UROLOGY

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Definition of Urology?

Urology is a branch of medicine that focuses on the urinary system and the male reproductive system. It deals with the diagnosis and treatment of conditions affecting the kidneys, bladder, ureters, urethra, and adrenal glands, as well as the male reproductive organs like the prostate, testicles, and penis.

Urologist:

Urologists are specialists who manage issues like kidney stones, urinary tract infections, prostate problems, and male infertility.

Urology diagnostic devices:

Urology diagnostic devices are essential tools for identifying and managing various urological conditions. Here are some of the most commonly used diagnostic devices in urology:

- Ultrasound scanner
- Urine Analyzer
- X-rays
- Cystoscope
- Laparoscopes
- Nephroscopes
- Resectoscopes

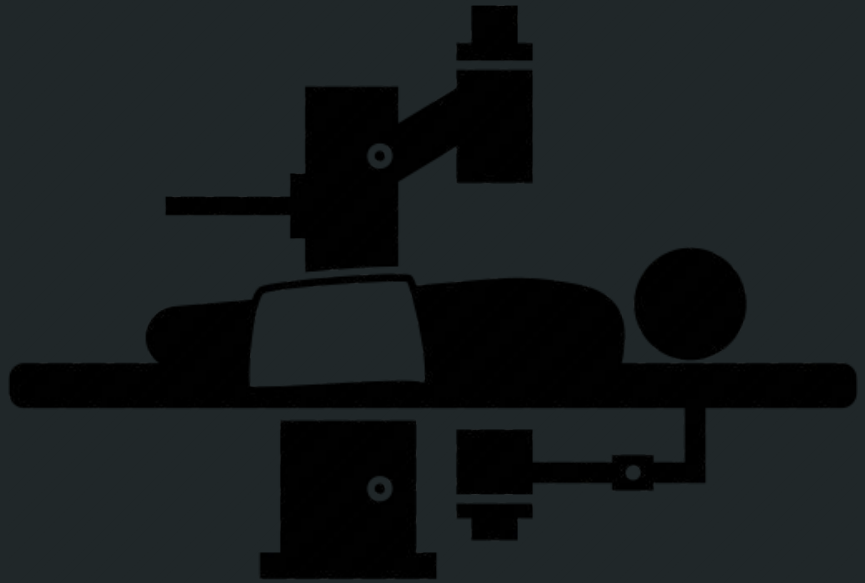
Urology Therapeutic equipment

Urology therapeutic equipment encompasses a variety of advanced tools designed to treat urological conditions with precision and minimal invasiveness. Here are some key types of therapeutic equipment used in urology

- Laser systems
- Lithotripters
- Endoscopes
- Robotic Surgical Systems
- Water Vapor therapy
- Hydrogel Spacers

Urology therapeutic equipment

Lithotripsy

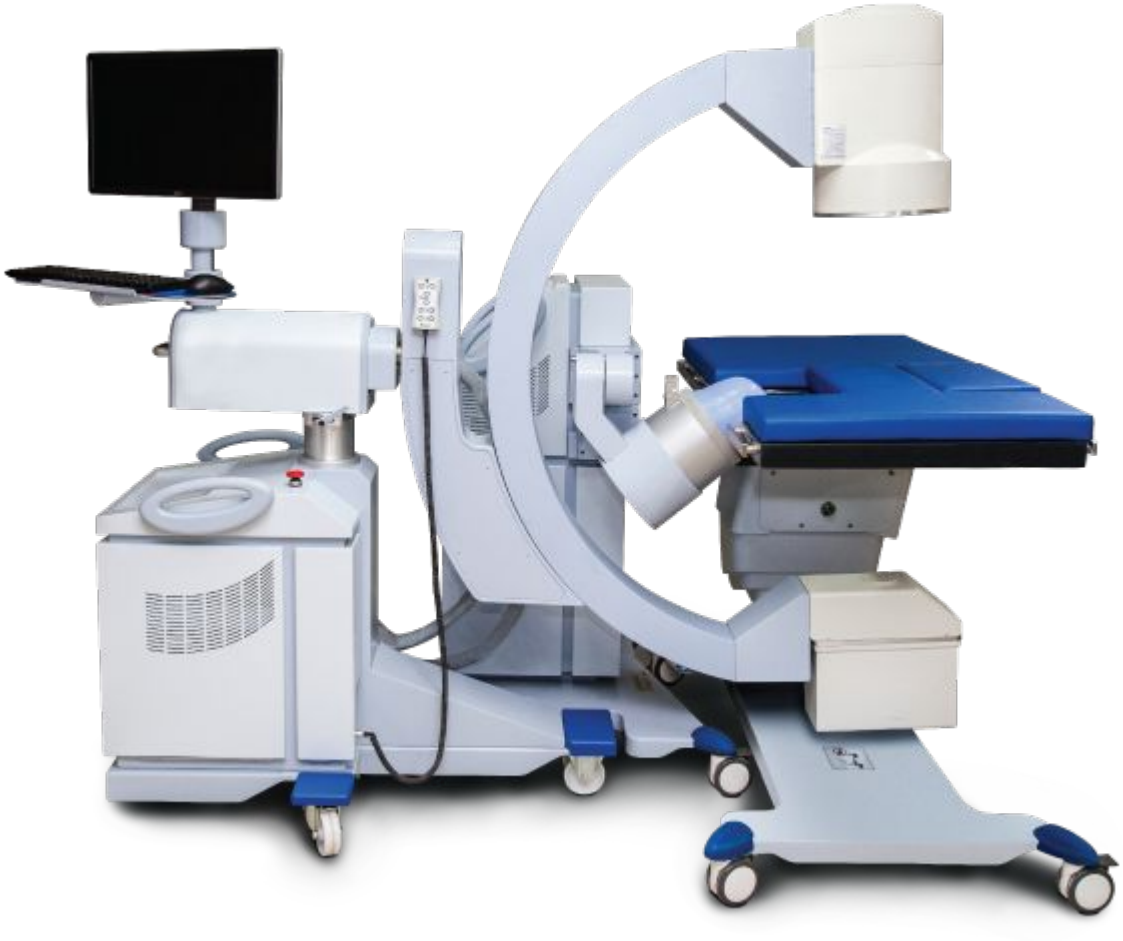


Lithotripsy:

Lithotripsy is a type of medical procedure. It uses shock waves or a laser to break down stones in the kidney, gallbladder, or ureters. The main types are extracorporeal shock wave lithotripsy (ESWL) and laser lithotripsy.

Extracorporeal shock wave lithotripsy:

- ESWL uses shock waves to break down stones
- During this procedure, a doctor will use a machine called a lithotripter to aim sound waves directly at the stones through the body.
- The sound waves break down the stones into small pieces. They are designed to affect the stone, but they can also harm other tissues in the body if the doctor does not carefully administer and monitor them.
- The procedure takes about 1 hour and usually happens in a hospital. In most cases, a person can go home the same day. After the treatment, they should pass the stone particles over several days or weeks through urination.
- It is important to note that there can be complications with this treatment. One complication can be bleeding due to damage to the kidney.



Extracorporeal shock wave lithotripsy

Flexible ureteroscopy and laser lithotripsy (FURSL)

- This procedure involves using an endoscope to treat stones in the ureter. An endoscope is a flexible tube with a light and camera attached that helps a doctor see inside an organ or body cavity.
- The doctor can see the stones using the ureteroscope and use a laser to break them down. The procedure takes about 30 minutes, and most people can go home the same day.
- However, the procedure may take up to 2 hours depending on the number of stones the doctor needs to remove and their hardness.
- The broken stone fragments should pass easily through urine in the days and weeks following the procedure.

Flexible ureteroscopy and laser lithotripsy (FURSL)

How to prepare ?

- Before the lithotripsy procedure, a doctor will run tests to determine the number of stones a person has, as well as their size and location.
- It is likely that the doctor will use a non-contrast CT scan to diagnose kidney stones because this test is highly sensitive and specific.
- They will also use a standard abdominal X-ray known as a kidney, ureters, bladders (KUB) to find calcium-containing stones.
- A person should let the doctor know if they are taking any medications in advance. Before the procedure, they may need to stop taking certain medications, including blood thinners and over-the-counter pain relievers such as aspirin and ibuprofen. This is because these can interfere with the ability of the blood to clot

- Blood clotting is essential to stop any bleeding that might occur during or after the procedure.
- Lithotripsy usually takes place under general anesthetics, which means that the person will be asleep and will not feel any pain. Typically, people will need to fast for 8–12 hours before receiving anesthetics.
- Anyone who is undergoing lithotripsy should also plan to have someone drive them home, as anesthetics can cause drowsiness and nausea for several hours after the procedure.

Risks and side effects :

- People often experience bruising and soreness after shock wave lithotripsy.
- Fever or chills may occur after ureteroscopy and shock wave lithotripsy. These may indicate an infection, so a person should speak with a doctor if they experience fever or chills.
- Heavy bleeding after lithotripsy is uncommon.
- If stone fragments get stuck, there may be a blockage in the ureter. If this is the case, a doctor may perform an additional procedure with a ureteroscope to remove the fragments.
- Prolonged pain may also indicate a blockage. If a person has severe pain or does not get relief from taking pain medications, they should contact a doctor.

Limitation :

- Lithotripsy procedures cannot treat large or hard stones.
- Also, ESWL may not benefit people obesity, as the shock waves may not be able to reach the stones.
- Doctors do not recommend lithotripsy procedures for pregnant people, as they may pose a risk to the fetus.
- Some stones will require more than one procedure, and, in some cases, a doctor may need to place a stent and remove it once the stone fragments have passed.

Ureteroscopy:

Ureteroscopy is a medical procedure used to diagnose and treat problems in the urinary tract, such as kidney stones or tumors. During the procedure, a thin, flexible tube called a ureteroscope is inserted through the urethra and bladder into the ureter (the tube that carries urine from the kidneys to the bladder). This allows the doctor to see inside the urinary tract and, if necessary, remove stones or take tissue samples

Who needs ureteroscopy ?

- Women who are pregnant
- People who are very overweight
- People with blood-clotting problems.

Benefits and risks :

Ureteroscopy is an effective way to do several things. For example, it lets your urologist:

- Get a very clear view of the urinary tract
- Remove or break up stones
- Take out suspicious-looking tissue

What Happens During a Ureteroscopy ?

- Once the anesthesia takes effect and you’re asleep, your urologist will insert the tip of the ureteroscope into your urethra (the tube through which urine passes out of your body).
- Once the ureteroscope is in the bladder, your urologist releases a sterile solution through the tip of the scope. This fills the bladder so its walls can be seen more clearly. They then gently guide the scope into a ureter. If there is a concern about a kidney, the scope can be moved all the way up into that organ.

- It may take up to 30 minutes for them to observe your urinary tract. If a procedure is done to remove or break up a stone, or to take a tissue sample for a biopsy, the ureteroscopy may take longer.
- A ureteroscopy that uses a laser to break up small kidney stones may take about 90 minutes. The type of laser used with the ureteroscope is called a “Holmium laser.” A similar procedure uses a tiny basket at the end of the scope to grab and remove a stone.