



## **Ureteral Stent, Explained:**

### **Definition:**

A silicone tube approximately 26 cm in length. The stent is often referred to as a “double J” because it has a curl on either end.

The stent extends from the kidney to the bladder.

The curl within the kidney keeps the stent from slipping downwards and into the bladder.

The curl within the bladder keeps the stent from migrating upward towards the kidney.

Essentially, the curls hold the stent in its proper position by preventing proximal or distal migration.

### **Why do I need this procedure?**

There are many reasons why a urologist would be required to place a ureteral stent:

### **Urosepsis, Obstruction of the kidney with an active urinary infection**

Perhaps the most common cause of kidney obstruction is a kidney stone that has left the kidney and is now “passing” towards the bladder. If there is an active infection, any attempts at treating the stone can be deadly. For example, performing a laser procedure with an active infection is contraindicated due to the risks of sepsis, infection, and death. Therefore, the urologist will place the stent which will allow the obstructed kidney to drain. The infection is treated with antibiotics and the stone can be treated approximately 2 weeks after stent placement. The doctor will need to ensure the urine culture is NEGATIVE prior to definitive management of the stone.

### **Narrow Ureter, Small Caliber Ureter**

In order to treat a stone in the ureter, the urologist must be able to enter the ureter with a camera, a grasper basket, and a laser fiber. Many times the ureter is too small to accept the instruments and a ureteral stent must be placed.

In such a scenario, the stent results in passive dilation of the ureter over a period of 10-14 days. Therefore, the ureter will expand in size to make treatment of the stone possible. The stent, in many cases, helps to resolve the pain from the kidney stone.

This is why, in many cases, it requires 2 procedures to successfully remove a kidney stone. The first procedure to place the stent and allow for dilation and the second to remove the stone.

There is not a reliable method to determine the caliber of a patient's ureter tube prior to the procedure.

The ureter is a very delicate and important structure. If it is damaged, which is possible during ureteral stone treatment, the kidney will become compromised. In short, if the ureter does not easily accept the surgical instruments (camera, laser, basket, sheath), the safer thing to do is place the ureteral stent and return in 10-14 days.

### **After Treatment of the Stone**

Regardless of the treatment type (ESWL, Ureteroscopy, or PCNL), there may be a need to leave a ureteral stent after the procedure. In such a scenario the ureteral stent allows for the kidney and ureter to "heal" after being traumatized by the laser, camera, and basket.

In many cases, if a stent is not left in place after the treatment, the ureter will become inflamed (edema) and close shut. This will result in severe kidney pain, permanent kidney damage (possible), and a trip to the emergency room.

If the procedure is quick and there is not much ureteral trauma, the stent may be left with a string attached. In this case, it can be removed in the office or at home. We usually only leave the stent with a string if the stent is going to be in place for 3-5 days. If there is a need for the stent to remain in place beyond 5 days, we typically do not leave a string because it can be quite irritating. If there is no string, we would need to do a cystoscopy to remove the stent.

Other times, the ureteral stent is left in place to allow for small fragments to drain out of the ureter and kidney.

Finally, if there is going to be a 2nd procedure, the stent would need to remain in place.

**Possible Complications:**

Damage to the ureter

Infection

Blood in the urine

Stent Pain - Many patients have no symptoms from the stent. However, in approximately 50% of patients, stent pain is a problematic issue. Symptoms include urinary frequency, urgency, small volume urinations, pain in the kidney during urination, bladder spasms, and other local irritative type symptoms. We use medications to help with these symptoms.

Stent Encrustation - The ureteral stent can only remain in place temporarily. We try to ensure the stents do not remain in place for longer than 3 months. If the ureteral stent is left in place for too long, calcium stones can form along the stent and make removal nearly impossible. Stent encrustation can result in permanent kidney injury, infection, or even death resulting from infection.

In certain cases, due to metabolic reasons, some patients calcify stents more rapidly.