

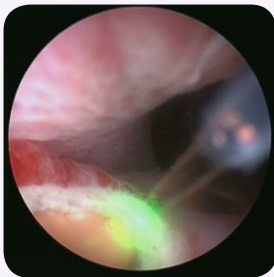
Cystoscopic Laser Ablation of Ectopic Ureters

An ectopic ureter is a congenital malformation where the ureter empties into the urethra below the level of the urinary sphincter. The signs of this are urinary incontinence that starts at a very young age. They are more common in female dogs. They do not improve with traditional therapies for urinary incontinence. In the past, this disorder was treated by surgically transplanting the ureter back into the bladder, a technically difficult and complication prone procedure. Now, most of these can be treated with laser ablation.

The reason for recommending this procedure is when a very young dog is presented that has been incontinent all of its life. These pets can void normally when outside but tend to dribble urine most of the time. The urine is usually normal in appearance and upon urinalysis or culture. Many of these pets have undergone diagnostic procedures such as contrast radiography or ultrasonography. However, the current diagnostic method of choice is cystoscopy since the abnormal openings can be visualized directly. The other procedures are less likely to provide a definitive diagnosis and also are not capable of treating the condition.

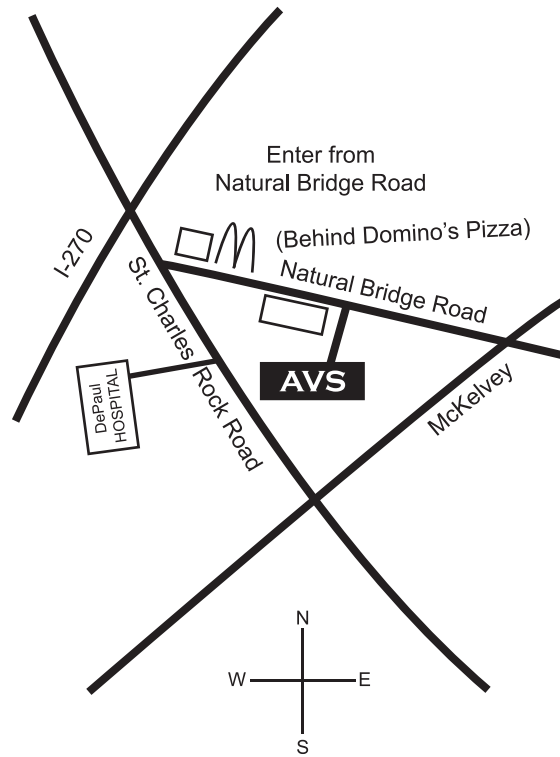
The pet is placed under general anesthesia and on their back. The vulva is prepped for the procedure. A rigid cystoscope is passed into the urethra and the wall examined until the abnormal opening of the ureter is found. An angle tipped, flexible guidewire is placed into the abnormal ureter and threaded up to the kidney under fluoroscopic guidance. The scope is then withdrawn and a ureteral catheter is placed over the guidewire into the abnormal ureter. Radiographic contrast material is injected into the ureteral catheter to visualize the pathway of the abnormal ureter and confirm the diagnosis. Afterward, the scope is reintroduced into the urethra and passed up to the level of the catheter entering the abnormal ureter. The Holmium:Yag Laser is then used to ablate or dissect the medial wall of the abnormal ureter until the opening is within the bladder. This may be done on one or both sides. In many patients, continence is immediately restored but others may require medication to maximize continence or in some cases a urethral occluder may need to be placed.

This is an **outpatient procedure** and the pet may be released with antibiotics or pain medications for a few days.



Laser dissection of right ureter

Location



Hospital and Clinic

12462G Natural Bridge Rd.

Bridgeton, MO 63044

(314) 739-1510

(314) 739-3330 (emergency)

(314) 291-2116 (fax)

AVSstl.com

We accept Care Credit
www.carecredit.com



AVS
ASSOCIATED
VETERINARY
SPECIALISTS

New Techniques in Veterinary Urology

Treatment of Bladder Stones and other Urinary Disorders in Dogs and Cats

- ◆ Cystoscopy
- ◆ Laser Lithotripsy
- ◆ Percutaneous Cystolithotomy (PCCL)
- ◆ Cystoscopic Laser Ablation of Ectopic Ureters



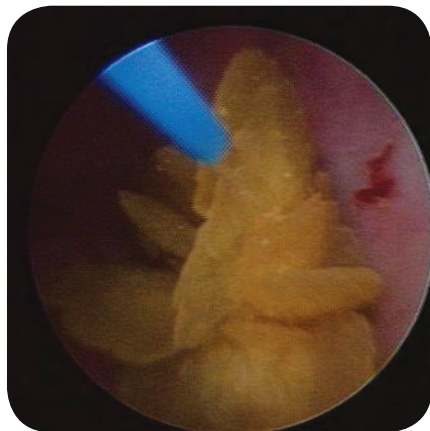
Cystoscopy

Cystoscopy is an endoscopic technique for examining the interior of the urethra and bladder. Either a rigid or flexible scope is used for the procedure. The rigid scopes are made in 3 sizes for various sized animals. They are used exclusively in female dogs and cats for cystoscopy. A flexible ureteroscope is also used in male dogs of a certain size.

