

UNDERSTANDING KIDNEY STONES

How/Why do kidney stones?

Urine contains many dissolved substances. When some materials become too concentrated in the urine, they form crystals. If material continue to build up around these crystals it leads to the formation of stones. This is similar to the way in which a pearl is formed in an shell.

What are the symptoms of kidney stones?

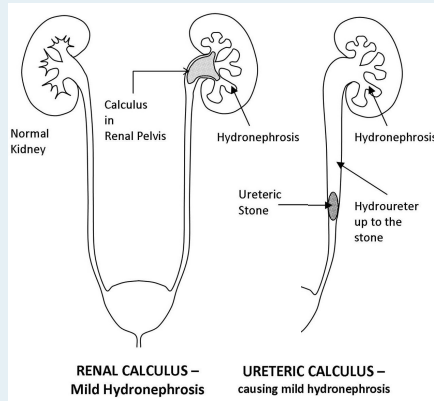
Once stones form in the urinary tract, they often grow with time and may change location within the kidney. Some stones may be washed out of the kidney by urine flow into the ureter (tubes that carry the urine from kidney to urinary bladder). Stones usually cause symptoms when they block the flow of urine.

Most often, patients will complain of pain in their sides, which may also go towards the front of the abdomen or

to the groin area. At times, the pain may become so severe that the patient is unable to find a comfortable position. Blood in the urine may also appear when a stone is present. In some patients, especially those with diabetes, a fever may develop from infection in the urine that becomes trapped behind a stone. This is a dangerous situation and needs urgent treatment.

How are kidney stones diagnosed?

When a urinary stone is suspected, further evaluation is



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required. Blood tests (which include Blood Urea and Creatinine) are done to check for overall kidney function. Urine is also sent for examination. The most common test done when a stone is suspected is sonography. Sonography can accurately tell the size & position of the stones in the urinary tract. It can also tell presence & degree of obstruction to the urine flow. IVP is usually the next test which is advised if the presence of stone in the urinary tract is confirmed.

What is IVP?

An intravenous pyelogram (IVP) is performed to objectively evaluate the urinary system, the function of the kidneys and the effect of the stone on the kidneys. Patient needs to be fasting for this procedure. A plain X-ray film is taken to check for bowel preparation. If bowel preparation is satisfactory a dye (Urografin) is injected into the vein. This dye is concentrated and excreted by the kidney. It outlines the urinary tract as it passes down from the kidney into the ureter and finally into the urinary bladder. A series of 4-6 X-ray films are taken as this happens. Since this dye can cause allergic reactions, hence an anesthetist is always on stand by during the procedure. IVP tells where is the stone, the effect of the stone on the function of the kidney & also helps to make a plan as to how best the stone can be removed.

What is the role of CT-Scan in evaluation of kidney stones?

Abdominal CT scan can detect almost all types of urinary stones. It is gradually becoming a preferred investigation in evaluation of kidney stones.

How are kidney stones treated?

The appropriate treatment for a patient with kidney stone depends on size, number of stones and the location of the stones. The main treatment options for kidney stones are

- Wait and Watch
- Lithotripsy
- Endoscopic stone surgery
- Open stone surgery.

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Your urologist will discuss which of these options will work best in your case.

Should all the kidney stones be treated?

If the stone is blocking the flow of urine and causing swelling in the kidney, it will need to be removed. Other indications are severe pain not responding to painkillers or presence of infection.

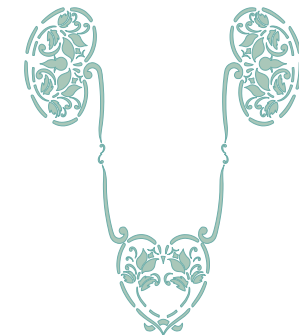
What is the chance of developing a stone again after some time?

On an average about 50 percent of the people will develop a stone again within next 5 years.

How can risk of kidney stones formation be reduced?

Dehydration causes the body to make concentrated urine. This increases the risk of stone formation. Having **adequate fluids** will mitigate this factor.

A diet rich in animal protein can increase the risk of stone formation. It would be a good idea to **cut down on non-vegetarian diet** especially for those people who are form stones repeatedly.



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