

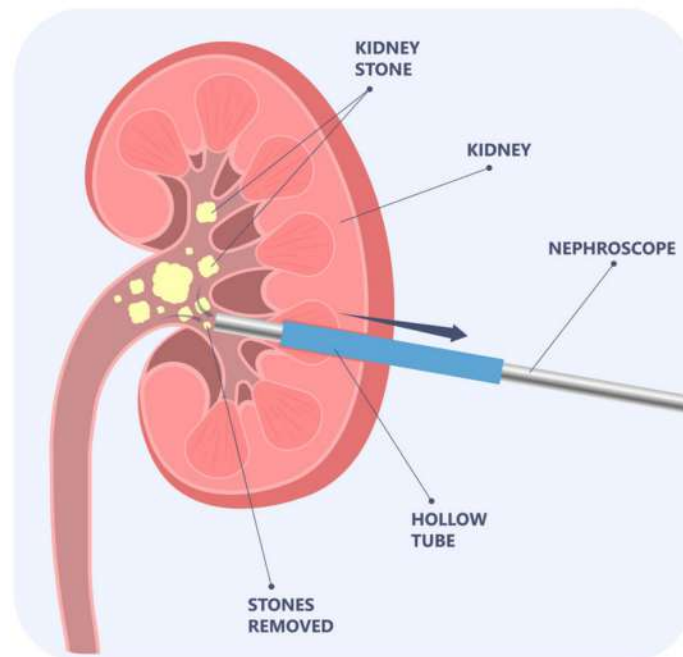
# Percutaneous Nephrolithotripsy (PCNL)

## What is PCNL?

- PCNL is a surgery for the treatment of:
- Large / complex stones within the kidney and/or upper part of the ureter

## Why Do I Need This Surgery?

- Stones in the kidney or upper ureter can cause pain, blockage and kidney damage. PCNL helps to clear these stones, preventing further complications.



**PERCUTANEOUS NEPHROLITHOTOMY**

## What Are The Preparations?

Before the procedure you will need to undergo an assessment by the anaesthetist, who will determine if you are fit for general anaesthesia.

You will also need to stop any blood thinning medications that may increase your risk of bleeding. This may range from 5-10 days depending on the medication. Please inform your doctor if you are taking any blood thinning medications.



You will also need to fast 8 hours before the procedure.



This procedure involves the breaking down of urinary stones into small pieces, so that they can be removed through a small cut in the skin under direct camera vision. It is performed under General Anaesthesia.

A thin camera is inserted into your urine passage (urethra) and a fine temporary tube is placed in your ureter to help with the surgery. You will then be positioned in a face-down (prone) position after undergoing General Anaesthesia.

Under X-ray and/or ultrasound guidance, a small needle is inserted through the skin to enter your kidney to gain access to the stone(s). The stones are then broken down using laser, a small pneumatic drill, or an ultrasound suction probe.

## **What Are The Risks and Complications of the Surgery?**

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### **Occasional Complications (2 - 5%)**

- Bleeding requiring blood transfusion
- Fever / infection after surgery
- Incomplete stone clearance may require further procedures

### **Rare Complications (<2%)**

- Urine leak around the kidney (urinoma), which may need further procedure for drainage
- Significant infection (sepsis)

### **Extremely Rare But Serious Complications (<1%)**

- Injury to surrounding organs e.g. intestines, lungs, liver, spleen which may require further surgery or procedures
- Major damage to blood vessels to the kidney requiring emergency surgery for removal of the kidney

### **Risks of General/ Regional Anaesthesia**

- Stroke (cerebrovascular accident)
- Heart attack (myocardial infarction)
- Abnormal heart rhythms (cardiac arrhythmias)
- Clot in leg vein(s) (deep vein thrombosis)
- Clot in lung blood vessels (pulmonary embolism)

## What Would I Expect After The Surgery?

You will have a tube (nephrostomy) from your back that will drain urine directly from the kidney, as well as a urine tube (catheter) that drains urine directly from the bladder. A ureteric stent (soft tubing that is placed in the ureter) may be inserted as well. An X-ray will be performed on the first day after the operation to assess outcomes.

It is expected to have pain at the nephrostomy site as well as at the urine passage where the catheter drains. These will be removed before you are discharged from the hospital. It is expected to have blood in the urine for several days thereafter, which will resolve with adequate fluid hydration and time.

Fever may occur after the operation, especially if there was a large amount of stones. You may need to stay longer in hospital for antibiotics until the fever resolves. In uncomplicated PCNL, you can expect to stay in hospital for 1-3 days after the procedure.

Do not restart your own blood-thinning medications immediately unless you have been instructed to do so by your doctor. It is generally safer to restart your blood-thinning medications after witnessing at least 5 days of clear urine.



## What are the Options?

Your doctor will discuss with you regarding your options.

These include:

- Observation, in which monitoring of your stones is performed, sometimes with interval scans
- Extracorporeal Shockwave Lithotripsy (ESWL), in which “shockwaves” are delivered through your skin to break up the stones
- Retrograde Intra-Renal Surgery (RIRS), which involves the insertion of a flexible camera lens into the kidney and ureter under general anesthesia to break up the stones by laser
- Open or key-hole surgery, which is usually reserved for very complex stones that even PCNL cannot handle.

## What Will Happen If I Do Not Undergo the Surgery?

Large kidney stones that remain untreated may cause pain and infection. Many studies have shown that patients with large kidney stones have progressive kidney damage from recurrent infections.

This progressive kidney damage is associated with significant morbidities and a higher mortality rate.



Contributed by Urology

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