


You have been booked for a


Ureteroscopy Kidney/ureter Stone Removal




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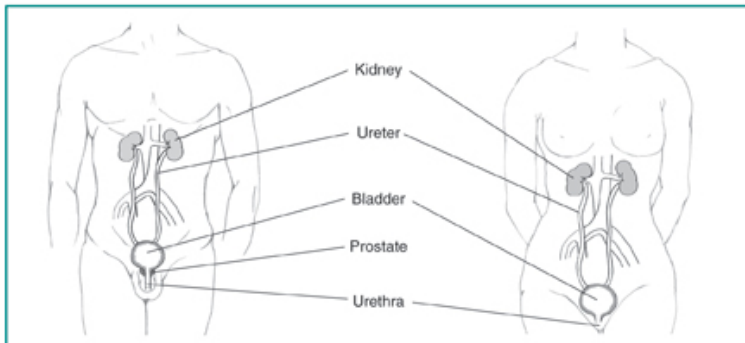
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UROLOGICAL SOCIETY OF
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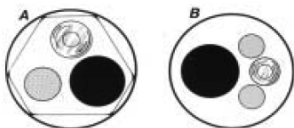
WHAT IS A URETEROSCOPY?

Ureteroscopy is an examination or procedure using a ureteroscope. A ureteroscope is an instrument for examining the inside of the urinary tract. A ureteroscope is longer and thinner than a cystoscope and is used to see beyond the bladder, into the ureters, the tubes that carry urine from the kidney to the bladder. Some ureteroscopies are flexible like a thin, long straw (flexible ureterscope). Others are more rigid and firm (rigid ureterscope).



Ureteroscopy is used to remove kidney or ureteric stones and/or to have a direct view of ureter and kidney to confirm or rule out malignancies.

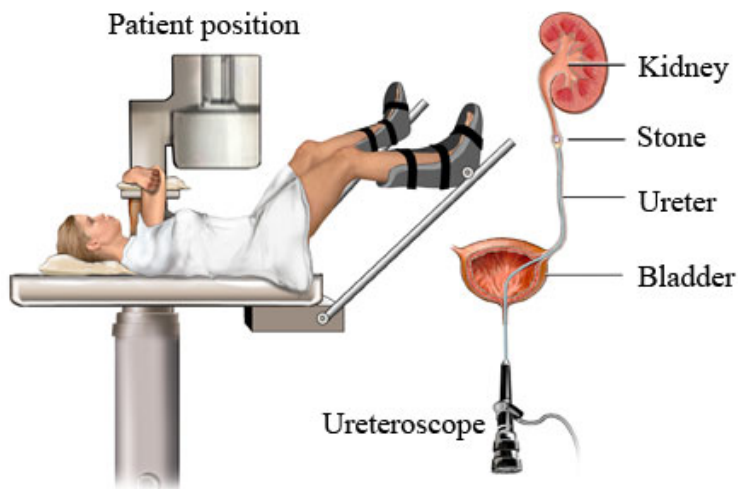
Rigid cystoscope and
Flexible ureterscope



Ureteroscopy is a routine procedure performed by urologists. The most common indication for ureteroscopy is to treat upper urinary tract calculi, particularly those that are either unsuitable for extracorporeal shockwave lithotripsy or are refractory to that form of treatment.

Other common indications include evaluation of an abnormal lesion revealed by less invasive imaging tools (eg, intravenous urography (IVU), MRI, CT scanning) or localisation of the source of positive urine culture or cytology results.

Thus, ureteroscopy is often an essential part of the diagnostic algorithm and can also be used to treat the underlying disorder.



The reasons for a ureteroscopy include the following conditions:

- Frequent urinary tract infections
- Find the cause of symptoms such as blood in the urine (haematuria).
- Unusual cells found in a urine sample, to confirm or rule out malignancies.
- Urinary blockage caused by an abnormal narrowing to the ureter.
- A kidney stone in the ureter or kidney
- An unusual growth, polyp, tumour or cancer in the ureter or collecting system of the kidney.
- Remove tissue samples for biopsy
- Remove foreign objects.

