

Urologic Surgical Associates of Delaware

Specializing in Robotic Surgery

Kidney Stones and Conservative Management

There is a lot of uncertainty with renal stone management. Many factors impact the outcome of any management course you elect to take. You could choose to do nothing. Stones up to 10 mm (1cm) can pass by themselves. Roughly, the chance of a stone passing spontaneously is inversely related to the stone size in millimeters. A 1mm stone passes 90% of the time, a 5 mm stone 50% of the time, a 9 mm stone 10% of the time and so on. The chance of passing stone fragments (including fragments remaining after a successful stone therapy) also depends on the kidney and ureter anatomy that you were born with. A dilated ureter after stent removal (a ureteral stent can cause the ureter to widen or dilate over time) is usually more able to accommodate larger stone fragments.

Any of the common stone therapies, Extracorporeal Shock Wave Lithotripsy (ESWL), ureteroscopy (URS), and Percutaneous Nephrolithotomy (PCNL) will leave behind some stone fragments that the patient must pass post-operatively. It is not uncommon to have to return to the operating room a second or third time to remove all the stone fragments. However, in many cases, stones can be successfully eradicated with one trip to the operating room.

Conservative management:

Conservative management or watchful waiting is a decision to allow a kidney stone to pass on its own. Specifically, watchful waiting is a decision not to perform ESWL, URS or PCNL intervention to remove a stone but rather to give the stone a chance to pass naturally. The basis for this decision is that most stones pass spontaneously on their own. It is important, however, to understand that it is not appropriate to ignore a kidney stone. Stones in the kidney can grow over time and destroy the kidney if they do not pass or are not treated. Stones in the ureter can block or obstruct the kidney and cause kidney damage. Kidney and ureteral stones can also cause severe pain or life-threatening infections. Alpha blocker medications (flomax, uroxadrol) may also promote spontaneous stone passage by relaxing the ureteral muscles.

On average a stone that is actively passing through the urinary tract will pass in about twelve days. We can use this knowledge to choose a reasonable period of observation. For example, if your stone is actively passing through the ureter it might be reasonable to plan on an intervention such as ESWL, URS, or PCNL in two weeks if your stone has not passed. Medications known as alpha blockers, such as Flomax, can relax some bladder and ureteral muscles and possibly help with stone passage.

When considering conservative management for your stone it is important to keep in mind that certain factors will make conservative management a less attractive option. The presence of nausea or vomiting due to the stone, high fevers or other signs of infection, significant pain requiring i.v. narcotics, and/or pre-existing kidney disease are all reasons to consider early intervention more carefully. These same factors are also reasons to consider admission into the hospital for an acute stone episode.

For informational purposes only. Please consult your physician with any questions. USA Delaware 302-836-5500.

While under observation for an actively passing kidney stone you should also strain your urine through a filter (such as a coffee filter or a urinary filter available from your local pharmacy). The filter will help you capture any stone fragments for analysis in the lab. Actively passing kidney stones are those that are causing pain and/or have entered the ureter. Stones passively residing in the kidney are generally not actively passing but could begin to pass (and cause obstruction and pain) at any time. For this reason preemptive treatment for stones in the kidney may be considered.

Of these three stone therapies (ESWL, URS, and PCNL) PCNL is the most aggressive and has the greatest chance of making you stone-free with one trip to the operating room. PCNL requires having a tube placed into the kidney through the back by a radiologist. Then we can place instruments through this tube and into the kidney to remove the stones. Sometimes this procedure can be done the same day that the tube is placed. PCNL is most appropriate for very large, complex stones, in patients who already have a nephrostomy tube in place, or in patients who have special anatomic problems in their urinary tract. PCNL can require 1-5 days in the hospital.

ESWL is least likely to make you stone-free in one trip to the operating room but usually does not require any stents or tubes. ESWL is most appropriate for small stones in the kidney or upper ureter. ESWL involves a special machine that can direct ultrasonic energy toward the stone without placing any instruments inside the body. The key to successful ESWL is being able to accurately focus the shock wave energy at the stone. For this reason, stones less than 5mm size, stones that are not visible on plain x-rays, and stones hidden by the pelvic bones (lower ureteral stones) are difficult to treat with ESWL. Some large stones treated with ESWL will require stent placement. Routine ESWL can be performed as an outpatient surgery.

URS is the most versatile form of stone therapy. Virtually any stone can be reached using URS. Special laser fibers can be deployed through the ureteroscope to fragment the stone. Special baskets can be deployed through the ureteroscope to retrieve any stone fragments. URS is commonly the technology of choice for stones in the ureter, especially the lower ureter. Large renal stones can be treated with URS, ESWL, and/or PCNL. Some complex stones may require a combination of two or more treatment modalities. Routine URS can be performed as an outpatient surgery.

In some cases cystoscopy and placement of a ureteral stent can be used as treatment of a kidney stone. The stent dilates the ureter and makes the ureter wider (temporarily) and therefore, more likely to allow stone passage. Sometimes the stone or stone fragments are passed when the stent is removed and sometimes stone passage occurs a short time after stent removal. Commonly, stent placement is used during an acute stone episode to relieve obstruction of the ureter. In these cases URS, ESWL, or PCNL may be scheduled electively after stent placement.

Terms:

Ureter:

The duct that transports urine from the kidney to the bladder.

For informational purposes only. Please consult your physician with any questions. USA Delaware 302-836-5500.

Stent:

A plastic hollow tube that is placed into the ureter, from the kidney to the bladder to prevent the ureter from swelling shut.

Bladder spasms:

The stent is a foreign body which will further irritate the bladder, ureter, and kidney. This irritation is manifested by increased frequency of urination, both day and night, and also an increase in the urge to urinate. In some, the urge to urinate is present almost always. Sometimes the urge is strong enough that you may not be able to stop yourself from urinating. Sudden pain in the bladder with the urge to urinate is a bladder spasm. Bladder spasms are the bladder's natural reaction to a foreign body such as a stone or a urethral stent. Bladder spasms can be controlled by anticholinergic medications such as Ditropan.

Anticholinergic Medications:

The bladder wall is composed of smooth muscle and connective tissue. The smooth muscles in your body (in the bladder, the digestive tract, and the salivary glands) are controlled by cholinergic nerve receptors. Medications that block these receptors (Ditropan and Detrol for example) slow down the smooth muscle contraction in these muscles. In this way, Ditropan can prevent or minimize bladder spasms (sudden muscular contractions of the bladder wall). The anticholinergic medications can also slow down the digestive tract and salivary glands so these medications can cause side effects such as dry mouth and constipation. Patients with narrow angle glaucoma should not take anticholinergics (most glaucoma is not narrow angle glaucoma).