



2

Symptoms and Diagnosis of Kidney and Ureteral Stones

The underlined> terms are listed in the glossary.

Symptoms

People often associate kidney and ureteral stones with pain. However, symptoms can vary from severe pain to no pain at all, depending on stone characteristics – such as the size, shape, and location of the stone in the urinary tract (**Fig. 1**).

Severe pain (renal colic)

If the stone blocks the normal urine flow through the ureter you will experience severe pain, known as renal colic. This is a sharp pain in the loin and the flank (the side of your body, from the ribs to the hip). If the stone is not in your kidney but in your ureter, you may feel pain in the groin or thigh. Men can also have pain in their testicles (**Fig. 2**).

Renal colic is caused by a sudden increase of pressure in the urinary tract and the ureteral wall. The pain comes in waves and does not decrease if you

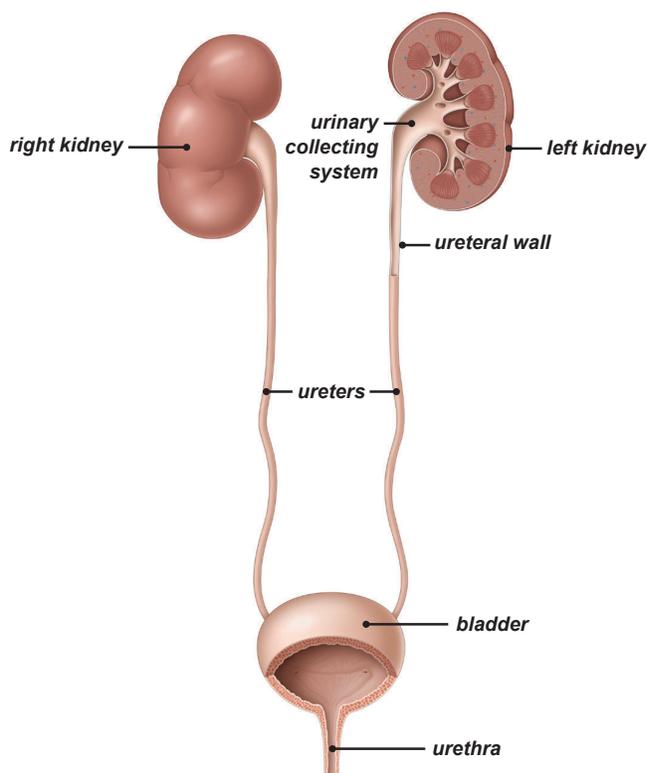


Fig. 1: The urinary tract.

change positions. It is described as one of the most painful experiences, similar to giving birth.

Other symptoms that may accompany renal colic are:

- Nausea
- Vomiting
- Blood in the urine (urine appears pink)
- Painful urination
- Fever

Renal colic is an emergency situation and you should contact your family doctor or nearest hospital to relieve the pain. In case of high fever you must seek medical help immediately.

Dull pain

Stones that do not block the ureter can cause a recurrent, dull pain in the flank. This kind of pain may also point to other diseases, so you will need to take medical tests to find out if you have kidney or ureteral stones.

No symptoms

Some stones do not cause any discomfort. These are called asymptomatic stones and are usually small. They do not block the flow of urine because they are located in the lower part of the kidney or attached to the ureteral wall. In general asymptomatic stones are found during x-ray or similar imaging procedures for other conditions.



Interesting Fact

Every year, around 1 or 2 people out of 1,000 suffer from acute renal colic.

