PROCEDURE

Ureteroscopy

Ureteroscopy uses a thin scope passed through the urinary tract to examine or treat the ureter and kidney

PURPOSE
Examine the urinary tract or remove stones and abnormal tissue

PROCEDURE TYPE
Diagnostic and therapeutic, minimally invasive endoscopic procedure

WHERE IT IS DONE
Operating theatre or specialist endoscopy suite

ANAESTHESIA
Usually general anaesthesia

HOW LONG IT TAKES
About 30 to 90 minutes

PREPARATION
Fasting, urine testing, and review of medicines

RECOVERY
Usually same day; no driving for 24 hours after anaesthesia

MAIN RISKS
Infection, bleeding, ureter injury, and stent discomfort

RESULTS
Initial findings immediately; laboratory results usually within days

Overview

Ureteroscopy is a procedure used to look inside the ureter and kidney. The ureters are the narrow tubes that carry urine from your kidneys to your bladder.

A doctor passes a thin instrument called a ureteroscope through the opening where urine leaves your body. It travels through the urethra and bladder, then into the ureter. There are usually no cuts in the skin.

The scope contains a camera. Small instruments can pass through it to remove stones, break them into pieces, take tissue samples, or treat a narrowed area.

A temporary ureteric stent may be left in place afterward. This is a soft, hollow tube that helps urine drain from the kidney to the bladder while swelling settles.

Why the procedure is performed

Ureteroscopy is most often used to treat kidney or ureter stones. A laser can break a stone into smaller pieces, which may be removed with a tiny basket or allowed to pass in the urine.

It may also be performed to:

Your healthcare team should explain the specific goal in your case, including whether the procedure is intended to diagnose a problem, treat it, or both.

- Investigate blood in the urine when imaging has not provided an answer
- Examine a blockage or narrowing in the ureter
- Take a biopsy, meaning a small tissue sample
- Investigate or treat abnormal tissue in the ureter or kidney lining
- Remove a foreign object or address a problem with a previous stent

Who should and should not have it

Ureteroscopy may be offered when a stone is causing pain, blockage, kidney problems, or repeated infection. It may also be chosen when a stone is unlikely to pass, another treatment has failed, or the healthcare team needs to see or sample an abnormal area directly.

The procedure may be delayed if you have an untreated urinary infection. Passing instruments into an infected urinary tract can allow infection to spread. Infection is usually treated first unless urgent drainage is needed.

It may also need to be delayed or changed if:

If the ureter is narrow, the doctor may place a stent and repeat ureteroscopy later. The stent can gently allow the ureter to widen.

Pregnancy does not rule out ureteroscopy when treatment is necessary. However, timing, anaesthesia, and the use of X-rays require special planning.

Tell the team if you take anticoagulants or antiplatelet medicines, often called blood thinners. Do not stop them on your own. The safest plan depends on the medicine, your reason for taking it, and the expected procedure.

- You are not medically fit for the planned anaesthesia
- A bleeding problem has not been addressed
- Your ureter is too narrow to pass the scope safely

- You may be pregnant and the procedure is not urgent

How to prepare

Your treating facility's own instructions take priority because fasting times, medicine changes, and arrival arrangements differ.

You will usually have a urine test before the procedure. A urine culture may be used to check for bacteria. Blood tests or imaging may also be needed.

Follow the instructions about when to stop eating and drinking. Tell the team about all prescription medicines, over-the-counter products, and supplements you use. Ask specifically what to do with blood thinners and medicines for diabetes.

Also tell the team if you:

Arrange for a responsible adult to take you home if you will receive general anaesthesia or sedation. Your facility may also require someone to stay with you for the first night.

- Could be pregnant
- Have allergies to medicines, latex, contrast dye, or anaesthetic drugs
- Have had problems with anaesthesia
- Have a heart device, bleeding condition, or recent infection
- Develop fever, burning urination, or feel unwell before the procedure

What happens during the procedure

After you arrive, the team confirms the procedure and asks you to sign a consent form. An anaesthesia professional discusses how you will be kept comfortable.

Ureteroscopy is usually performed under general anaesthesia, so you are unconscious and do not feel the procedure. Some facilities may use spinal anaesthesia or sedation in selected cases.

You lie on your back with your legs supported. The doctor passes the ureteroscope through the urethra and bladder into the ureter. Fluid is used to improve the view.

For a stone, the doctor may remove it whole or use laser energy to break it into smaller pieces. Some fragments are collected for analysis. Very small pieces may be left to pass naturally.

If abnormal tissue is found, the doctor may take a biopsy or remove it using instruments passed through the scope. X-ray imaging and contrast dye may be used to show the urinary

tract.

A stent may be placed if there is swelling, a blockage, ureter injury, infection risk, or concern about drainage. Some stents have a string visible outside the body for removal. Do not pull the string unless you have been specifically told to do so.

Recovery and what to expect afterward

Mild burning when you urinate, bladder pressure, and soreness in the lower abdomen or side are common for a short time. A stent may cause frequent urination, urgency, discomfort at the end of urination, or pain in the kidney area during or after passing urine. Use only the pain relief recommended by your team.