WHAT ARE THE ALTERNATIVES?

Depending on your symptoms and circumstances, other tests may be suitable for examining your upper urinary tract.

Other treatment options include:

-ESWL (extracorporeal shockwave lithotripsy): this is suitable mostly for stones of a certain size in upper ureter and kidney. It can be used for stones in the lower ureter near the bladder; however, ureteroscopy tends to be the chosen modality by many urologists.

-PCNL (percutaneous nephrolithotomy): this involves making a small incision in the back and passing a tube through the kidney to remove stones in the kidney and upper ureter. It is more invasive than ureteroscopy.

-Laparoscopic or open surgery: This is as effective as ureteroscopy, but involves making several incisions and needs a longer hospital stay. There is a greater risk associated with this modality, therefore this modality is considered as a last resort.

-Observation to allow spontaneous passage of the stone when the stone is small, non obstructive and non infective and the patient is asymptomatic.

CONTRAINDICATIONS TO URETEROSCOPY

Urinary tract infection, urosepsis,

Uncorrected bleeding diathesis.

Contraindications for lithotomy position.

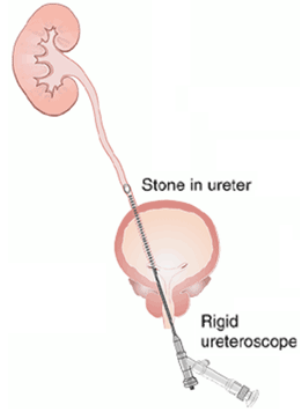
WHAT SHOULD I EXPECT BEFORE THE PROCEDURE?

You will usually be admitted on the same day as your surgery, but often is as an emergency as a result of the stone causing obstruction to the kidney.

You will normally receive an appointment for pre-assessment before or the day of your admission to assess your general fitness. Please, be sure to inform your Urologist and

Anaesthetist in advance of your surgery if you have any of the following:

- an artificial heart valve
- a coronary stent
- an artificial joint
- an artificial blood vessel graft
- a neurosurgical shunt
- A previous or current MRSA infection.
- a prescription for Warfarin, Aspirin, Clopidogrel (Plavix), Proxal or any other blood thinner



Ureteroscopy is performed under general or spinal anaesthetic. Patients are advised not to eat food for 6 hours before the planned operation time.

Urine is tested by nurses to determine whether a urine infection is present. Antibiotics are administered at the time of the operation, but may be started a few days earlier if there is concern about bacterial infection.

Imaging in the form of X-ray, ultrasound or CT scan may be required just before the operation to confirm the exact anatomical position of the stone. You should expect to be in hospital for at least the day, but most of the times, an overnight stay is required.

In some cases, a second or third procedure is required to complete the treatment so be aware that this is unlikely to be the only intervention.

Because any medical procedure has small risk of injury, patients must sign a consent form before the test once your doctor explains to you complications and alternatives to the procedure. In case you have any doubt, please contact with your doctor or his office.

WHAT DOES THE PROCEDURE INVOLVE?

A telescope is inserted into the bladder through the water pipe (Urethra). Under x-ray screening a flexible guidewire is inserted into the affected ureter up to the kidney. A longer telescope (either rigid or flexible) is then inserted into the ureter and passed up to the kidney. The stone is disintegrated using a mechanical probe or laser and the fragments extracted with special retrieval devices. A ureteric stent may be left in place, and rarely a bladder catheter will be left in. if a stent is left in, you may need another operation, flexible cystoscopy under local to remove it in 2 or 3 weeks. This is a minimally invasive procedure that makes use of natural channels in the body.