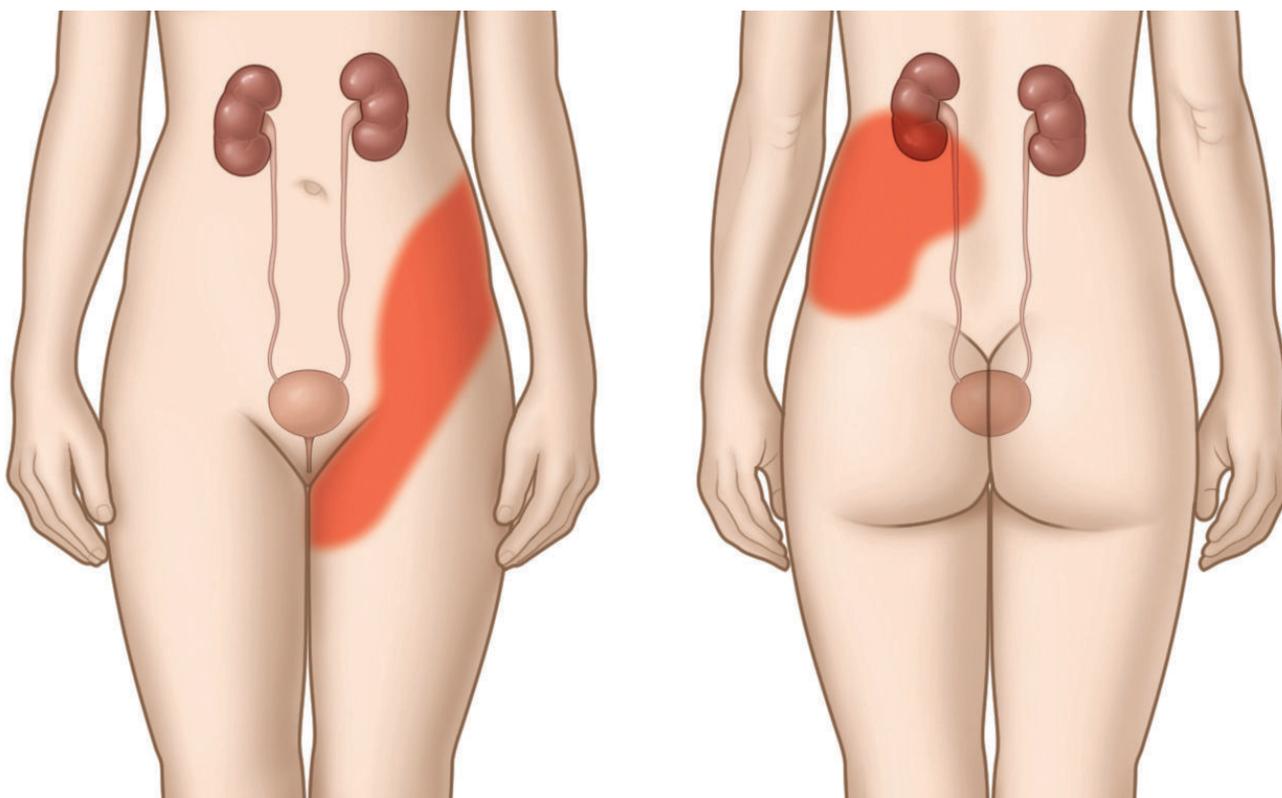


Fig. 2: Area of possible renal colic pain.

Diagnosis

The doctor does a series of tests to understand what causes your symptoms. This is called a diagnosis. First, the doctor or nurse will take your medical history and do a physical examination. Then, they will take images of your body and perform other tests if needed.

Imaging techniques

To locate your stone the doctor needs to take images of your internal organs. You will get an ultrasonography (also known as ultrasound), which uses high-frequency sounds to create an image. The doctor can see whether the stone causes an obstruction by checking if the urinary collecting system is enlarged.

In addition to ultrasonography, you may need an x-ray of the urinary tract.

Another common method of diagnosis is a CT-scan (computed tomography). For stone disease a non-contrast-enhanced computed tomography (NCCT) is done. This scan can clearly show the size, shape, and thickness of the stone.

In some situations your doctor may decide to do a contrast-enhanced CT-scan or an intravenous

urography. These images give additional information about your kidney function and your anatomy.

Stone analysis and other tests

In case of renal colic, your urine and blood are tested to see if you have an infection or kidney failure.

If your stone is expected to pass with urine, your doctor may recommend that you filter your urine to collect the stone. The doctor will analyse it in order to understand what type of stone you have. This information is important because it helps to select the best options for treatment and prevention.

If you have a high risk of forming more stones, you will get additional tests known as metabolic evaluation. These tests and the reasons for taking them are described in a separate leaflet (See *Metabolic Evaluation for Kidney and Ureteral Stones*).

This information was last updated in June 2012.

This leaflet is part of a series of EAU Patient Information on Kidney and Ureteral Stones. It contains general information about stone disease. If you have any specific questions about your individual medical situation you should consult your doctor or other professional healthcare provider.

This information was produced by the European Association of Urology (EAU) in collaboration with the EAU Section of Urolithiasis (EULIS), the Urolithiasis Section of the EAU Young Academic Urologists Group, and the European Association of Urology Nurses (EAUN).

The content of this leaflet is in line with the EAU Guidelines.

Contributors:

Dr. Thorsten Bach	Hamburg, Germany
Dr. Murat Binbay	Istanbul, Turkey
Ms. Nicola Dickens	London, United Kingdom
Ms. Bente Thoft Jensen	Århus, Denmark
Prof. Dr. Thomas Knoll	Sindelfingen, Germany
Mr. André Mendes	Castelo Branco, Portugal
Dr. Francesco Sanguedolce	Barcelona, Spain
Dr. Christian Türk	Vienna, Austria