

## Urinary Stone disease

*Dr. Rajesh Taneja, Sr. Consultant Urologist at Pushpawati Singhania Research Institute talks about preventive and curative aspects of urinary stone disease with special reference to conditions in India.*



**B**eing located in the geographic stone belt of the world, there is a large population in North India suffering from urinary stone

disease. This is perhaps due to the peculiar diet habits and high concentration of ions in drinking water. Stones usually form in the kidneys and some of them move down the urinary stream into the ureter or urinary bladder. A urinary stone causes symptoms only when it causes sudden blocking of urinary stream or causes irritation of urinary tract. Besides causing pain, it can also cause passage of blood in the urine.

Pain of urinary stone usually starts in the flank and radiates forwards and downwards towards the groin area. Pain can be so severe that the person keeps tossing in bed due to agony. There may be associated nausea and vomiting. The pain usually responds to injectable analgesic. A good and experienced doctor can usually recognize the nature of this pain and take care of the emergency.

Once the presence of stone in urinary tract is suspected on the basis of clinical symptoms, diagnosis can usually be made by investigations like urinary examination and ultrasound of urinary system. IVP, Radionuclide Scan or C T Scan of abdomen may be required to assess the various other parameters determining the course of management. These help the Urologist to answer the following questions :

1. How many stones are there in the urinary tract ?
2. What is the size and shape of these stones ?
3. Which is the stone causing symptoms ?
4. How are the kidneys being affected by stone ? Is it that the functioning of kidneys is being impaired by stone ?
5. What are the chances that these stones would come out on their own ?
6. If so, then how long can one wait before the stones would come out ?
7. If the stones require help to come out, then what is the nature of intervention that needs to be planned and how soon ?

Small stones around 4 mm or less would usually be kept under observation with plenty of oral fluids and analgesic. However, if they are causing significant pain or compromising the kidney function, then they may require intervention. Following are the various options of interventions available :

**Percutaneous Nephrolithotomy (PCNL)** is a minimally invasive endourological

procedure for removing the kidney stone through a small key hole in the flank. A telescope of the size of pen is inserted into the kidney and the stone is physically broken under direct vision. The stone fragments are then removed through the same passage.

The underlying principle of **Extra-corporeal shock wave Lithotripsy (ESWL)** is that "high energy" sound waves are produced outside the body of the patient and focused onto the stone using X-ray guidance.

These shockwaves pulverize the stone and thus help in their removal through the urinary stream.

If the stone has migrated into the ureter, then the choice of treatment is **Ureteroscopic Lithotripsy**.

A delicate, thin rigid telescope is passed through the natural urinary passage and advanced upto the stone, which is held under direct vision and broken down into smaller fragments.

Kidney stones, where there is associated congenital malformation like pelviureteric junction obstruction, may require **Open Surgical Procedure** for correction of the structural anomaly as well as clearance of stones.

The success in the management of any urinary stones lies in identifying the best modality of treatment for that individual. There is always one best method of treatment of a given case, rest all are mere alternatives. Thus, the correct choice of procedure is the most important determinant of success in the management of urinary stone disease.

What causes stone disease Northern India is part of the Geographical stone belt. It extends from Jammu & Kashmir, Himachal Pradesh, Uttranchal, Punjab, Haryana, Western U.P & Rajasthan. Reduced water intake in these areas causes concentrated urine and stone formation.

What if stone disease is neglected It causes pain, obstruction to the flow of urine from kidneys, infection and later kidney failure.

What is the best treatment Each case has one best method of treatment, all others are mere alternatives. The urologist should be able to decide among the various options available.

What should be done to prevent Urinary Stone Disease Take balanced diet with plenty of fluids. People having tendency for stone formation should restrict intake of foods rich in oxalates like spinach, tomatoes, lettuce and other leafy vegetables. Individuals having uric acid stones, should avoid fish, red meat, rajma and black lentil.

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