

# **Urologic Surgical Associates of Delaware**

## *Specializing in Robotic Surgery*

### **Urethral and Bladder Diverticulum**

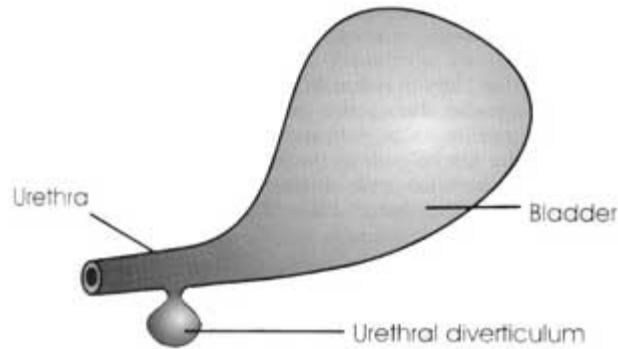
#### **Overview**

Diverticula (pouch-like enlargements) of the lower urinary tract may occur in the bladder or at any point along the urethra in men and women. Acquired bladder diverticula occur more commonly in men whereas urethral diverticula are more commonly diagnosed in adult women. Bladder diverticuli are usually the result of bladder obstruction by an enlarged prostate. Such blockage leads to high bladder wall pressure to push the urine through the relative obstruction. This high pressure in the bladder wall causes areas of relative weakness (areas between the bladder wall muscle fibers) to push out causing a dilated sac or diverticulum of the bladder wall. Bladder diverticuli are usually without symptoms and so are usually not treated. Urethral diverticuli often cause symptoms and so they are often treated.

Urethral diverticula may be caused by blockage of the periurethral glands into the urethral lumen (cavity) with epithelialization (re-growth of tissue) over the opening of the resulting periurethral cavity.

Re-infection and recurrent obstruction of the neck of the diverticulum causes various symptoms as well as enlargement of the diverticulum. The periurethral glands (glands in the lining of the urethra) exist over the entire length of the urethra, with the majority draining into the distal (end) third of the urethra. Skene's glands are the largest, and most distal of these glands. Urethral diverticula occur mostly in the area of these glands so they are found most commonly in the distal end of the urethra. In many cases, a person may have more than one diverticulum.

Urethral diverticula present some of the more challenging diagnostic and reconstructive cases in urology. Patients may complain of the following symptoms: recurrent urinary tract infections, pelvic pain, incontinence, post-void dribbling, dyspareunia (painful sexual intercourse), dysuria (burning or pain with urination), urinary frequency and urgency, nocturia, or feeling of incomplete bladder emptying.



An anterior vaginal wall mass may be noted on physical examination, which, upon palpation, may be quite tender and express purulent (pus) discharge through the urethra. Nonetheless, adjunctive radiographic studies such as an MRI or voiding cystourethrography (or double balloon urethrography) are often used to confirm the diagnosis.

### **Evaluation**

The evaluation of a urethral diverticulum usually involves a history and physical exam followed by studies with MRI x-ray for urethral diverticulum (and/or a voiding cystourethrogram x-ray) and urodynamics and cystoscopy in the office.

MRI (magnetic resonance imaging) can be especially sensitive for detecting urethral diverticulum without the need for a catheter being placed into the urethra. Patients with severe claustrophobia or poor kidney function or metal in their bodies (a pacemaker, metal shavings from industrial work, recent surgery) may not be able to undergo MRI imaging.

VCUG (a voiding cystourethrogram x-ray) requires a urethral catheter for contrast injection into the bladder to evaluate for urethral diverticulum. The catheter used is usually a double balloon catheter.

Urodynamics may be used if a patient is being considered for surgical repair of a urethral diverticulum. Resection of the diverticulum can affect bladder function and so pre-operative assessment of bladder function may be used as a baseline study and to assess other possible bladder problems occurring at the same time. 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.

Cystoscopy and detailed pelvic exam also help evaluate for other possible problems occurring at the same time as a urethral diverticulum. These studies also help assess the extent and size of the urethral diverticulum for pre-operative staging. 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.

### **Transvaginal Resection of a Urethral Diverticulum**

Asymptomatic urethral diverticuli are not necessarily treated but these diverticuli are often associated with recurrent infection, pain and discomfort, and can interfere with intercourse. When these symptoms occur these urethral diverticuli are often resected.

Transvaginal resection of a urethral diverticulum is usually an outpatient procedure performed through a small incision under the urethra through the anterior vaginal wall. Monitored anesthesia or general anesthesia may be used. Through such an approach the diverticulum can be removed and the urethra can be reconstructed. A foley catheter is left in the urethra for 7-21 days (depending on the complexity of the resection) to protect the urethra and bladder during healing. This urethral catheter is connected to a bag on the leg to drain the urine. A vaginal packing is left in the vagina overnight to protect the surgical site. The nursing staff instructs the patient on the care of the catheter and the removal of the vaginal packing prior to discharge. After the surgery patients should refrain from strenuous activity and sexual activity for approximately 4-6 weeks. There is an approximate 10-20% risk of recurrence of a urethral diverticulum after resection.