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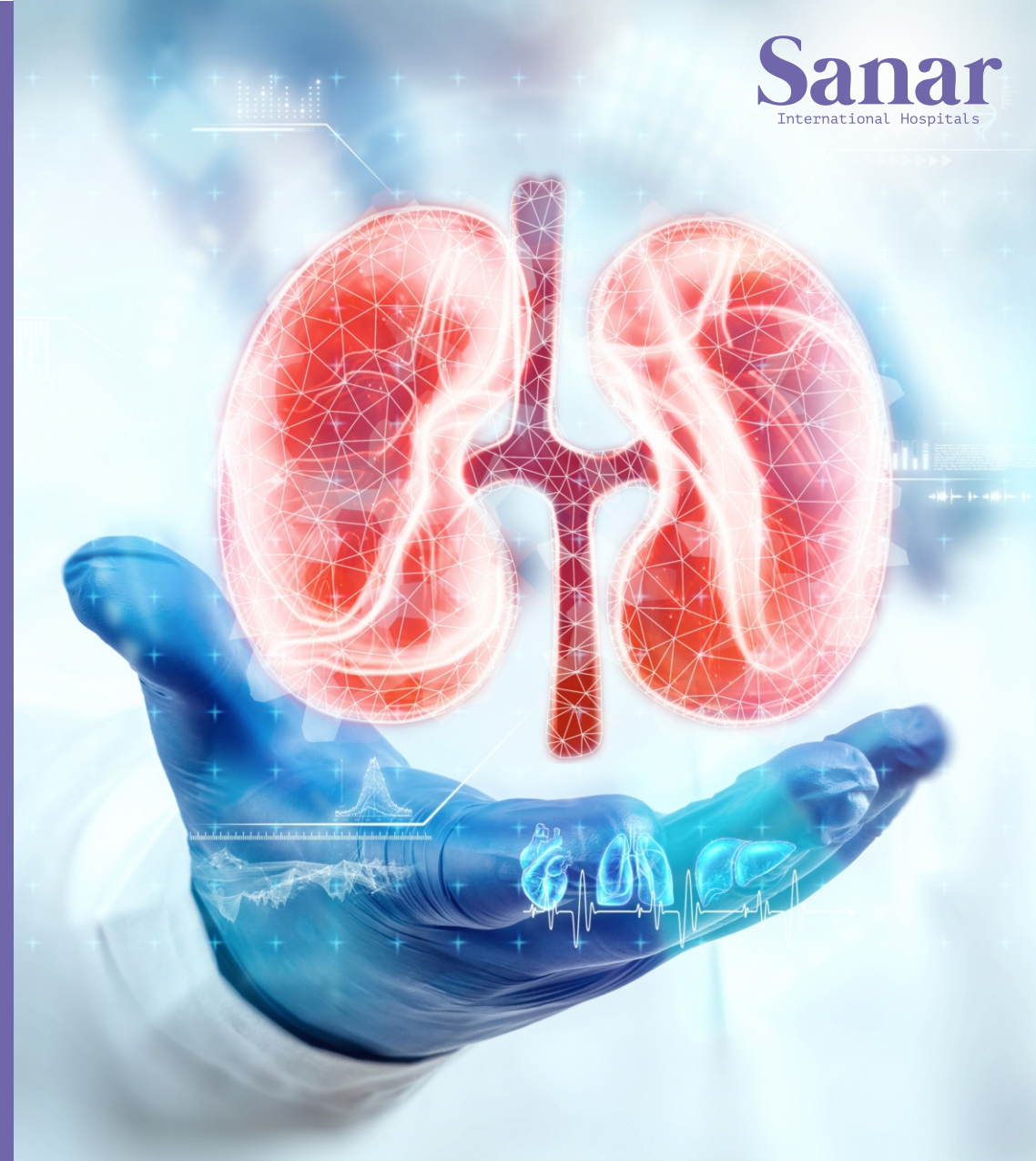
**+91-124-3528444**

Golf Course Road, DLF Phase - 5  
Sector - 53, Haryana - 122002

[www.sanarhospitals.com](http://www.sanarhospitals.com)  
[info@sanarhospitals.com](mailto:info@sanarhospitals.com)

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## Kidney Stone

Causes, Symptoms, Prevention & Treatment



## What is Kidney Stone?

Kidney Stones are hard stones that can form in the kidney, in the tube (the ureter) draining urine from the kidney, or in the bladder.

