School of Veterinary Medicine

UCDAVIS VETERINARY MEDICINE

Urinary Incontinence in the Dog

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FACT SHEET: Urinary Incontinence in the Dog

Micturition depends on the coordinated action between the sympathetic, parasympathetic and somatic nervous systems and central control centers. Urinary incontinence is the involuntary action that results in urine leakage. It is important to speak to your veterinarian if your pet has exhibited urinary accidents in the house because a variety of differentials could be the cause of these clinical signs.

ANTATOMIC CAUSES FOR URINARY INCONTINENCE

Ectopic ureters (EUs) are the most common cause of urinary incontinence in young dogs. An ectopic ureter is defined as a ureteral opening in any area other than the normal position in the trigone of the bladder. UI is the most common clinical sign in dogs with EUs and is usually diagnosed in dogs prior to one year of age; however EUs should be considered in any dog with UI, particularly when the history is unknown. Breeds reported to be at risk include the Golden Retriever, Labrador Retriever, Siberian Husky, Newfoundland and English Bulldog. Although unilateral EUs have been reported to be more common, bilateral EUs were significantly more common in a recent study, which suggests that careful imaging of the urinary tract should be performed prior to surgery in order to obtain the best clinical outcome. EUs are uncommon in male dogs and these animals are often asymptomatic.

A diagnosis of EUs can be made by excretory urography, fluoroscopic urethrography or urerterography, abdominal ultrasound, cystoscopy, helical computed tomography (CT) or a combination of these diagnostic procedures. The latter two appear to be the diagnostics of choice based on two recent studies. Cystoscopy is a minimally invasive tool that allows easy

be performed in dogs with suspected EUs because urinary tract infections appear to be quite common with this disorder.

What are the treatment options for dogs with ectopic ureters?

The standard treatment for dogs with ureteral ectopia is surgical correction, but reported success rates vary between 50-75% after surgery. The poor success rate could be due to a variety of causes including a disease we call urethral sphincter mechanism incompetence (USMI-a urethra that does not have enough tone to keep the urine from leaking involuntarily). Newer therapies for EUs include treating them with a minimally invasive technique which involves the use of a laser. Although this technique has only been performed in a few animals, results are promising and recovery is very quick. To inquire more about therapeutic options for ectopic ureters, feel free to contact the small animal clinic.

URINARY INCONTINENCE CAUSED BY DECREASED URETHRAL CLOSURE PRESSURE

Decreased urethral closure pressure can occur due to lumbosacral disorders such as intervertebral disc diseases and other neurologic problems. A thorough neurologic examination should be performed on all patients who present for UI. Urethral Sphincter Mechanism Incompetence (USMI) (acquired urinary incontinence, mostly after spaying) is a diagnosis of exclusion once all other disorders have been ruled out. UI can be daily or episodic and range from mild to very severe. There appears to be a higher risk for larger breed dogs after spaying compared to small breeds.

What are urodynamics and when are they indicated for evaluating lower urinary tract disorders?

The diagnosis of USMI can most often be made based on signalment, history and lack of any other cause of UI found on physical examination. However, urodynamics can be a useful test for animals that present with micturition disorders and these procedures are becoming more standardized in veterinary medicine. We use the Urovision Janus V system by Life Tech® to perform these minimally invasive diagnostics. A urethral pressure profile (UPP) is the diagnostic gold standard for USMI and is also helpful for evaluating urethral tone in dogs with ectopic ureters. To do this procedure, a small catheter is placed in the bladder while the dog (or cat) is awake or lightly sedated. The catheter is removed at a constant rate while warm sterile water is infused. The pressure generated in the urethra is captured by pressure transducers connected to the catheter. The entire procedure takes no more than 15-30 minutes.

A cystometrogram (CMG) may also be indicated to see if the bladder is contracting appropriately and at the correct time. A CMG is the gold standard for diagnosing detrusor

could account for the clinical signs. To do this procedure, it can be done just prior to a UPP.The catheter is inserted into the bladder and the bladder is slowly distended with warm sterile water. The pressures and volume infused are recorded and analyzed.

Both of these urodynamic tests should be considered in dogs with refractory USMI, ectopic ureters or abnormal micturition patterns.

What are treatment options for my dog with USMI?

Medical management of USMI includes the use of drugs aimed at improving urethral tone via the alpha-1 adrenoceptors (α1-ARs). Phenylpropanolamine (PPA) is currently the drug that results in continence in the most dogs. Side effects in dogs include restlessness, anxiety, hypertension and tachycardia. This class of drugs is not recommended in patients with cardiac disease or hypertension.

Estrogens may also be used for USMI and these hormones are thought to sensitize the α1-AR to the norepinephrine and indirectly result in an improvement in the closure pressure. The lowest possible dose of estrogen should be used. Diethylstilbestrol (DES) is still the most commonly prescribed form of estrogen for this disease. Bone marrow suppression has been described in dogs receiving older generation depot estrogens and in those receiving very high doses of DES. If the patient is still experiencing UI while receiving an α1-AR agonist, estrogen can be given concurrently.

How can collagen injections help the dog with USMI?

Submucosal urethral collagen injections are now available for animals that are refractory to medications or for owners who do not wish to continually medicate their pet. Patients are placed under general anesthesia and three to four collagen deposits are injected in a circular fashion approximately 1.5 cm distal to the trigone via the cystoscope. The collagen acts as a bulking agent to create a 'mechanical' urethral obstruction and improve incontinence. Some dogs still require medications after this procedure, but greater continence is usually gained following the implants when drugs were previously ineffective. A second series of implants may be needed to improve continence in some dogs. Twenty-seven of 40 (68%) dogs of a recent study were continent for a mean 17 months (1-64 months range). Some dogs with initial full continence deteriorate after 1 year. Retreatment with collagen is usually easier and often successful in gaining continence in these dogs.

Other therapeutic options may be available for your pet with USMI. Please consult with your veterinarian. Other types of urinary incontinence can occur; if you are concerned about your