



UROLOGY ASSOCIATES OF FREDERICKSBURG

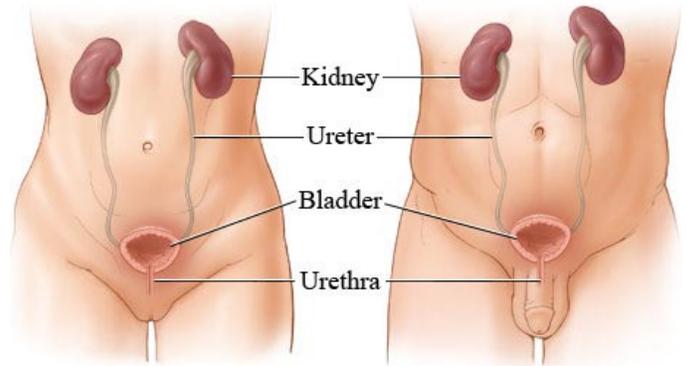
Expert Surgical Care of the Urologic Patient Since 1975

Extracorporeal shock wave lithotripsy (ESWL) for kidney stones

Kidney stones (renal calculi or nephrolithiasis) are pieces of minerals that form in the kidneys. They form when the normal balance of water, salts, minerals, and other substances found in your urine changes. How this balance changes determines the type of kidney stones you may have. Most kidney stones are calcium-type—they form when the calcium levels in your urine change.

Kidney stones may remain in the kidney or travel out of the body through the urinary tract the tubes that connect the kidney to the bladder (ureters) and lead outside the body (urethra). When traveling through the urinary tract, a stone may cause great pain and other symptoms.

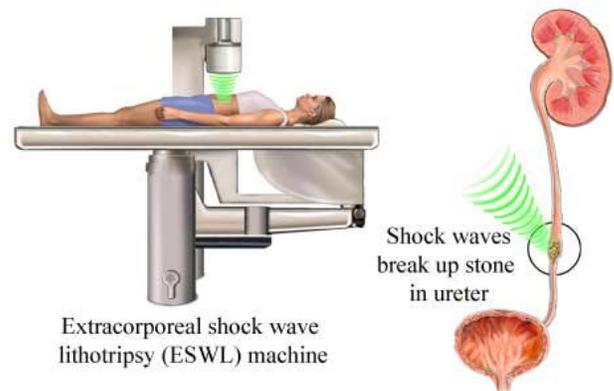
Kidney stones can be very painful, and people often seek immediate treatment. In certain situations patients choose between letting the stone exit your body (pass) on its own and using pain medicine, or breaking up the stone to speed it along and lessen the pain. Consider the following when making your decision:



- The size of your stone and its likelihood of passing on its own help determine the type of treatment.
 - If the stone will probably pass and you can control your pain with medicine, observe the stone until it passes. The smaller your stone is, the more likely it will pass on its own. About 90% of stones smaller than 5 mm (0.2 in.) pass on their own, while only about 50% of those between 5 mm (0.2 in.) and 10 mm (0.4 in.) do.
 - If the stone probably will not pass, use extracorporeal shock wave lithotripsy (ESWL) or another treatment option to remove the stone.
- If you cannot control your pain with medicine, or if the stone is blocking the urine flow, your best choice may be ESWL. ESWL works best for stones that are easy to see on KUB x-ray. It may be harder to break up a stone that has moved into the ureter as it can sometimes be obscured by the pelvic bones, although this is still possible.

What is ESWL

Extracorporeal shock wave lithotripsy (ESWL) uses sound waves to break the kidney stone into small pieces that can pass from the body more easily than one large stone. Stone fragments usually pass within a few weeks. Depending on the size of the stone, you may need only one treatment. The larger the stone, the more likely it is that you will need more than one treatment.





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- You lie on a water-filled cushion, and the surgeon uses X-rays or ultrasound tests to precisely locate the stone. High-energy sound waves pass through your body without injuring it and break the stone into small pieces. These small pieces move through the urinary tract and out of the body more easily than a large stone.
- The process takes about an hour.
- Anesthesia is given by an anesthesiologist.
- Your surgeon may use a stent when your stones are larger than 2.5 cm (1 in.). A stent is a small, short tube of flexible metal mesh that holds the ureter open. This helps the small stone pieces to pass without blocking the ureter.

Why It Is Done

ESWL may be used on people with a kidney stone that is causing pain or blocking the urine flow. Stones that are between 4 mm (0.16 in.) and 2 cm (0.79 in.) in diameter are most likely to be treated with ESWL.

ESWL usually is not used if you:

- Are pregnant. The sound waves and X-rays may be harmful to the fetus.
- Have a bleeding disorder.
- Have a kidney infection, urinary tract infection, or kidney cancer.
- Have kidneys with abnormal structure or function.

ESWL is a safe procedure and may be used on children and on individuals with only one working kidney. ESWL may be used if you have a pacemaker if a cardiologist has determined it is safe.

Other treatment options for kidney stones

- Wait for the stone to pass while using medicine to control the pain.
- Use ESWL to break up the stone in the hope that the stone passes more quickly with less pain.
- Use another option, such as percutaneous nephrolithotomy , ureteroscopy, or open surgery.



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Risks of ESWL

ESWL has few complications. Complications may include:

- Pain caused by the passage of stone fragments. This is the most common side effect.
- Blocked urine flow as a result of stone fragments becoming stuck in the urinary tract. The fragments may then need to be removed with a ureteroscope.
- Urinary tract infection.
- Bleeding around the outside of the kidney.
- Needing an additional procedure if the stone does not break after the first treatment.

What to Expect After Treatment

- ESWL is usually an outpatient procedure.
- It may take a few days or weeks for all the stone fragments to pass from your body.
- Some nausea and pain is expected following the procedure.
- There will be bruising and possibly an abrasion on the skin where the procedure was performed.
- You may have moderate pain in your back, stomach, and bladder as the small fragments pass through the urinary tract.
- An x-ray will be ordered 2 weeks after your procedure to see if it was successful.
- Strain your urine to collect stone pieces. Bring them to your follow-up appointment for analysis.

Contact your surgeon if you have:

- Fever above 101.5° Fahrenheit
- Severe nausea or vomiting
- Persistent bloody urine that won't clear up
- Painful swelling in your legs
- Chest pain or shortness of breath
- Cannot urinate
- Pain uncontrolled by your medications
- Problems or questions about your medications