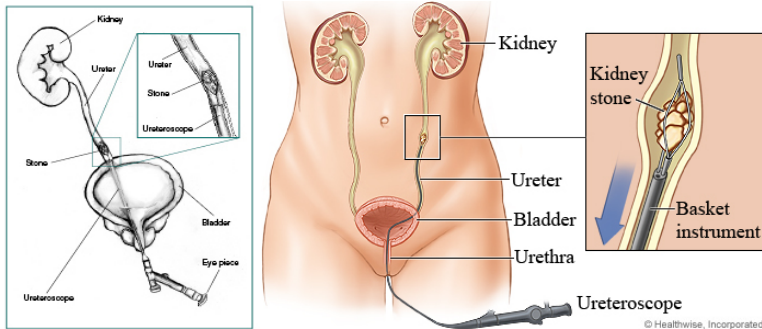
Cystoscopy and Retrograde Pyelography

After cystoscopy a retrograde pyelography (injection of contrast to visualize the upper urinary tract with the x-rays) is

done to evaluate the anatomy of the upper urinary tract and to review the indications for ureteroscopy. With help of a ureteral catheter, a guide wire is inserted up to the renal pelvis.

Endoscopic instruments for Ureteroscopy

Rigid ureteroscopes look like a long thin cystoscope, they have usually non-interchangeable lenses with 0–10 degrees angle of view. The working channel is 5 CH wide, there is a connection for inflow and outflow of irrigation. The thickness of a rigid ureteroscope is between 6–9 CH, thin at the tip with a gradual increase in diameter. Technical refinements have enabled semiregide ureteroscopes with 5–7 CH in diameter.

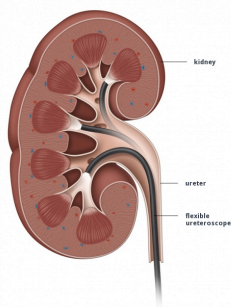
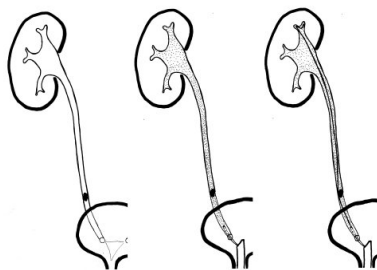


Flexible ureteroscopes are 8–10 CH in diameter, the working channel is thinner (CH 3) than in rigid ureteroscopes. Modern flexible ureteroscopes have a additional channel for irrigation. The tip of the flexible ureteroscope can be actively controlled with deflection up to 270 degrees .

Pyeloscopy

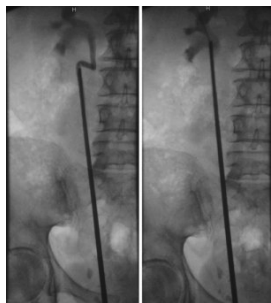
Pyeloscopy is where a thin fibre-optic telescope is

introduced into the kidney from the bladder via the urethra. The diameter of the instrument is less than 3 mm and allows visualization of the entire kidney drainage system due to the flexible nature of the scope. It contains a small instrument port which allows the introduction of laser fibres (0.3 mm diameter) to efficiently fragment stones, and micro-baskets (less than 1 mm wide) to retrieve stone fragments. Kidney stones up to 2 cm in size can be treated using this approach.



What is the difference between rigid and flexible ureteroscopy?

Rigid ureteroscopy is performed with a rigid telescope. As such, it looks only in a straight line. Flexible ureteroscopy is performed with a very thin and flexible telescope that can perform almost a 180° turn and look back on itself. It is



sometimes known as flexible ureterorenoscopy, because it is possible to look into various parts of the inside of the kidney. Using a laser, stones can be

vapourised and removed with a basket. Flexible ureteroscopy tends to be used for stones in the kidney and near the kidney in the upper ureter. Rigid ureteroscopy is mainly used for stones in the lower and mid ureter closed to the bladder.

