephrolithotomy is a surgical procedure to remove kidney stones through a “keyhole” incision.

Percutaneous nephrolithotomy (PCNL) is a surgical procedure in which kidney stones are removed using a scope passed through a small skin incision made in the flank or the back into the kidney.

The procedure is usually recommended for patients with kidney stones that are too large or numerous for shock wave lithotripsy, in which stones are broken up non-surgically. The procedure involves two major steps. The first is establishing a tract or access path into the kidney containing the stones, and the second is stone fragmentation and removal using special operating instruments.



Before the procedure

The risk of bleeding is increased in patients taking blood thinners, aspirin, some arthritis medications or many herbal supplements. These drugs must be stopped prior to surgery. Please discuss this with your doctor.

Pre-operative antibiotics may be recommended. Your urologist may require special X-rays prior to the procedure to help with planning how to reach and remove all of your stones.

Establishing the tract (access)

PCNL first requires developing an access or channel through the skin to the kidney allowing the introduction of surgical instruments. There are different methods of establishing this access into the kidney. In some cases, this part of the procedure is performed under local anaesthetic (“freezing”) by a specialist in the X-ray department prior to the stone removal procedure. Otherwise, this part of the procedure can be performed at the same time as the stone removal procedure, usually under general anesthesia (you are “put to sleep”).

This access is often obtained by first passing a thin needle into the kidney. Once this access is performed a wire or drainage tube will be left until the second part of the surgery takes place. Some surgeons prefer to gain this access from inside-out by passing a thin needle under x-ray control through the bladder up to the kidney and out through the skin. In some cases, more than one access tract is required to reach all of the stones.

Stone removal

In the operating room, the access tract is stretched to allow the introduction of surgical instruments. Once the tract is dilated up to about one centimetre (less than half an inch) a plastic sheath is then placed into the kidney. An operating scope (nephroscope) is then passed through the tube into the kidney on to the stone(s). Small stones can be removed with a grasper. Larger stones need to be broken up before they can be removed. An attempt is made to remove all of the stones. In some patients this may not be possible and may require additional treatment.

Once stone removal is complete, a small tube may be left in the kidney, through the access tract to allow urine to drain. This tube usually can be removed in a few days. In some, temporary kidney drainage is obtained with an internal drainage tube known as a **ureteric stent** running from the kidney to the bladder. A bladder drainage catheter may be left for a few days.

After your surgery

A hospital stay of one to three nights is usually all that is required. In some patients a longer hospital stay is necessary. An x-ray may be performed during your stay to determine if all the stones have been