



## URETHRAL STRICTURE DISEASE

Information about your procedure from  
The British Association of Urological Surgeons (BAUS)

You have been given this leaflet because you have been diagnosed with a urethral stricture (narrowing of your waterpipe). The aim of the leaflet is to provide you with detailed information about what causes urethral stricture disease and how it is treated.

To view this leaflet online, scan the QR code (right) or type the short URL below it into your web browser.

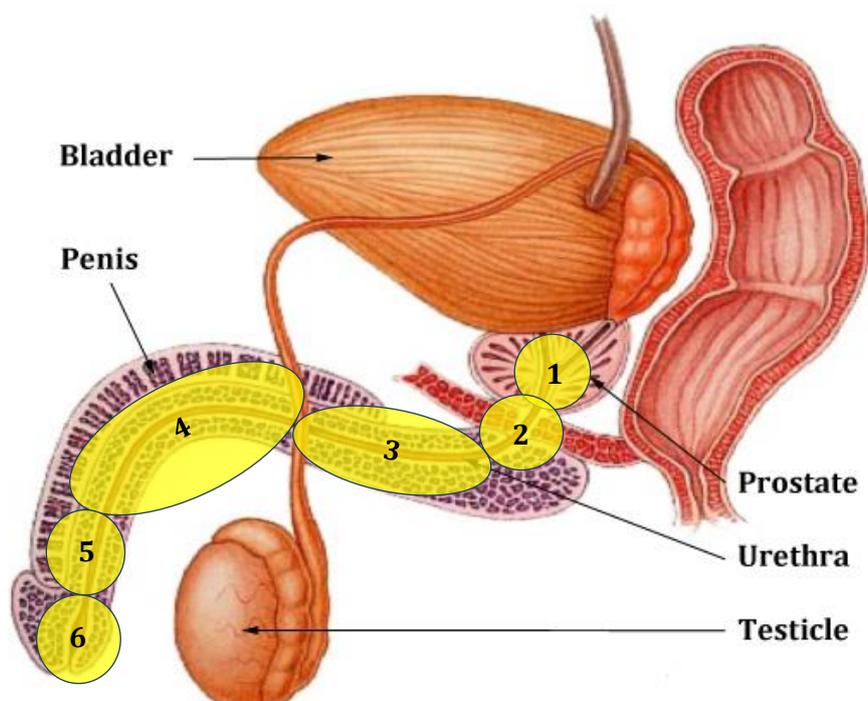


<http://rb.gy/gguz0>

We have consulted specialist surgeons during its preparation, so it represents best practice in UK urology. You should use it in addition to any advice already given to you.

### Where is the urethra and what does it do?

In men, the urethra is a tube that carries urine from the bladder, and semen from the ejaculatory ducts, out of the body. From the bladder, it goes through your prostate, your external sphincter (muscle that helps you remain continent), your perineum (the area between scrotum and anus) and your penis.



Although the urethra is a single continuous structure, it is divided into six regions (shown above & described below), named after the structures that surround it:

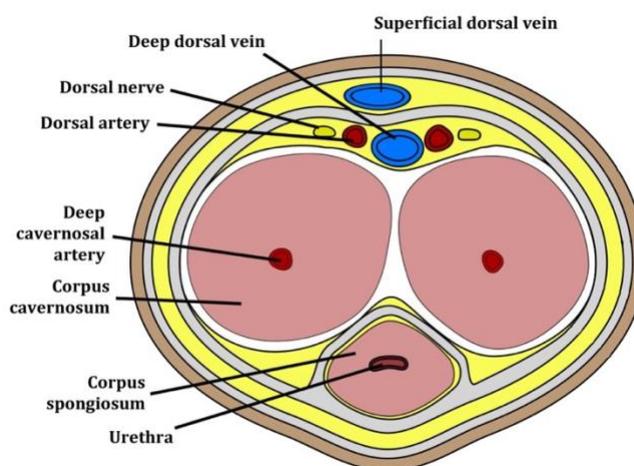
<b>Prostatic urethra (region 1)</b>	The portion which passes through your prostate gland
<b>Membranous urethra (region 2)</b>	The portion which passes through your external sphincter (valve) muscle
<b>Bulbar urethra (region 3)</b>	The portion which passes through the “bulb” of the penis in your perineum
<b>Penile urethra (region 4)</b>	The portion which passes through your penis
<b>Sub-meatal urethra (region 5)</b>	The portion which passes into the head (glans) of your penis
<b>External meatus (region 6)</b>	The visible tip of your urethral opening

Urologists also describe the urethra as being divided into two main sections:

- a **posterior** (rear) section (regions 1 - 2), and
- an **anterior** (front) section (regions 3 - 6)

The anterior (front) section is surrounded by a cylinder of spongy tissue called the **corpus spongiosum** (pictured left).