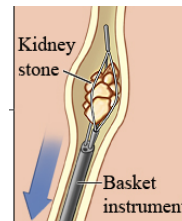
Ureteroscopic Treatment of Urolithiasis

Extraction of ureteral stones with grasping forceps:

Small ureteral stones can be easily extracted with grasping forceps

Extraction of ureteral stones with dormia baskets:

Ureteral stones, which are small enough to be extracted completely, can easily be removed with Dormia Baskets



Lithotripsy of ureteral stones:

Larger ureteral stones cannot be extracted in toto, they need a lithotripsy in the ureter. Afterwards, the fragments can be removed. The following possibilities for ureteroscopic lithotripsy exist:

- Electromechanical lithotripsy (e.g. Lithoclast)
- Electrohydraulic lithotripsy (EHL)
- Holmium laser lithotripsy

Laser lithotripsy has the advantage of minimizing the trauma to the ureter and to reduce the stone dislocation during the lithotripsy.

Ureteroscopic Treatment Options for Strictures and Tumours

Ureteroscopic biopsy:

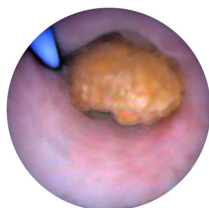
Biopsies should be taken from tumours or strictures of unknown etiology. The amount of resulting tissue with ureteroscopic biopsy is very small. Multiple biopsies are necessary, to obtain a reliable diagnosis.

Ablation of ureteral tumours:

Endoscopic palliative/curative treatment of ureter or renal pelvis tumours is possible with ureteroscopic resectoscopes. Alternatively, tumour ablation is possible using laser coagulation.

Ureteroscopic incision of ureteral strictures.

After retrograde (or antegrade) pyelography and insertion of a guide wire, the stricture is cut under endoscopic vision. A full thickness cut through the ureteral wall is done until the periureteral fat can be seen. Visualization is possible with retrograde (URS) or antegrade (nephroscope) techniques. Different technical solutions exist for the ureterotomy: cold knife (without cauterization), laser fibers (holmium or Neodym: YAG).



Stone treated with laser in the ureter

Stenting of the ureter

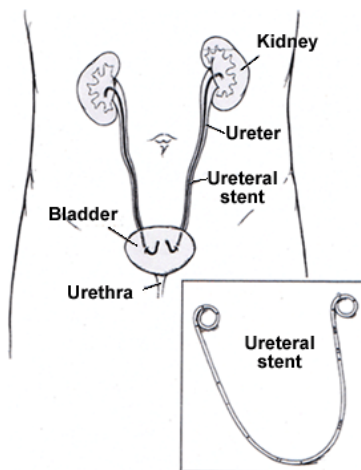
After ureteroscopy, especially after longer manipulation, the placement of a JJ ureteral stent (between the kidney and the bladder) is necessary for 2–4 weeks. This is necessary because the ureter swells and can obstruct the flow of urine from the kidney to the bladder. Most of the times a JJ stent is left into the ureter to decrease the pain and discomfort after the operation.

Sometimes a JJ stent is not used, but a special designed thin catheter that passes all the way up to the kidney and passes out through the urethra into a collecting bag. This is usually present for a day or so, and is removed easily by pulling it out.

A catheter may be used to drain the bladder and this does not usually need to stay more than 24 hours.

Important

If a JJ stent was inserted, it will need to be removed usually in outpatients with the aid of a flexible cystoscope under local anaesthetic. Occasionally, it is removed under general anaesthetic, especially if a contrast study is required to ensure you are stone free.



What to expect post ureteroscopy?

The procedure is minimally invasive but may cause some discomfort or pain immediately after surgery. You will be given pain relief as needed.

For several hours after the procedure you may have a burning feeling when you urinate. This feeling should go away within a day. Drinking a lot of water can help reduce the burning. Your doctor also may recommend you take medicine to numb the burning (Ural Sachets)

Often the urine will appear red because there will be blood present. This is normal and should not raise alarm, can last for 2 or 3 days

Antibiotics will commonly be given after the procedure to prevent infections.

