# Urethra

## ANATOMY

The urethra

### Male Dogs

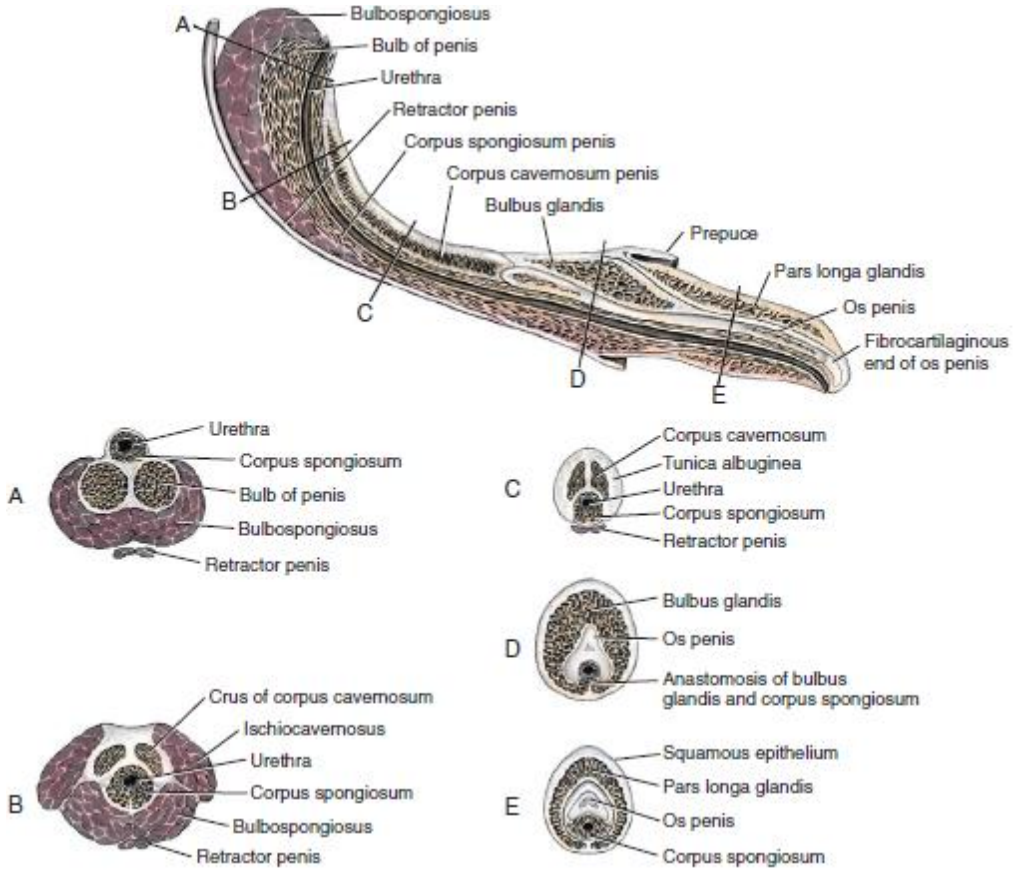
The urethra is relatively long in male dogs (10 to 35 cm) and varies widely in length and width proximal to the os penis to permit distention with voiding and ejaculation. It is divided into three segments:

1- **the preprostatic**
2- **prostatic sections that lie within the pelvic canal**
3- **the cavernous or membranous urethra *(pars spongiosa)*.**

The preprostatic segment extends from the neck of the bladder to the prostate, and the prostatic segment *(pars prostatica)* passes through the prostate gland. The cavernous portion of the urethra begins at the ischial arch, where the pars spongiosa is joined by the cavernous spaces of the bulbus penis that continue to the urethral termination.

### Female Dogs

The urethra in female dogs is shorter and wider than in males and contains relatively more connective tissue. Its smooth muscle consists of outer and inner longitudinally oriented layers and a middle circular layer.




## SURGICAL PROCEDURES

### Urethrotomy

Urethrotomy is the creation of a temporary opening in the urethra. It is most commonly indicated for removal of **calculi** that cannot be shifted by temporarily bypass other types of obstruction.

Urethrotomy may also be performed to expose obstructive lesions or masses for biopsy.

The urethrotomy site is based on the location of the obstructive lesion.

**The prescrotal region** is preferred in male dogs because of the urethra's superficial position and limited surrounding cavernous tissue, it provides the option of revision in a more proximal location if complications arise.

