RadiologyInfo.org
For patients

Kidney and Bladder Stones



Kidney and bladder stones are solid build-ups of crystals made from minerals and proteins found in urine. Certain bladder conditions and urinary tract infections can increase your chance of developing stones.

Your doctor may use abdominal and pelvic CT, intravenous pyelogram, or abdominal or pelvic ultrasound to help diagnose your condition. If a stone blocks urine flow and drainage of the kidney, your doctor may restore urine flow using ureteral stenting or nephrostomy.

What are kidney and bladder stones?

Kidney or bladder stones are solid build-ups of crystals made from minerals and proteins found in urine. Bladder diverticulum (http://www.radiologyinfo.org) , enlarged prostate, neurogenic bladder and urinary tract infection can cause an individual to have a greater chance of developing bladder stones.

If a kidney stone becomes lodged in the ureter (http://www.radiologyinfo.org) or urethra (http://www.radiologyinfo.org) , it can cause constant severe pain in the back or side, vomiting, *hematuria (https://www.radiologyinfo.org/en/info/hematuria)* (blood in the urine), fever, or chills.

If bladder stones are small enough, they can pass on their own with no noticeable symptoms. However, once they become larger, bladder stones can cause frequent urges to urinate, painful or difficult urination and hematuria.

How are kidney and bladder stones diagnosed and evaluated?

Imaging is used to provide your doctor with valuable information about the kidney or bladder stones, such as location, size and effect on the function of the kidneys. Some types of imaging that your doctor may order include:

- Abdominal and pelvic CT (https://www.radiologyinfo.org/en/info/abdominct) *:* This is the most rapid scanning method for locating a stone. This procedure can provide detailed images of the kidneys, ureters, bladder and urethra, identify a stone and reveal whether it is blocking urinary flow. *See the Safety page (https://www.radiologyinfo.org/en/info/safety-xray) for more information about CT procedures.*
- Intravenous pyelogram (IVP) (https://www.radiologyinfo.org/en/info/ivp) *:* This is an x-ray examination of the kidneys, ureters and urinary bladder that uses iodinated contrast material (http://www.radiologyinfo.org) injected into veins to evaluate the urinary system. *See the Safety page (https://www.radiologyinfo.org/en/info/safety-xray) for more information about x-rays.*
- Abdominal (https://www.radiologyinfo.org/en/info/abdominus) and Pelvic ultrasound (https://www.radiologyinfo.org/en/info/pelvus) *:* These exams use sound waves to provide pictures of the kidneys and bladder and can identify blockage of urinary flow and help identify stones.

For more information about ultrasound performed on children, visit the pediatric abdominal ultrasound page (https://www.radiologyinfo.org/en/info/abdomus-pdi) .

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How are kidney and bladder stones treated?

If a stone blocks urine flow and drainage of the kidney, there are a variety of possible treatments. An option that your doctor may choose is:

- Ureteral stenting or nephrostomy (https://www.radiologyinfo.org/en/info/ureteralnephro) *:* A ureteral stent is a thin, flexible tube threaded into the ureter by a urologist to restore the flow of urine to the bladder from the kidney.

  A nephrostomy is performed by an interventional radiologist when ureteral stenting is not possible or desirable. A tube is placed through the skin on the patient's back into the kidney and the tube is connected to an external drainage bag. The procedure is usually performed with fluoroscopy.

Which test, procedure or treatment is best for me?

- *Acute Onset Flank Pain – Suspicion of Stone Disease (Urolithiasis) (https://www.radiologyinfo.org/en/info/acs-acute-onset-flank-pain-suspicion-stone-disease)*
- *Acute Pyelonephritis (https://www.radiologyinfo.org/en/info/acs-acute-pyelonephritis)*
- *Hematuria (https://www.radiologyinfo.org/en/info/acs-hematuria)*
- *Hematuria-Child (https://www.radiologyinfo.org/en/info/acs-hematuria-child)*
- *Lower Urinary Tract Symptoms-Suspicion of Benign Prostatic Hyperplasia (https://www.radiologyinfo.org/en/info/acs-lower-urinary-tract-symptoms)*
- *Right-Lower Quadrant Pain (https://www.radiologyinfo.org/en/info/acs-right-lower-quadrant-pain)*

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