When the catheter is removed, there may be some symptoms if a JJ stent has been inserted. These may include:

- the need to pass urine more frequently
- discomfort felt in the bladder area and in the kidney area in the back when passing urine.
- blood in the urine especially when physically activities.

Such symptoms are usually transient, but if are bothersome may need review by a doctor especially if there is a fever present.

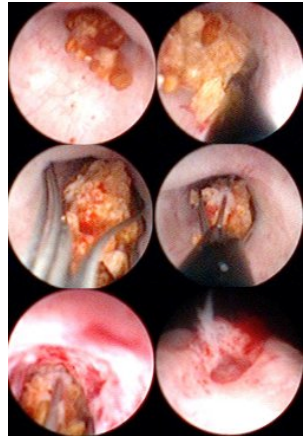
At some point after the procedure, either a plain X-ray or CT KUB may be requested. This is used to determine if the stone is still present or not.

If the stone has been pushed up to the kidney, then ESWL or flexible pyeloscopy is usually the next treatment to fragment the stone.

What are the success rate of ureteroscopy?

The success rate of ureteroscopy is over 95% for the majority of the stones that are treated this way. Success depends:

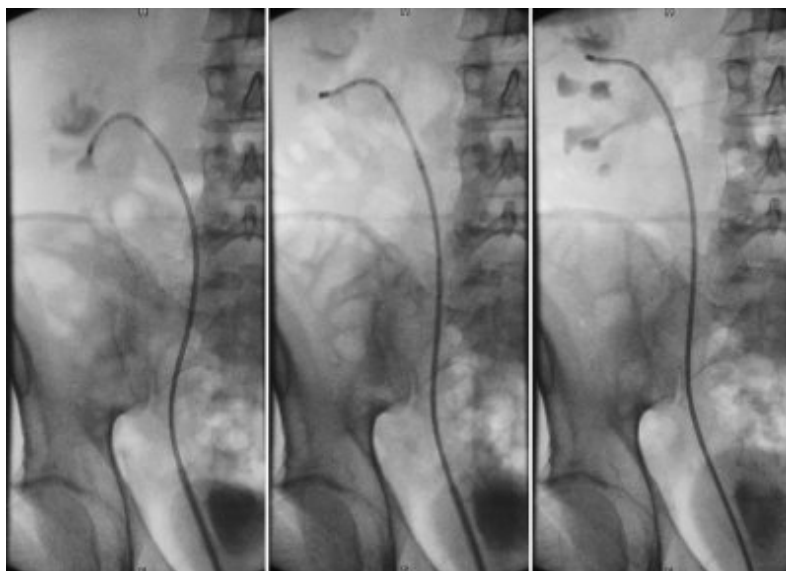
- whether there is 1 or more stones present
- how long the stone has been stuck
- the size of the stone
- the location of the stone (where in the kidney or ureter)
- whether you have had previous surgery on the kidney.
- the experience of the urologist treating you.



It may not be possible to reach the stone on the first attempt with the ureteroscope because of severe swelling that occurs when a stone is present at the ureter. In that situation, a JJ stent may be placed in the ureter. With a JJ stent in place, urine can drain from the kidney to the bladder and the ureter expands

in size. As it becomes wider, it is easier to pass the ureteroscope up to the stone and remove

Sometimes if the stone is very large, it may not be possible to remove the stone in one session and a second procedure may be necessary. On other occasions, small stone fragments or the whole stone may pass up into the kidney. If a flexible ureteroscope is available, this can be passed up into the kidney and the fragments removed or broken with laser.



CONSENT AND RISKS

A consent form is a legal document, recognizing your willingness to proceed with the intended treatment you are required to sign a consent form for the operation once you fully understand the reason for the operation and the risk involved.

