central ohio UROLOGY group

When you read up about your physical condition, you take an important tool into your own hands. The more you know about your physical condition, and the more positive steps you take, the better your chance for positive outcomes and treatment success.

Health Topic: Kidney Stones

Kidney stones are crystallizations of substances your body normally gets rid of in the urine. Stones may form from a variety of substances but are most commonly calcium and oxalate. These substances are normally dissolved in the water of the urine but when they become too concentrated they collect together and form stone crystals. These crystals form on the inside surface of the kidney and generally cause no symptoms until they break free. Stones typically cause pain when they block the normal flow of urine. Stones most commonly get stuck in the small caliber tube that drains from the kidney to the bladder known as the *ureter.* When a stone blocks the ureter continued production of urine upstream from the stone increases pressure in the kidney causing pain. The kidney and ureter normally have rhythmic waves of contraction to milk urine down to the bladder. When these waves of contraction meet the obstruction of a stone the pressure increases even more and pain comes in severe waves commonly associated with nausea and vomiting.

The treatment of stone disease is divided on two fronts. First dealing with the current stone burden and secondly dealing with the patient's future propensity to make stones. The current stone burden can be treated conservatively supporting the patient with pain medicine while the stone passes on its own. A urologist may need to intervene if conservative approaches fail. Urology assistance is needed when patients develop fever, kidney function is affected, pain is uncontrolled, or if nausea prevents the patient from keeping fluids down.

Fever and a stone can be a life-threatening situation. If this occurs, drainage of the kidney is required to resolve the infection. A *stent*, a small plastic tube, is placed by the stone to allow the blocked kidney to drain. This drainage along with antibiotics allows the patient to clear the infection. The stone can be treated once the infection resolves.

There are several ways to treat stones once they have clogged up the plumbing of our urinary tract. Stones up high in the system in the kidney or in the ureter on the way to the bladder can be treated with shockwaves. *Lithotripsy*, is the term used to describe stone break-up. Shock-wave lithotripsy can be directed from outside the body focused onto the stone crumbling it into smaller pieces. These pieces may then pass minimizing the risk for pain. When the shockwaves aren't the best choice, a small fiber-optic scope can be passed up the urinary tract and the stone can be broken with a laser under direct vision. A very large stone in the kidney may be best treated with a surgical procedure that creates a channel directly into the kidney through the back. A scope is then passed through this channel allowing large stone pieces to be broken and removed with an ultrasound or laser device. In general, if the stone is too big to pass a urologist will break it up and extract the pieces or allow the smaller pieces to pass.

The general public has a ten percent chance of forming a stone. Once you have had one stone you then have a 35-40% chance of having a second stone in your lifetime. After a second stone your chance of additional stones increases. Patients with multiple stone episodes are describes as habitual stone formers. A habitual stone former may benefit from further testing to determine why that individual makes stones to develop a lifelong plan to prevent future stones.