

# **Urologic Surgical Associates of Delaware**

## ***Specializing in Robotic Surgery***

### **Stress Incontinence and Post-Prostatectomy Incontinence**

#### **Overview**

Urinary incontinence is the uncontrolled leakage of urine. The problem is widespread and afflicts an estimated 13 million adults in the United States alone. Approximately 85 percent of those afflicted are women. Stress incontinence is a type of urinary incontinence in which the leakage occurs with physical activity such as coughing and laughing. The word “stress” in the term stress urinary incontinence does not mean emotional stress. The stress here is physical. It refers to increased pressure on the bladder from ordinary physical activities. These activities may range from lifting a bag of groceries to sneezing, coughing, laughing or rising from a sitting to a standing position. In stress incontinence, the time period during which leakage occurs may be quite short and the amount of leakage quite small. Stress incontinence can be treated both surgically and nonsurgically.

The urinary system begins with the kidneys, where urine is produced. The kidneys filter waste products out of the blood. The urine carries these waste products out of the body. Urine flows from the kidneys through the ureters to the bladder. From the bladder, the urine flows through the bladder neck and out of the body through the urethra.

Many people think of the bladder only as a kind of bag to hold urine. It is actually a muscle. Like other muscles the bladder can contract (tighten) or it can relax, acting on signals from the brain sent through the nervous system.

In a healthy urinary system, the bladder works together with the urethral sphincter, the bladder neck and other pelvic muscles to control the flow of urine. Like the bladder urethral sphincter and pelvic muscles can contract or relax. When storing urine the bladder muscle relaxes, so there is no pressure to force out the urine. Meanwhile the urethral sphincter and other muscles contract, helping to keep the bladder neck closed so that no urine can escape.

During urination the brain sends a signal to release urine from the bladder. The bladder muscle now contract to help force out the urine. The urethral sphincter and other muscles relax. The bladder neck stays open, and the urine flows out through the urethra. Urinary control also depends on a seal mechanism inside the urethra that works together with the outside sphincter. This internal seal mechanism acts like a washer in a water faucet. With the internal seal mechanism and outside sphincter muscles working together, the urethra is able to seal and unseal itself.

Most women with stress urinary incontinence have weakened pelvic muscles. They support the bladder, bladder neck and urethra. Among the reasons the pelvic muscles may have weakened are pregnancy, childbirth and prior pelvic surgery or simply as part of the aging process. With weakened support, the bladder neck and urethra may shift from their normal positions. Out of position, they may drop momentarily when there is pressure on

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the bladder from an activity such as coughing. This downward movement can cause the bladder neck and urethra to open briefly, resulting in urine leakage. In men, stress incontinence generally occurs following prostate surgery, especially radical prostatectomy for prostate cancer. This is also called post-prostatectomy incontinence.

The medical term for this condition is urethral hypermobility. “Hyper” means “too much”, and “mobility” refers to movement. Urethral hypermobility is the most common cause of female stress incontinence. Another possible cause of stress urinary incontinence is weakened urethral sphincter muscles, together with loss of the internal seal effect described above. As a result, the sphincter does not function normally, no matter what the position of the bladder neck and urethra. A defective sphincter may not be able to completely seal off the flow of urine, especially during physical activities. The medical term for this problem is intrinsic sphincteric deficiency, usually referred to by the initials ISD.

Another problem that may exist, along with urinary incontinence in women where their pelvic muscles have weakened, is pelvic organ prolapse. “Prolapse” is a general term that refers to a body part slipping out of place. Here the fallen body part is a pelvic organ such as the bladder. Because the supporting pelvic muscles have weakened, the organ protrudes into the vagina. The vagina itself may drop. Symptoms of pelvic organ prolapse include vaginal discomfort, a sensation of pressure within the vagina or bulging of the vagina itself through its opening.

Many women with stress incontinence experience other symptoms besides leakage during physical activity. These symptoms may indicate another type of incontinence. Urge incontinence, for example, often accompanies stress incontinence. Urge incontinence is experienced as a sudden strong urge to urinate along with a sudden uncontrollable rush of urine. This may occur at any time. Usually the cause is an overactive bladder, which may contract even when a person does not want to urinate. A combination of urge incontinence and stress incontinence is called mixed incontinence. Identifying the presence of urge incontinence is important. Surgery can cure stress incontinence, but urge incontinence may require other kinds of treatment (such as medications). Overflow incontinence may also be present. This type of urinary incontinence is usually experienced as a frequent or constant dribble. Urination produces only a weak stream, and the bladder never completely empties. Possible causes include an underactive bladder muscle. The muscle may have stopped contracting in reaction to a particular medication or because of nerve injuries or damage to the bladder muscle.