All the operations have risks associated with them. All risks should be discussed with your doctor. You should understand the procedure and any available alternative treatment discussed.

RISKS

Complications are uncommon with this test

Common (greater than 1 in 10)

Bleeding or mild burning when passing urine for a short period after the operation

Temporary insertion of a bladder catheter

Insertion of a stent with a further procedure to remove it.

The stent may cause pain, frequency and bleeding in the urine

Occasional (between 1 in 10 and 1 in 50)

Inability to retrieve the stone or movement of the stone back into the kidney

Kidney damage or infection needing further treatment

Failure to pass the telescope if the ureter is narrow.

Failure to retrieve the stone, an alternative method could be necessary.

Recurrence of stones.

Urinary infection requiring antibiotic treatment.

Rare (less than 1 in 50)

Damage of the ureter with need for open operation of tube placed into the kidney directly from back to allow any leak to heal.

Very rarely, scarring or stricture of the ureter requiring further procedures.

What should I expect when I get home?

When you leave hospital, you will be given a draft discharge summary of your admission. If, in the first few weeks after your discharge, you need to call your GP for any reason or attend another hospital, please, take this summary with you to allow the doctors to see the details of your treatment.

When you get home, you should drink twice as much fluid as you would normally to flush your system through and minimise any bleeding.

You may experience pain in the kidney over the first 24-72 hours, due to the swelling caused by insertion of the instrument or by the presence of a stent. Anti-inflammatory painkillers will help this pain, which normally settles after 72 hours.

It will take at least 10 days to recover fully from the operation. You should not expect to return to work within 7 days.

You may find that the ureteric stent, the lower end of which sits in the bladder, caused some pain when you pass urine and you may also see blood in the urine as a result of the stent. The stent can also cause you to pass urine more frequently than you would do normally. These symptoms will settle once the stent has been removed.

Facts about ureteroscopy:

-typical operative time : 1 hour

-Usual hospital stay: overnight

-average number of days before going to work 7 days

-average number of days before feeling back to normal 15.6 days

(Data from study: Pearly and colleagues, Journal of Urology 2005)

Total recovery time

Driving can be resumed within 24 hours of a general anaesthetic, but be wary of abrupt movement whilst driving

Normal daily activities may be resumed on discharge

Sexual activity, physical activities may resume when you are comfortable

Normal diet may resume immediately after surgery.

DISCHARGE INFORMATION

- You may see blood in your urine; this is normal and should clear after 1-2 days. It may burn or sting when you pass urine afterwards, this should get better over the day.

- If you develop a temperature, your urine is smelly/cloudy and burns when you pass urine, you may have a urine infection. You should contact your GP, as you may need a course of antibiotics

- You can eat and drink normally. You should try to drink at least 1.5-2 liters of fluid during the day after your cystoscopy, unless you have been told by a doctor to restrict your fluid intake. Drinking extra water can help to flush out your bladder and reduce the risk of infection. If you continue to drink plenty of fluid, this discomfort and bleeding will resolve rapidly.

- You can resume sexual activity as soon as you feel comfortable to do so.

WHAT ELSE SHOULD I LOOK OUT FOR

- If you develop a fever, severe pain on passing urine, inability to pass urine or worsening bleeding, you should contact your GP immediately or go to your nearest Emergency Department. Small blood clots or stone fragments may also pass down the ureter from the kidney. Resulting in renal colic; you should contact your GP immediately.

IN CASE OF PROBLEMS

Most people have no problems after a ureteroscopy, but you should contact your GP or Emergency Department if you develop any of the following symptoms

Persistent, severe pain with an inability to pass urine

A high temperature


Burning sensation on passing urine that gets worse or starts again after any initial stinging has worn off

An unpleasant smell of your urine

Persistent and heavy blood and clots in your urine.

Unable to pass urine


**NOTIFY THE UROLOGIST OR ATTEND TO THE
EMERGENCY DEPARTMENT**




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