Female Stress 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 both are muscles and can contract or relax. 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.

The brain has sent the signal to release urine from the bladder. The bladder muscle now contracts 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, but independently of 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 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.

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.

ISD is unrelated to the more common condition of urethral hypermobility. However, both ISD and urethral hypermobility may exist in the same patient at the same time. 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 she has been taking and whether she has had prior surgery and, if so, what kind. The doctor will also interview the patient about 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 she records each time she urinates during a 24-hour day, each time uncontrolled leakage occurs and each time she drinks fluids. The doctor will analyze the patient’s urine sample in the laboratory for signs of infection or other problems.

A physical examination will include a vaginal 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 cystosocpy 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 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.

VideoUrodynamics is the use of fluoroscopic VCUG (a voiding cystourethrogram x-ray) in conjunction with urodynamics. These studies are sometimes used for particularly perplexing cases of urinary incontinence.

At the end of the diagnostic investigation, the patient and doctor should know approximately how much of the stress incontinence is caused by urethral hypermobility and how much by ISD. This knowledge is important in selecting a surgical procedure for treatment. 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 due to urethral hypermobility (described on page 2), 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 many procedures for correcting urethral hypermobility, when grouped according to type of surgery, make up three

general categories. These categories are: retropubic suspensions, transvaginal suspensions and sling procedures. The individual procedures grouped together within each category differ from one another to some degree, but are basically similar in their surgical approach.

If the stress incontinence is entirely or partly caused by ISD, the treatment goal is to restore normal functioning of the sphincter and internal seal mechanism The most effective surgical procedures for treating ISD appear to be those in the sling procedure category. Suspension procedures, retropubic or transvaginal, have poor results in patients with ISD.

Another type of treatment, collagen injections, may also be an option for patients with ISD. Collagen is a common substance in animal bones and connective tissue. The collagen for treating ISD 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.

The most important factor overall in choosing a surgical procedure is the specific nature of the patient’s particular incontinence problem. Other factors that may play a part in the decision include patient preferences, the doctor’s own experience and possible side effects from a procedure. Factors such as other illnesses revealed during the diagnostic investigation may affect the choice of treatment.

Also, any surgical procedure for treating stress urinary incontinence can correct only what is causing the stress incontinence. If another type of incontinence is present as well, such as urge incontinence, the patient may still have urgency symptoms even if the surgery is successful in curing the stress incontinence

Sling procedures

Sling procedures are performed partly through the vagina and through two small puncture sites just outside each labia. Sling procedures create a hammock-like bolstering of the urethra. A supporting strip of material is placed under the bladder. For sling procedures, the long-term cure rate is about 83 percent

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 the transobturator approach for most cases. The procedure is an outpatient procedure. Usually a bladder catheter is not required. A vaginal packing is left in place 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.

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. Some cases have been reported in which women with stress incontinence, but no urge incontinence, develop urge incontinence after surgical treatment for their stress incontinence. Not enough cases have been reported for accurate calculation of how often this complication might occur. However, its occurrence appears to be infrequent.

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. The procedure is painless, does not require sterile equipment and is easily learned. The time spent in the hospital after surgery usually ranges from zero to five days, depending on the type of procedure. (Hospital time is generally shortest for transvaginal procedures.) The length of time before resuming normal physical activities after any of these procedures is typically about six weeks.

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