This, along with two other cylinders within the penis (**corpora cavernosa**), fills with blood to make the penis rigid during erection.



## What is a urethral stricture?

A urethral stricture is a narrowing caused by scarring of the lining of the urethra and the surrounding corpus spongiosum.

Strictures can range from less than 1cm long to those that extend the entire length of the urethra.

They can occur at any point along the urethra, but are most often seen in the **bulbar region** (region 3).

## What are the causes of urethral strictures?

The most likely cause depends on the site of the stricture. Broadly, the commonest reasons are:

<b>Idiopathic</b>	Cause unknown
<b>Inflammatory</b>	<p>Caused by infection or inflammation in the urethra, e.g.</p> <ul style="list-style-type: none"> <li>sexually-transmitted infections (STIs) e.g. gonorrhoea</li> <li>chronic inflammation e.g. lichen sclerosus (LS) also known as balanitis xerotica obliterans (BXO)</li> </ul>
<b>Traumatic</b>	<p>Caused by injury to the urethra, e.g.</p> <ul style="list-style-type: none"> <li>a fall astride the cross-bar of a bicycle</li> <li>pelvic trauma associated with pelvic bone fracture</li> </ul>
<b>Iatrogenic</b>	<p>Caused by medical intervention, e.g.</p> <ul style="list-style-type: none"> <li>repeated urological procedures that involve passage of instruments along the urethra</li> <li>urethral catheterisation</li> <li>radiotherapy or surgery to adjacent organs</li> </ul>
<b>Congenital</b>	<p>Inherited conditions e.g.</p> <ul style="list-style-type: none"> <li>hypospadias (or as a result of previous surgery to correct hypospadias)</li> </ul>

## What symptoms might I have with a urethral stricture?

With minor strictures, you may not have any symptoms. With tighter strictures, you may experience one or more of the following:

- poor urinary flow and needing to strain to pass urine;
- spraying or splitting of the urinary stream;
- dribbling of urine after urination;
- needing to pass urine often (urinary frequency);
- urinary tract infections;
- reduced force of ejaculation and low ejaculate volume; and
- pain on passing urine.

## What are the risks of leaving a stricture untreated?

A stricture can act as a “bottleneck” which prevents complete bladder emptying. This can cause you to retain urine in your bladder after you pass urine, which can result in bladder, prostate or kidney infections, and lead to the formation of stones. Rarely, these conditions can cause long-term bladder damage and kidney failure.

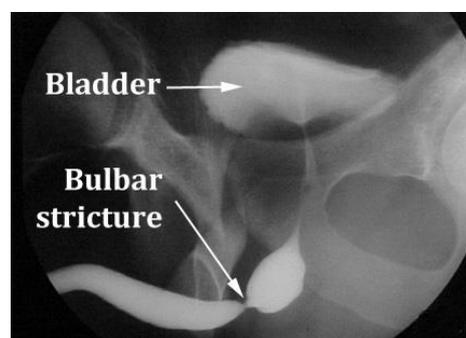
## How is a stricture diagnosed?

A stricture may be suspected if you have a reduced urinary flow rate or your bladder does not empty completely on an ultrasound scan after you have passed urine.

A stricture may be diagnosed by:

- **examination** - especially if the narrowing is visible at the tip of the penis;
- **failure to pass a telescope or catheter** - during investigation of your urinary symptoms, especially when the stricture is close to the bladder;
- **a urethrogram** - an X-ray performed using contrast medium (dye) put into your urethra to show the anatomy;
- **an ultrasound scan**; and
- **an MRI scan.**

A **urethrogram** (pictured) is an X-ray that shows the anatomy of your urethra. We place a very fine catheter inside the tip of the penis and use it to inject a dye which shows up on X-ray.