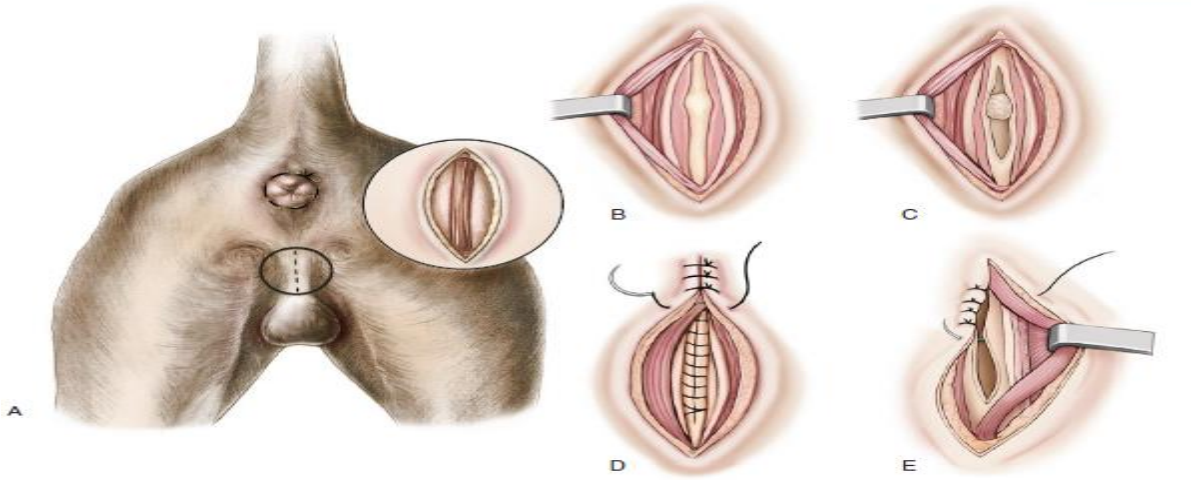
**Perineal or prepubic urethrotomy** can also be performed in male dogs and cats.

**The procedure** is similar to prescrotal urethrotomy (described below), with the exception that the urethral incision in the perineal or prepubic locations must invariably be closed with sutures. When calculi can be dislodged and flushed

back into the bladder, performance of cystotomy is always preferable to urethrotomy to minimize the potential for complications.

## Prescrotal Urethrotomy

1- The patient is placed in dorsal recumbency with the pelvic limbs extended and abducted.
2- The abdomen is clipped and aseptically prepared to allow performance of cystotomy if it becomes necessary.
3- The scrotum should be included in the operative field if conversion to a scrotal urethrostomy is considered a possibility.
4- The prepuce should be irrigated with dilute antiseptic solution and draped into the surgical field to allow catheterization.
5- Urethral catheterization is performed to hydropulse calculi that could not be shifted before surgery, facilitate identification of the urethra, and determine the position of the obstruction.
6- 1- to 2-cm incision is made on the ventral midline caudal to the os penis and cranial to the scrotum.
7- The urethra is identified as a purple structure, 3 to 4 mm wide, A longitudinal incision is made through the midline of the urethra over either the catheter or calculus. Profuse hemorrhage often occurs upon urethral incision because of the vascularity of corpus



spongiosum ncircling the urethra and can typically be controlled with direct pressure.

8- Calculi are removed, and a urethral catheter is inserted into the urethral orifice and advanced beyond the urethrotomy site into the bladder.

9- The urethra is catheterized in antegrade and retrograde directions and flushed with sterile fluid to ensure that all calculi have been removed.

**The decision as to whether or not to suture the urethrotomy site is based on surgeon preference**.

Suturing is performed with 4-0 or 5-0 monofilament absorbable material in an interrupted or continuous pattern.

**complication of urethrotomy**. Urethral stricture is an uncommon and may be the result of urethral trauma secondary to obstruction by calculi rather than the urethrotomy itself.

## Urethrostomy

Urethrostomy also has been performed in an attempt to decrease the likelihood of obstruction in animals that chronically form urinary calculi.

Repeated urethral obstruction is the primary indication for perineal urethrostomy in male cats.

a permanent **stoma** (open) bypasses the normal urinary tract opening and may increase the risk of chronic urinary tract infection, and the owner should be informed of the indications and complications of the procedure.

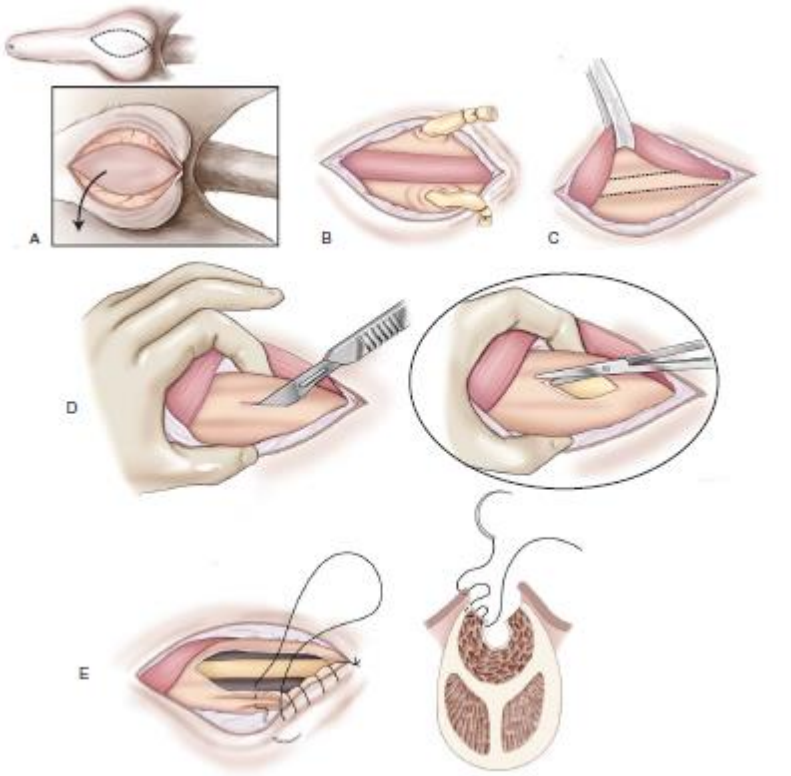
Animals should also be evaluated for underlying conditions that may effectively resolve the problem without urethrostomy being performed. In male dogs, **urethrostomy can be performed at prescrotal, scrotal, perineal, and prepubic locations**.