The investigation to find the causes of the leakage begins with a medical history. The doctor will ask for information such as number of pregnancies and deliveries, what illnesses and injuries the patient has had, what medications he or she has been taking and whether he or she has had prior surgery and, if so, what kind. The doctor will also interview the patient about his or her present incontinence symptoms and how they affect daily life. The patient may be asked to keep a diary (called a voiding diary), in which he or she records each time she urinates during a 24-hour day, each time uncontrolled leakage occurs and each time he or she drinks fluids. The doctor will analyze the patient’s urine sample in the laboratory for signs of infection or other problems.

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A physical examination will include a vaginal exam and/or a rectal exam. The doctor will test nerve function and check the anatomy for features that may contribute to incontinence or affect treatment. An important purpose of the physical examination is to observe and evaluate urinary incontinence while loss of urine is actually taking place.

In addition to physical exam, urodynamics and cystoscopy may also be used to evaluate stress urinary incontinence. Cystoscopy and detailed pelvic exam also help evaluate for possible anatomic problems causing incontinence or problems of the bladder unrelated to the incontinence that might affect treatment. These anatomic problems include bladder stones, bladder diverticuli, urethral stricture, foreign body in the bladder, and bladder tumor. Cystoscopy involves placing a telescope with a camera into the bladder through the urethra to inspect the anatomy of the bladder and urethra. This procedure takes just a few minutes in the office.

Urodynamics may be used, especially if a patient is considering surgical intervention for incontinence. Urodynamic assessment of bladder function may be used as a baseline study or to assess other possible bladder problems such as high pressure storage or incomplete bladder emptying that could lead to UTI. Urodynamics involves a small urethral catheter along with a vaginal catheter and some sticky EMG pads on the pelvis to study bladder function. This study takes 30 – 60 minutes in the office. The results may help identify what is causing the patient's incontinence. For example, continued loss of urine after the patient has stopped performing stress maneuvers may indicate an overactive bladder muscle. The results may tell the doctor under what circumstances leakage occurs and what the bladder is doing at the time.

At the end of the diagnostic investigation, the patient and doctor should know approximately how much of the incontinence is caused by stress incontinence. In addition, the diagnostic investigation should reveal how much other factors such as an overactive bladder muscle, may be contributing to the incontinence.

For treating stress urinary incontinence, many surgical procedures have been developed. All have the same goal. They all seek to create support for the urethra and bladder neck to prevent downward sag and urine leakage during physical activities. However, each procedure achieves this goal in a different way. The most widely successful and least invasive surgical treatment for stress incontinence in both males and females is a mid-urethral sling.

Another type of treatment, collagen injections, may also be an option for patients with incontinence. Collagen is a common substance in animal bones and connective tissue. The collagen for treating incontinence is extracted from cattle, purified and prepared for use as an injectable agent. It is injected into or around the urethra. The result is "bulking" of tissue. This helps the internal seal mechanism close off the flow of urine. Collagen is injected under local anesthesia. There are no known long-term complications from the injections. However, collagen's effectiveness decreases over time. Re-injection is usually necessary within a year after the first treatment.

Another form of treatment for stress incontinence is Pelvic Floor Retraining (PFR). PFR is a form of directed physical therapy in the office. PFR is noninvasive and performed

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once a week for 6 weeks in the office. PFR is the one treatment that can treat both stress and urge incontinence.

### Sling procedures

Sling procedures are performed partly through the vagina and through two small puncture sites just outside each labia in female. In males the sling is placed under the urethra by way of a small incision below the scrotum and two small incisions on either side of the scrotum. Sling procedures create a hammock-like bolstering of the urethra. A supporting strip of material is placed under the urethra. For sling procedures, the long-term cure rate is about 85%. Transvaginal Tape is another form of midurethral sling for females where no dissection of the obturator canal is required and only a small vaginal incision is required.

Since sling procedures are effective for all types of stress incontinence and are, in general, the least invasive technique for surgical treatment of stress urinary incontinence we use sling procedures with or without the transobturator approach for most cases. The procedure is an outpatient procedure. Usually a bladder catheter is not required. For females, a vaginal packing is left in place (if the transobturator approach is used) to protect the surgical site and the patient is instructed to remove the vaginal packing at home the following day. Sexual activity and vigorous exercise can usually resume in 4-6 weeks. Erosion of the synthetic sling material can occur in less than 2% of cases and usually requires a return to the operating room to remove a part of the sling.

In men there is a specialized sling for the male pelvis, called the Advance Male Sling, from American Medical Systems. This sling is placed with a small incision below the scrotum and two small obturator canal punctures just lateral to the scrotum.

### Complications from surgery

Serious complications from surgery for stress incontinence occur very infrequently. The likelihood of needing a transfusion is less than 1% for all procedures.

Less serious complications such as infection occur more frequently, but usually they are easily treated. Most infections that occur can be treated successfully with antibiotics.

Retention, the incomplete emptying of the bladder, is a possible complication. The urine accumulates in the bladder because the patient has trouble urinating. This is temporary in most cases, but may last a month or more. While the condition lasts, a catheter is inserted through the urethra and into the bladder to drain the urine. The doctor may suggest self-catheterization, in which the patient inserts the catheter and drains her bladder in the privacy of her own home.

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