Some urologists prefer to use **urethral ultrasound**. Using lubricant on your penis, your urethra is scanned from the outside as you pass urine. This has the

advantage of showing the anatomy more clearly, especially the extent of any scarring around the urethra.

## What treatment is available for strictures?

Many types of treatment are available, ranging from conservative or minimally invasive procedures, right through to complex reconstructive operations.

The goal of treatment is to relieve the symptoms caused by the stricture and, if possible, to reduce the risk of the stricture returning.

The type of treatment we recommend depends on several factors:

- your preference as the patient;
- the site and length of your stricture;
- the cause of your stricture;
- any previous treatments you have received for your stricture; and
- your general health.

### Observation only

If your symptoms are not troublesome, we may simply monitor you and intervene only if your symptoms deteriorate or risk harming your long-term health.

This usually involves regular reviews with your urologist for flow rate tests and ultrasound scans. We might recommend active treatment if:

- your urinary symptoms worsen;
- your flow rate decreases significantly; or
- the amount of urine you leave in your bladder after urination increases.

### Urethral dilatation

Under anaesthetic, we pass a plastic or metal dilator (pictured) into your urethra to stretch the narrow area. Afterwards, we may teach you to pass a similar dilator or “slippery” catheter into your urethra (intermittent self-dilatation, ISD).



Dilatation can also be undertaken by balloon dilatation using the Optilume® device. This is licensed for recurrent bulbar strictures less than 3cm long.

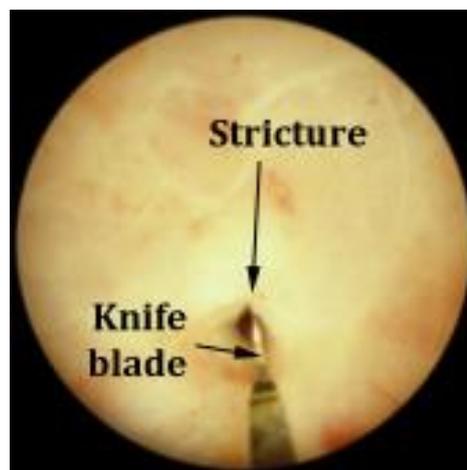
There is a relatively high risk that the stricture will return using this method, so your urologist may need to repeat the dilatation or arrange a different treatment if your stricture recurs.

### Internal (optical) urethrotomy

Under an anaesthetic, we pass a telescope through your urethra to cut the stricture. This opens, but does not remove, the scar tissue causing the narrowing. You will usually need a bladder catheter (a tube in your bladder through your urethra) for at least 24 hours after the procedure.

It is normally done on a day case basis.

You may be taught to remove the catheter yourself but, if not, we will arrange removal by the community health services or in your hospital outpatient department.



If you are having an optical urethrotomy for the first time, there is a 1 in 2 (50%) risk of stricture recurrence, so it may need to be repeated. If your stricture recurs, the risk of further recurrence is higher after a second (or even third) dilatation or urethrotomy.

### Urethroplasty

This is a complex operation that involves repairing the diseased section of urethra to stop the stricture from coming back. It requires a longer anaesthetic time, it is open (cutting) surgery and it has a higher risk of side-effects than internal optical urethrotomy or urethral dilatation.

Complex urethroplasty procedures are only available in a limited number of centres that have the required expertise. Your urologist will be able to advise you if your surgery needs to be performed in one of these specialist units, based in another hospital or region.

Urethroplasty has a much higher success rate in curing symptoms and preventing the stricture from returning than most other forms of treatment.

The type of procedure needed can vary a lot depending on the site, length and tightness of the stricture but, in general terms, the following approaches are most commonly used:

- **For bulbar strictures**

- [anastomotic bulbar urethroplasty](#) - if your stricture is short, we cut out the narrowed area and join the healthy ends together again
- [augmentation buccal mucosa graft urethroplasty](#) – if your stricture is longer, we cut open the narrowed area and use a piece of your cheek lining (buccal mucosa) as a graft to widen the stricture
- [augmented anastomotic buccal mucosa graft urethroplasty](#) - for long, tight strictures, we cut out the diseased area, join the healthy ends together and use a buccal mucosal graft as well to widen the urethra

These procedures all need an incision (cut) in your perineum (between your anus & scrotum), a 1 or 2-day hospital stay, a catheter in your bladder for 2 - 3 weeks and 4 - 6 weeks off work.