Cystoscopy is recommended for chronic or recurring infections, blood in the urine, difficulty with or straining to urinate, traumatic injuries to the urinary system, urinary incontinence or abnormal findings on urinalysis, radiography or ultrasonography. Abnormalities found include calculi (stones), polyps, strictures, ectopic ureters and tumors.

With the patient under general anesthesia, female dogs lie on their back and males on the side or back. The scope is placed into the urethra and sterile saline is flushed through the scope to open the urethra and allow visualization. The scope is advanced slowly through the urethra and into the bladder. Via the scope, various procedures are done such as biopsy, calculi removal via basket or laser lithotripsy, urethral sphincter augmentation for incontinence or stent placement for tumor or stricture.

Post procedure patient care often includes short term antibiotics and pain medications such as tramadol or an NSAID. Complications tend to be minimal and short in duration such as straining or blood in the urine for a few days.



Laser fiber and bladder stone

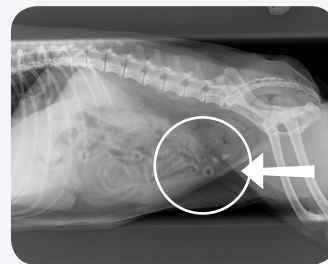
Laser Lithotripsy

Laser lithotripsy is a procedure performed for fragmentation (lithotripsy) of urethral or bladder calculi. AVS uses a 12 watt New Star Holmium-YAG laser.

Laser lithotripsy is indicated for any calculi in the bladder or urethra but it is subject to some limitations. The best candidates are female dogs weighing over 10 #. The number and size of calculi that are ideal depends on the size of the dog and can vary greatly but ideally the calculi are less than 2 cm in diameter. The procedure can also be performed in female cats and male dogs over 20 # but with greater restrictions on calculi size and number.

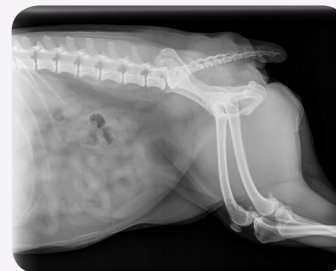
The patient is placed under general anesthesia and positioned for cystoscopy. After visualization of the calculi, a laser fiber is passed through the scope and the operator places the tip of the fiber on the calculus. The laser is programmed with appropriate power settings and pulse frequency. The laser is then activated and the laser light travels from the machine through the fiber and into the stone where the light causes the stone to break into fragments. After fragmentation, the pieces are removed with a retrieval basket or flushed out of the bladder with voiding hydropulsion. The calculi are then mailed to a reference laboratory for analysis.

Post procedure treatment is the same as routine cystoscopy and complications are generally minimal.



Bladder stones

Katie pre-procedure



Katie post-procedure

Percutaneous Cystolithotomy

Percutaneous Cystolithotomy (PCCL) is a minimally invasive surgical technique for removing bladder stones. This technique uses a small surgical incision and the cystoscope to remove calculi. It has advantages over conventional cystotomy for many cases. These include a smaller incision therefore less pain for the patient and better visualization inside the bladder because of brilliant illumination and magnification provided by the scope. The scope enters the bladder along its axis rather than the view provided by conventional cystotomy which is perpendicular to the axis of the bladder. The upper urethra can be examined much better with the scope.

The reasons for performing a PCCL are when bladder stones need to be removed but laser lithotripsy is not appropriate and a minimally invasive technique is desired over conventional cystotomy. PCCL can be used instead of conventional cystotomy in most cases except when large stones are present which would require a large incision to remove the stone.



PCCL in progress

After induction of general anesthesia, a urethral catheter is placed into the patient. The abdomen is clipped and prepped for sterile surgery and a small incision is made in the skin and abdominal wall over the apex of the bladder. The bladder is grasped and brought into the incision. Four "stay" sutures are placed to hold the bladder in position. Then a stab incision is made into the bladder and a threaded cannula (tube) is placed into the bladder. The bladder is then flushed with sterile saline until no further calculi can be removed. The cystoscope is placed through the cannula into the bladder to examine its interior and remove any remaining calculi with "stone basket" retrievers. If needed, the flexible ureteroscope is then used to examine the urethra. The incisions are then closed routinely.

This is **generally an outpatient procedure** and antibiotics and pain medications are commonly dispensed for several days. The sutures are removed in 10 to 14 days.