

## Introduction

Urinary stones are reached directly by endoscopy. Laser or pneumatic lithotripsy is applied through the endoscope. Stone fragments are removed through the endoscope by instruments or allowed to pass spontaneously. Different methods of approaching the stone are employed according to the location of the stone.

1. **Ureteroscopic Lithotripsy:** suitable for ureteric stone especially those located at distal ureter.
2. **Percutaneous Nephroscopic Lithotripsy:** It is suitable for big renal stone and upper ureteric stones.

This procedure may be performed in more than one session or in combination with other treatment like Extracorporeal Shock Wave Lithotripsy depending on the type and the size of the stone. This is a less painful procedure compared with the traditional open surgical method and allows a rapid recovery.

## The Operation

### 1. Ureteroscopic Lithotripsy:

This is usually done under spinal or general anaesthesia. A fine semirigid or flexible fiberoptic ureteroscope is introduced into the affected ureter via the urethra and bladder. The stone is identified and broken down. The fragmented stones are removed by using either a basket or forceps depending on the size and site of the stone. A ureteric drain may be inserted according to the individual condition. No external wound is created. Most patients can be discharged a few hours after the procedure.

### 2. Percutaneous Nephroscopic Lithotripsy:

This is done under general anaesthesia. The affected kidney is punctured to allow the introduction of nephroscope into the pelvicalyceal system. The stone will then be fragmented and removed through the nephroscope. A nephrostomy tube is inserted to allow urine drainage.

## Preoperative Preparation

1. Admit 1 day before or on same day of this “elective” operation.
2. Anaesthetic assessment. **Inform your doctors** about drug allergy, your regular medications or other medical conditions.
3. Keep fast for 6 to 8 hours before operation.
4. Empty bladder and change to operation clothes before transfer to operating room.
5. Pre-medication, antibiotic prophylaxis and intravenous line may be required.
6. Relevant blood and urine tests together with radiological examinations.
7. Anticoagulants and aspirin may have to be stopped.
8. A written consent is required.

## Postoperative Instruction

### General

1. Mild throat discomfort or pain because of intubation.
2. Mild discomfort or pain over the operation site. Inform nurses if more analgesics are required.
3. Nausea or vomiting are common after general anesthesia. Inform nurses if symptoms severe.

### Wound care

For Percutaneous Nephroscopic Lithotripsy:

1. Urethral catheter is usually removed one day after the surgery.
2. Nephrostomy tube will be removed according to the postoperative course.
3. Wound will heal up about one week after removal of the nephrostomy tube.

### Diet

Drink 3-4 liters of water per day (to increase the urine output to 2-3 liters a day) to facilitate the passage of stones.

**Common Risks and Complications** (not all possible complications are listed)**Anesthesia related complications**

1. Cardiovascular: myocardial infarction or ischaemia, stroke, deep vein thrombosis, pulmonary embolism, etc.
2. Respiratory: atelectasis, pneumonia, asthmatic attack, exacerbation of chronic obstructive airway disease.
3. Allergic reaction and shock.

**Procedure related complications**

1. Ureteroscopic Lithotripsy
  - a. Voiding difficulty and voiding of blood stained urine if an ureteric stent is inserted.
  - b. Pain over the loin, lower abdomen for the first few days after the procedure is expected.
  - c. Urinary tract infection.
  - d. Perforation of ureter.
2. Percutaneous Nephroscopic Lithotripsy
  - a. Voiding of blood stained urine.
  - b. Pain induced by the nephrostomy.
  - c. Urinary tract infection.
  - d. Perforation of the renal pelvis (<0.1%).
  - e. Massive bleeding due to renal vessels damage.

**Things to take note on discharge**

1. Please comply with the medication regime as prescribed by your doctor.
2. It is advised to drink 3-4 liters of water per day to increase the urine output to 2-3 liters a day. This will facilitate the passage of stones.
3. Stone formation may be prevented by a well balanced diet of high fibre, low salt, low fat and low sugar.
4. Follow up according to schedule.
5. Seek medical advise if persistent fever, loin pain or voiding difficulty.

**Remarks**

This is general information only and the list of complications is not exhaustive. Other unforeseen complications may occasionally occur. In special patient groups, the actual risk may be different. For further information please contact your doctor. Evangel Hospital reserves the right to amend this leaflet without prior notice. We welcome suggestions or enquiries on the information provided in this leaflet. Please contact our Healthcare professionals so that we could follow up and make improvement.

**Reference**

S.H. Ho Urology Centre, The Chinese University of Hong Kong: "Intracorporeal Lithotripsy" (2021)  
<https://urologycentre.com.hk/en/diseases/detail/intracorporeal-lithotripsy> (20-07-2023)