

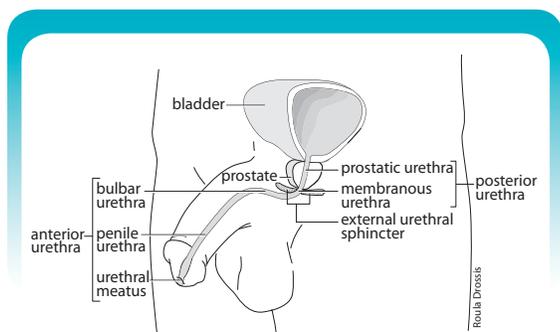


Urethral strictures in men

A urethral stricture is a narrowing in the bladder outlet that can cause voiding difficulty.

The bladder stores urine produced in the kidneys until emptying is appropriate. During urination, the bladder muscle contracts to expel urine through its outlet, the **urethra**. Opening and closing of the urethra is controlled by muscles that surround it called the urethral sphincter.

Urine leaves the bladder through a muscular opening, the bladder neck, into the first part of the urethra which runs through the prostate (prostatic urethra). The next segment is the membranous urethra which is surrounded by a control muscle, the external urinary sphincter. This sphincter allows one to voluntarily retain urine and to stop flow during urination. Together, the prostatic and the membranous portions make up the **posterior urethra**, which is approximately 2.5 to 5 cm (1-2 inches) long.



The remainder of the urethra is a channel running through the penis. The first portion, the bulbar urethra, is located in the crotch between the legs, while the penile urethra runs through the shaft of the penis. The opening at the tip of the penis is called the urethral meatus. The bulbar urethra, penile urethra and meatus make up the **anterior urethra**.

A **urethral stricture** is a scar in or around the urethra, which can restrict the flow of urine. Imagine a narrowing or kink in a garden hose which will slow the stream of water. A stricture in the urethra can cause weakening or spraying urine stream, painful urination and occasionally blood from the urethra.

Stricture disease may occur at any point of the urethra from the bladder to the urethral opening. The most common cause of a stricture is an injury to the urethra. A fall or motor vehicle accident may cause a pelvic bone fracture with a tearing of the posterior urethra, which may heal with the formation of a stricture. A straddle injury, such as striking a bicycle cross-bar between the legs, can crush the anterior urethra causing a stricture. This problem may also occur from injury to the urethra after placement of a drainage tube (catheter) or after surgery performed through the urethra. Occasionally, urethral strictures may be due to infections. In many cases, however, no obvious cause can be identified.

When a urethral stricture is suspected, your doctor may recommend investigations to clarify the diagnosis. This may include urine tests to identify blood or infection. The rate and volume of urine flow can be recorded (**uroflowmetry**). Several imaging tests can be used to evaluate the location, length and severity of a urethral stricture. An X-ray image of the urethra can be obtained after injecting contrast "dye" into the channel (**urethrogram**) to demonstrate the stricture characteristics. Ultrasound examination of the urethra may determine the amount of scar tissue present. **Urethroscopy** is a procedure where the doctor gently places a thin, lubricated "scope" into the urethra to examine the stricture visually. These tests will help establish the diagnosis and guide treatment.

Treatment options

There are different treatment options for urethral strictures depending upon the length, location and degree of associated scar tissue. Options include enlarging the stricture by gradual stretching (**dilation**), cutting the stricture through a "scope" (**internal urethrotomy**) and surgical removal of the stricture with reconstruction of the urethra (**urethroplasty**).

Continued on next page

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Dilation

Urethral dilation often can be performed in your urologist's office under local anesthetic ("freezing"). This involves stretching the stricture using increasingly larger dilators. If the stricture recurs rapidly, one can be taught how to insert a catheter into the urethra periodically to maintain the opening. Dilation alone will often not completely cure the stricture. Pain, bleeding and infection may occur after stricture dilations.

Internal urethrotomy

Internal urethrotomy involves cutting into the scar causing the stricture with a specialized cutting tool or laser. This may be done in a clinic with local anesthetic (freezing), or in the operating room under a spinal or general anesthetic (you are "put to sleep") as necessary. Your doctor will incise your stricture through a specially designed "scope" (**cystoscope**) that can be passed into the urethra up to the stricture. A catheter may be left in the urethra to allow it to heal in an open position. This procedure can be very useful for strictures at the bladder neck as well as in the urethra. After the procedure there may be blood in the urine and urethral bleeding with discomfort. Occasionally, infection requires antibiotic treatment. Unfortunately, the risk of stricture recurrence after internal urethrotomy is significant.

Occasionally, after an internal urethrotomy, a permanent stent can be placed across the stricture to hold it open. A stent is a cylindrical metal mesh which can expand to prevent the stricture from narrowing. This treatment may be useful for select patients as complications related to the stent may occur and removal may be difficult.

Urethroplasty

A urethroplasty is a surgical procedure which is performed through an incision to repair a stricture of the posterior urethra, the anterior urethra or the meatus. There are many different types of urethroplasties. The choice of repair depends on the location and length of the stricture.

Open urethroplasty of a short urethral stricture may involve surgery to remove the stricture and simply reconnect the two ends. When the stricture is too long, the missing segment of urethra can be reconstructed with tissue transferred from elsewhere in the body. Different types of tissue can be used including skin from surrounding areas or the lining of the mouth (buccal mucosa). These repairs may be challenging, and may need to be performed in stages in some circumstances.

The open urethroplasty procedures are performed through an incision in the crotch or in the penis. This surgery, usually carried out under general anesthetic, may be either an out-patient procedure or it may require a short hospital stay. A small, soft catheter may be left in the penis for up to three weeks to ensure healing of the repair.

After treatment

Because urethral strictures can recur at any time, you should be monitored by your doctor following surgical repair. You may be asked to learn to self dilate the area with a catheter tube to delay or prevent recurrence. Periodic office appointments to review voiding function and a test of your urine flow may be necessary. X-rays or urethroscopy may be needed to evaluate the repaired area. Some will require additional surgical procedures over time to maintain normal urination.

Urethral strictures are a common cause of voiding problems. They often can be managed simply by your physician with minor surgery.

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