Scrotal urethrostomy is **preferred because the urethra in that region is superficial and relatively wide**, and less hemorrhage results at that site than at other

locations. Prescrotal and perineal urethrostomies in male dogs may result in urine scalding along the scrotum or medial surface of the hindlimbs.
The procedure for prescrotal or perineal urethrostomy is essentially similar to scrotal urethrostomy, although the retractor penile muscle is not present in the perineal location. Urethrostomy can be performed in male cats in either a

## *Scrotal Urethrostomy in Male Dogs*

1- The patient is positioned in dorsal recumbency, and the caudal abdomen, prepuce, and scrotum are prepared for aseptic surgery.
2- urethral catheter is placed into the bladder or to the point of obstruction to facilitate identification of the urethra.
3- An elliptical incision is made around the base of the scrotum in intact male dogs or the scrotal remnant in castrated male dogs Care is taken to leave adequate skin on the lateral aspects of the incision to allow a tension-free closure.
4- Castration is performed in a routine manner through the skin incision, and the testes and scrotum are removed.
5- The retractor penile muscle is freed from its attachment to the underlying urethra and retracted laterally.
6- A small incision is made through the ventral midline urethra with a scalpel blade. It is crucial that the incision into the urethra be made on the midline to limit hemorrhage
7- Care must be taken to avoid lacerating the dorsal urethral surface; therefore, incision over a catheter is preferable.
8- The incision is extended 2.5 to 4 cm (~five to eight times the urethral diameter) with fine scissors to ensure adequate size of the stoma.
9- The urethra is sutured to the skin using 4-0 or 5-0 monofilament suture material in a single-layer simple interrupted or simple continuous pattern.
10- The suture is passed through the mucosa and fibrous tissue of the urethral wall but includes only dermis and epidermis of the skin.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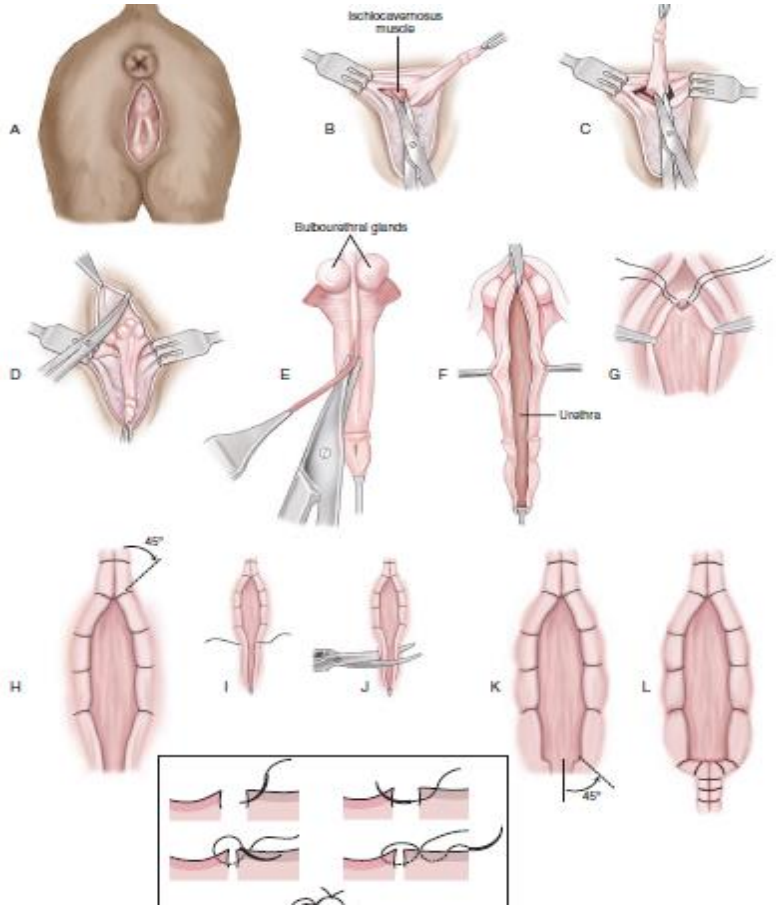
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# Acquired Disorders

1- Urethral Obstruction

2- Urethral Stricture (stenosis)

3- Urethral Trauma

4- Urethritis