You can usually drink and eat once you are awake and not feeling sick. Drinking enough fluid may help keep urine flowing, unless you have been given a fluid restriction for another condition. A small amount of blood can make the urine look pink or light red.

Gentle walking is encouraged. Avoid strenuous exercise, heavy lifting, and sexual activity for the period stated in your discharge instructions, particularly while a stent string is present.

Do not drive yourself home. After general anaesthesia or sedation, avoid driving, alcohol, operating machinery, or making important decisions for at least 24 hours, or longer if your facility instructs you to.

Many people return to desk-based work within a few days. You may need longer if your work is physically demanding, your procedure was complex, or stent symptoms are difficult to manage.

Risks and possible complications

Your team should discuss risks that apply to the planned procedure. Possible complications include:

A major ureter injury is uncommon but may require a longer period with a stent, a drainage tube through the back, or another operation. A procedure may also be stopped if continuing would not be safe.

- Urinary infection, which can sometimes spread to the bloodstream
- Bleeding or blood in the urine
- Pain, urinary urgency, or leakage caused by a stent

- Failure to reach or fully remove a stone
- Stone fragments remaining and requiring another procedure
- Damage to the ureter, including a tear or a hole
- Later scarring that narrows the ureter
- Anaesthesia-related complications

Results and follow up

The doctor can usually tell you what was seen and treated after you are awake. If a stone was removed, laboratory analysis can identify what it is made from. This may help guide advice about preventing future stones.

Biopsy results take longer because the tissue must be examined under a microscope. Your team should tell you how and when you will receive these results.

Follow-up may include imaging to check that stone fragments have cleared and the kidney is draining properly. If you have a stent, make sure you know when and how it will be removed. Some are removed by pulling a string, while others require a brief procedure using a small bladder scope.

A stent should not be left in longer than planned. Contact the facility if you do not have a clear removal date.

Alternatives

The realistic alternatives depend on whether ureteroscopy is being considered for a stone, a blockage, or abnormal tissue.

For some small, uncomplicated stones, observation with pain management and follow-up imaging may be reasonable. This avoids a procedure, but the stone may not pass and could continue to cause pain or blockage.

Shock wave lithotripsy uses sound waves from outside the body to break a stone. It is less invasive than ureteroscopy, but fragments must pass through the urinary tract and more than one treatment may be needed.

Percutaneous nephrolithotomy removes kidney stones through a small opening in the back. It is more invasive and usually requires a longer recovery, but it can remove a larger stone burden more effectively.

A ureteric stent or nephrostomy tube can urgently drain an obstructed kidney. A nephrostomy enters the kidney through the skin of the back. Drainage can relieve blockage or control infection, but it usually does not remove the stone itself.

For an abnormal area, imaging or monitoring may avoid an immediate procedure but cannot always provide the same information as direct viewing and biopsy. Open or keyhole surgery may be needed when endoscopic treatment is not possible, but these options involve incisions and a longer recovery.

When to call your healthcare team

For routine questions, contact your team if pain or stent symptoms are not improving, you are unsure about medicines, or you have not received a stent-removal or follow-up appointment.

Seek urgent medical advice if you develop:

Call emergency services for severe breathing difficulty, collapse, confusion, or rapidly worsening illness.

- Fever, chills, or worsening flu-like symptoms
- Increasing pain that is not controlled by the recommended treatment
- Difficulty passing urine or no urine
- Persistent vomiting or inability to drink
- Heavy bleeding, blood clots, or urine that remains dark red
- A stent that falls out or appears to have moved

Common questions

Will I be asleep?

Usually, yes. Most ureteroscopies are performed under general anaesthesia. Your anaesthesia team will explain the planned approach before the procedure.

Can I drive home?

No. Arrange for someone to take you home. You should not drive for at least 24 hours after general anaesthesia or sedation, and not while pain or medicines affect your reactions.

How painful is ureteroscopy?

You should not feel the procedure under general anaesthesia. Afterward, burning during

urination, side pain, and bladder pressure are common. A stent can cause discomfort until it is removed.

When will I know the results?

The doctor can usually explain what was seen and treated the same day. Stone analysis or biopsy results generally take several days or longer.

Will I need a stent?

Not everyone does. A stent is more likely if there is swelling, difficult access, infection risk, ureter injury, or concern about urine drainage.

How is the stent removed?

A stent with a string may be removed in the clinic or according to specific instructions. A stent without a string is usually removed using a small flexible scope passed into the bladder.

Sources

- National Institute of Diabetes and Digestive and Kidney Diseases: Treatment for Kidney Stones
- National Institute for Health and Care Excellence: Renal and ureteric stones-assessment and management, guideline NG118
- European Association of Urology: Guidelines on Urolithiasis
- British Association of Urological Surgeons: Ureteroscopic stone removal
- American Urological Association: Kidney Stones-Surgical Management Guideline