

## LITHOTRIPSY PROCEDURE

### **What are kidney stones?**

Kidney stones are mineral deposits that form in the kidneys. They occur when the normal balance of water, salts, minerals, and other substances found in your urine changes. How this balance changes determines the type of kidney stones you may have. Most kidney stones contain calcium that form when the calcium concentration in your urine changes. Generally there are other components—oxalate, etc., that also contribute to stone formation. In some people uric acid stones are formed. These stones are clear and often not seen on X-ray and are often found in patients with gout.

Kidney stones may remain in the kidney or travel out of the body through the urinary tract—the tubes that connect the kidney to the bladder (ureters) and lead outside the body (urethra). When traveling through the urinary tract, a stone may cause no pain or cause great pain and other symptoms. Kidney stones can cause long-term damage to the urinary tract if left untreated.

### **What is Lithotripsy?**

Extracorporeal shock wave lithotripsy (ESWL) uses sound waves (also called shock waves) to break a kidney stone into small pieces that can pass from the body more easily than one large stone. Stone fragments usually pass within a few weeks. Depending on the size of the stone, you may need only one treatment. The larger the stone, the more likely it is that you will need more than one treatment.

### **An alternative to surgery**

Each year, 600,000 Americans develop a kidney stone, causing pain, infection, and bleeding. Though many stones pass by themselves, more than 100,000 require medical intervention and, before lithotripsy, required surgery and a lengthy recuperation period.

Lithotripsy makes it possible to literally crush kidney stones from outside the body, resulting in spontaneous passing of the sand-like particles, with minimal discomfort.

### **Treatment procedure**

After receiving anesthesia or sedation you lie on a special table. A small cone of water touches your side. In this cone shockwaves

are generated. Guided by X-rays or ultrasound you are positioned so that the kidney stone is located precisely at the

greatest energy point of the shockwave. When positioning is complete, the stone is exposed to multiple shockwaves. The entire procedure, which may involve 1,000 to 3,000 shockwaves, takes up to one hour. Throughout the procedure, an X-ray machine or ultrasound monitors the stone fragmentation.

Your surgeon may place a stent when your stones are large. A stent is a small, tube of flexible silicone that holds the ureter open. It is placed into the bladder using a cystoscope. The stent helps the small stone pieces to pass without blocking the ureter. The stent generally is placed before the procedure and removed in the office after stones are passed.

When the treatment is complete, you are taken to the recovery room and monitored until the anesthesia wears off.

Lithotripsy is usually an outpatient procedure. You go home after the treatment and do not have to spend the night in the hospital. Rarely, patients may require an overnight hospital stay.

### **Follow-up care**

Typically, patients can pass bloody urine for two or three days after treatment, and may pass stone fragments intermittently for several weeks with remarkably little discomfort. Bruising on your side may occur. Often patients are prescribed pain medication as well as Flomax to assist in passing fragments. Drinking additional fluids and avoiding caffeine may help in passing stone fragments. You will be prescribed an antibiotic. Convalescence following treatment is minimal and most patients are able to resume full activity shortly after treatment.

A visit to your doctor for a follow-up evaluation within several weeks after treatment is essential to judge the success of the ESWL. Your doctor may give you a slip for a plain X-ray (no contrast) of the abdomen to have completed before the follow-up evaluation. You will need to bring the X-rays with you to the office visit. To analyze the chemical type of stone, you should strain your urine and bring any stone fragments to your office appointment. A complete metabolic evaluation, which involves some blood tests and collecting a urine specimen for 24 hours, is usually recommended to prevent further occurrence of stone disease.