### How common are Kidney Stones?

- Kidney Stones are common and occur in upto 1 in 7 people
- Each year 1 or 2 people in every 1,000 will have symptoms caused by Kidney Stones
- About 1 in 8 men and 1 in 16 women will have an episode of pain caused by Kidney Stones at some time in their lives
- If one has a Kidney Stone there is about a 1 in 2 chance of having another stone within the following five years
- Kidney Stones are more common in people who are overweight or have Diabetes or Hypertension

## What causes Kidney Stones?

The kidneys filter the blood and remove excess water and waste chemicals to produce urine. Urine travels from each kidney down the tube (the ureter) draining from the kidney into the bladder. This is called the urinary tract.

Many waste chemicals are dissolved in the urine. The chemicals sometimes form tiny crystals in the urine which clump together to form a small stone. Most Kidney Stones are small and pass out with the urine. Some stones become stuck in a kidney or in the ureter.

In most cases, there is no known reason why a stone is formed. Stones are usually made of calcium. However, in most cases, the amount of calcium and other chemicals in the urine and blood is normal.

### Kidney Stone Symptoms

For some people, a Kidney Stone may just stay in a kidney and cause no symptoms. Other Kidney Stones may travel out of the body in urine without any symptoms. If Kidney Stone symptoms do occur, they would include:

- **Pain:** A stone that is stuck in a kidney may cause pain in the side of the abdomen (loin). This pain can be very severe, causing nausea and vomiting





- **Renal Colic:** This is a severe pain which is caused by a stone that passes into the tube (the ureter) draining urine from the kidney. When the stone becomes stuck, the ureter squeezes the stone towards the bladder, which causes intense pain in the side of the abdomen. The pain caused by renal colic may last from a few minutes to a few hours. This pain comes in spasms and in between these spasms there may be intervals of no pain or just a dull ache. The pain may spread down into the lower abdomen or groin. One may sweat, feel sick or even vomit because of the pain
- **Blood in urine:** One may see blood in the urine (the urine turns red). This is caused by a stone rubbing against the inside of the ureter
- **Urine Infection:** Urine Infections are more common in people with Kidney Stones. Urine Infections may cause high temperature (fever), pain while passing urine (Dysuria) and a need to urinate more often

### What makes Kidney Stones more likely?

One is more likely to form a Kidney Stone if the urine is concentrated. For example, if one exercises vigorously or lives in a hot climate or works in a hot environment, then one may lose more fluid as sweat and less as urine.

Kidney Stones can also be developed if one has:

- Repeated (recurrent) Urine Infections
- An abnormal kidney - kidney from which urine doesn't drain freely like in Pelvic Ureteric Junction (PUJ) obstruction.
- Family history of Kidney Stone

### Do some medications make Kidney Stones more likely?

One is more prone to develop Kidney Stones if they are under certain medications. These medications may include:

- Diuretics
- Certain Chemotherapy medicines for Cancer.
- Few medicines used to treat HIV

One can consult a doctor if they feel taking a particular medicine is the cause of their Kidney Stone.







## Kidney Stone Treatment

Most stones that cause Renal Colic are small and pass out with the urine in a day or so. One should drink plenty of fluids to encourage good flow of urine. Strong painkillers are often needed to ease the pain until the stone is passed out of the urinary tract. No other treatment is usually needed.

Some stones become stuck in a kidney or in one of the tubes (the ureters) draining urine from a kidney thus causing persistent symptoms or problems. In these cases, the pain usually becomes severe and one may need to be admitted to the hospital. There are various Kidney Stone treatment options available, including:

- **Extracorporeal Shock Wave Lithotripsy (ESWL)** uses high-energy shock waves, focussed on the stones from a machine outside the body breaking them in small pieces. These tiny broken fragments are then passed out while urinating
- **Percutaneous Nephrolithotomy (PCNL)** is used for stones not treatable by ESWL. A thin telescope-like instrument (a Nephroscope) is passed through the skin and into the kidney. The stone is broken up and the fragments of stone are removed via the Nephroscope. This procedure is usually performed under general anaesthesia
- **Ureteroscopy** - a thin telescope is passed up into the ureter via the urethra and bladder. Once the stone is seen, a laser is used to break up the stone.

- **Surgery to remove the stone** - This is only needed in a very small number of cases where the above, newer techniques have not worked or are not possible. It may be performed if one has a very large stone in the kidney
- Another option for a purely Uric Acid Stone (about 1 in 20 stones) is to dissolve the stone. This can be achieved by drinking plenty of fluids and making the urine alkaline with medication

## How to prevent Kidney Stones?

There are various Kidney Stone treatment options available and about a half of people who have a Kidney Stone develop another one at a later time in their lives. Drinking plenty of water each day, having a healthy lifestyle, doing regular exercises and consumption of a healthy and balanced diet are some of the key factors and may help in prevention of Kidney Stones in the future.