- **For penile strictures**

- [multiple-stage penile urethroplasty](#) – this involves two or more operations at least three months apart, and is most often used for strictures of the penile urethra. In the first stage, we make a cut on the under-surface of your penis, open the urethra and remove all diseased tissue. We use a piece of buccal mucosa (cheek lining) as a graft and fix it in place with stitches so looks like a quilt. We stitch the skin of the penis back to the edges of the graft, leaving the graft itself exposed. After this, your urethral meatus (external opening) will be further back on the underside of your penis than it was before the procedure.

We put a catheter into your bladder for two to three weeks to prevent urine encountering the graft and to allow it to get a blood supply from the tissues in your penis.

We perform the second stage several months later, once the graft has picked up a new blood supply. We roll the graft into a tube to reconstruct the urethra, and close the skin of the penis over the top of it. Once again, we usually put a catheter into your bladder for two to three weeks.

- [single-stage penile urethroplasty](#) - here, the reconstruction is done as a single operation. We normally use a buccal mucosa

graft, but we sometimes use a flap of skin (with its own blood supply) from the shaft of the penis or the foreskin to enlarge the urethra.

### Long-term urethral catheter or suprapubic catheter

If you have multiple medical problems or you wish to avoid invasive treatment, we may recommend putting in a long-term catheter (pictured).



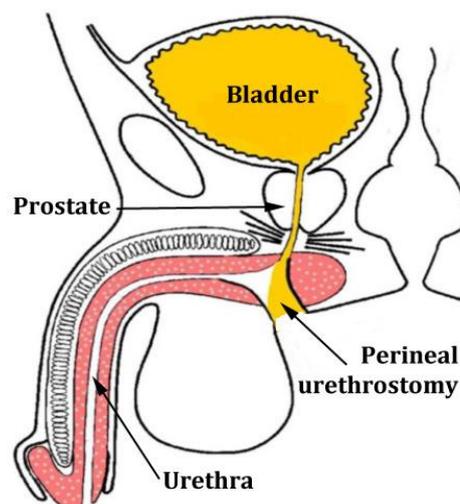
This can be put into your bladder through the urethra (a urethral catheter) or through the tummy wall above the pubic bone (a suprapubic catheter). Catheters are convenient and relieve troublesome symptoms. But they can cause irritation of the bladder, urinary infections and bladder stones.

Long-term catheters need to be changed every eight to 12 weeks. Your urologist will advise you about the interval between changes. You will also need supplies of catheters which your specialist nurse or GP can organise for you.

### Perineal urethrostomy

This is a procedure to “short-circuit” the diseased urethra by bringing it out to the skin surface in the perineum (between the back of the scrotum and the anus, pictured). It is only used if the bulbar urethra is healthy and of normal diameter.

It is less complex than urethroplasty, and may be considered if you have extensive stricture disease where reconstructive surgery might not be technically possible, or if you wish to avoid further surgery. It results in urine being passed through an opening in the perineum, rather than along the penis. After this, you will need to sit down to pass urine. You will also ejaculate through this opening (not through your penis).



Individual procedure-specific leaflets, describing the risks and complications of individual operations, are available using the title links above.

### **What sources were used to prepare this leaflet?**

This leaflet uses information from consensus panels and other evidence-based sources including:

- the [Department of Health \(England\)](#);
- the [Cochrane Collaboration](#); and
- the [National Institute for Health and Care Excellence \(NICE\)](#).

It also follows style guidelines from:

- the [Royal National Institute for Blind People \(RNIB\)](#);
- the [Information Standard](#);
- the [Patient Information Forum](#); and
- the [Plain English Campaign](#).

#### **DISCLAIMER**

Whilst we have made every effort to give accurate information, there may still be errors or omissions in this leaflet. BAUS cannot accept responsibility for any loss from action taken (or not taken) as a result of this information.

**PLEASE NOTE:** the staff at BAUS are not medically trained, and are unable to answer questions about the information provided in this leaflet. If you have any questions, you should contact your Urologist, Specialist Nurse or GP in the first instance.