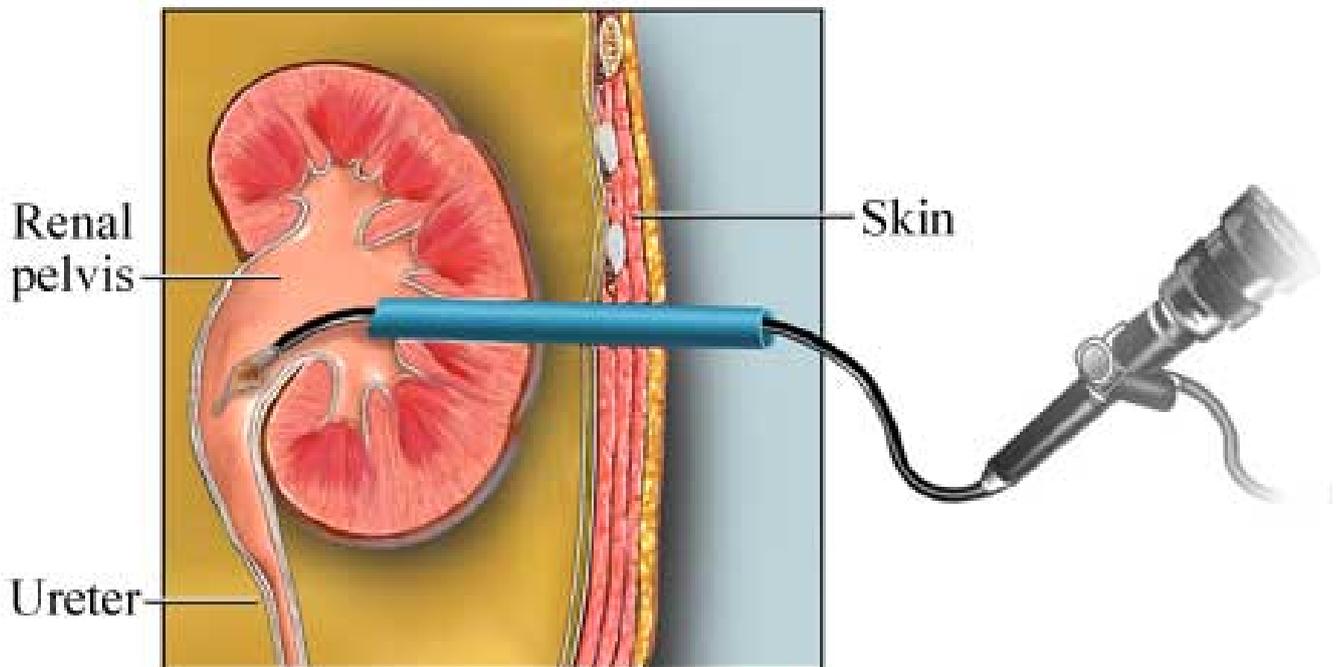




## Percutaneous Nephrolithotomy (PCNL) Including Mini-PERC (mini PCNL)

### Percutaneous Nephrolithotomy



### What is it?

**Percutaneous NephroLithotomy (PCNL)** is the preferred technique for treating larger kidney stones (over 2cm in diameter) located within the kidney. It involves keyhole surgery that is performed through a 1cm incision in the skin (*see diagram*). A **mini-PERC** is similar in approach, but represents a refinement in the technique due to having smaller cameras, better stone lasers and specialized tools. The incision that is made in the skin is much smaller and allows for quicker patient recovery and results in a safer procedure.



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## What are the advantages?

- Allows for large or complicated stones to be treated in a minimally invasive fashion, which in the past this would have necessitated a large incision, and longer hospital stay.
- Hospital stay is now 2-4 days, and the out of hospital recovery time is significantly shorter than the traditional open surgical approaches.
- Quicker return to work.

## What are the disadvantages?

- Compared to traditional techniques in dealing with large complex stones, there are no disadvantages.
- Improvements in techniques and equipment have allowed this type of surgery to be carried out more safely amongst subspecialty trained surgeons.

## What preparation is required?

You will be required to have specific imaging to allow the surgeon to “roadmap” the stone in more detail. This allows the surgeon to obtain 3-dimensional relationships of the stone within the kidney; and also mark out the nearby structures surrounding the kidney so they can be avoided. This will enable the surgeon to plan the best access point(s) into the kidney to allow effective stone clearance.

As the procedure is performed under general anaesthesia, you should have nothing to eat or drink for 6 hours prior to treatment. Regular medications can be taken with a sip of water with the **exception** of blood thinning agents (eg. warfarin, aspirin, clopidogrel) or non-steroidal anti-inflammatories which need to be stopped for 7-10 days. Your doctor will advise you regarding your specific circumstances. A mid-stream urine (MSU) test is required to ensure the urine is sterile before treatment is undertaken. Other tests required may include kidney function studies, full blood count, and a clotting profile. These tests will all be organized at the time of consultation.

## What are the risks?

This form of surgery is low risk if performed by a urologist who is specifically trained in this technique, and aided by meticulous pre-operative planning. The **specific risks** are uncommon but include infection, excessive bleeding (necessitating blood transfusion 5%, angio-embolisation 1%, or open renal exploration 0.5%), and adjacent organ injury (spleen, liver, bowel, lung, and diaphragm).

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## What do I need to bring to surgery?

- All related available imaging such as x-rays, CT scans, and/ or kidney ultrasound
- Your usual medications

## What happens in the operating room?

The operation is performed under a general anaesthetic and lasts approximately 2 to 3 hours. It is a team effort requiring coordination between your surgeon, anaesthetist, radiographer and theatre nursing staff. You will be positioned on the operating room table lying on your front “stomach” for the duration of the surgery. The procedure is accomplished with the assistance of x-ray imaging or ultrasound to guide the entry of a hollow tube into the kidney. This provides access into the kidney drainage system allowing telescopes, laser fibres, and stone grasping instruments to visualize, fragment and remove kidney stones. A drainage catheter (nephrostomy tube) which exits through the skin maybe left in the kidney at the end of the procedure.

## What to expect afterwards?

You may have a temporary catheter called a nephrostomy tube draining urine from the kidney, as well as a urethral catheter draining urine from your bladder. These catheters will be removed prior to your discharge from hospital. The urine may be bloodstained for up to a week after discharge and this should not alarm you provided it is not getting heavier. Medical imaging is performed immediately following surgery to assess stone clearance. Your hospital stay will be usually on average be 2-4 days. Occasionally, further follow-up day surgery is required using flexible pyeloscopy and laser to clear any remaining stones to achieve complete kidney stone clearance.

## Follow-up

You will be required to take it easy during the recovery phase for several weeks. There should be only minimal wound discomfort after discharge. Oral antibiotics will be given for a further five days to prevent infection. It is important to inform us if you feel unwell with fevers, chills, or develop heavy bleeding in the urine. Your initial follow-up will be in 6 weeks after discharge. Occasionally, a double J ureteric stent is left to ensure the urine drains correctly into the bladder. This will be removed at a later time once your surgeon is happy all the stones have been cleared.

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