Urethral Sphincter Mechanism Incompetence

ABOUT THE DIAGNOSIS

In dogs and cats, as in humans, the flow of urine from the bladder through the urethra is controlled by a complex arrangement of nerves and muscles. Some of these muscles and nerves form the urethral sphincter, essentially a "valve" that holds back the urine. Coordination must exist between the nervous system, bladder, and sphincter to allow a dog or cat to urinate at an appropriate time and in an appropriate location. Urinary incontinence occurs when an animal is not able to control the flow of urine properly.

There are many causes of urinary incontinence. Among them are neurogenic problems (such as spinal cord trauma) and birth defects/congenital abnormalities such as ectopic ureters (misplacement of the tubes that leave the kidneys, such that they bypass the bladder) or other defects of the urinary system or spinal cord. If an animal has a urinary tract infection or urinary stones (calculi), irritation of the urinary tract will cause a frequent urge to urinate, often in unsuitable places. This gives the appearance of incontinence.

One of the most common causes of incontinence in dogs arises from a problem with the urinary sphincter. It is called urethral sphincter mechanism incompetence. Because it often responds to hormone supplementation in spayed (surgically neutered) females, it is also called "hormone responsive urinary incontinence" or even "spay incontinence". With this disorder, a weakness of the muscles that control the sphincter (valve) that normally help hold urine from the bladder back until it is time to urinate instead allows urine to pass inappropriately. In fact, the dog is not even aware of urine passage. Middle-aged or older, female, spayed dogs are most often affected. Medium and large-sized dogs are affected more often than small breeds. Most often, spayed females are affected, although male dogs or intact female dogs might rarely have the same disorder. The incontinence does not happen to all or even most spayed female dogs, and it does not start right after the spay surgery. In fact, it is usually many years after the surgery before any problem is noticed.

In this type of incontinence, urine can dribble freely when the bladder is partially full. This happens most often when the dog is relaxed and when pressure is placed on the bladder (e.g., lying down or sleeping). Often, the most obvious first symptom is a wet spot on the dog's bed or floor after the dog has rested there. Urine may be observed dribbling from the back end. Sometimes, prolonged contact with the urine irritates the skin around the vulva, causing redness and a rash (urine scald). Many dogs will lick at the area, which can make the rash even worse.

Confirming the nature, cause, and best treatment for a dog's urinary incontinence is based on a number of factors. These include the history (features of the problem that you have observed), the veterinarian's physical exam findings, basic testing, and sometimes simply the response to treatment. It is important to consider other causes of incontinence that could produce identical symptoms but require completely different medications or treatments. To determine whether urethral sphincter mechanism incompetence is the reason for incontinence, your veterinarian may begin by asking you questions that help to better understand key features of your dog's symptoms, such as:

- Is she urinating more frequently than normal, and does it seem uncomfortable?
- Is there a recent onset of blood or a foul odor present in the urine?
- Does she urinate greater volumes than normal or strain to produce only a few drops?
- Is she drinking more or less water than normal?
- When does the incontinence occur (i.e., when sleeping versus when awake)?

These questions are important in order to evaluate the likelihood of other causes of inappropriate elimination, such as some of those mentioned in the second paragraph. For example, urinary tract infections and bladder stones can result in frequent, painful urination with or without straining. Kidney disease and diabetes mellitus produce greater volumes of less concentrated urine. These "impostors" for urethral sphincter mechanism incompetence must be identified if present, to avoid incorrect or detrimental treatment.

Blood tests, a urinalysis (analysis of a urine sample), bacterial culture and sensitivity of the urine (to pinpoint urinary tract infections), and radiographs (x-rays) or abdominal ultrasound are usually recommended to evaluate whether these other diseases are present. It is especially wise to have these tests performed on senior animals, since they may have preexisting, age-related disorders as well.

LIVING WITH THE DIAGNOSIS

If no other causes of incontinence are found, your veterinarian may arrive at a presumptive diagnosis of urethral sphincter incompetence, especially if your pet is middle-aged and spayed. In the large majority of cases, oral medications can be given to control incontinence and stop urine leakage. Failure to improve with medications may indicate a complicating factor (such as urinary tract infection) or a different diagnosis altogether. Usually, treatment for urinary sphincter mechanism incompetence is required for life. It may take some time before the problem is solved, and it can be frustrating during this stabilization period. Additional visits may be necessary to monitor the effect of the medication on your pet and to make adjustments to therapy. The medication and management is often very effective in improving your dog's quality of life and making your life with her more enjoyable for years to come. Persistence pays off with successful results in the majority of cases. For those dogs that do not respond to medications, there are surgical options to be considered for treatment.

TREATMENT

One of two different types of medication is often prescribed:

- Alpha-adrenergic agonists (e.g., phenylpropanolamine [PPA]) are usually the first choice for treatment and can be used alone or combined with hormone therapy if PPA alone is inadequate. These drugs are often formulated in a chewable treat to make drug administration simple.
- Replacement hormones (estrogen-based) are used for female dogs. In the rare case of an affected male dog, testosterone can be given as injections for effective control of the problem.

Both of these types of medications tighten the smooth muscles of the urethral sphincter, which reduces the spillage of urine from the bladder outward. Treatment is generally affordable but usually must be continued for life.

Both types of medications have side effects. The side effects of alpha-agonists include flushing (red skin, like blushing), panting, elevated heart rate, restlessness, tremors, and vomiting. These side effects are potentially serious, but not common, and your veterinarian can give you his/her opinion on the relative risk in a given instance for your individual dog. It is very rare for the risk to outweigh the benefit of treatment. Another issue is that this type

of drug can cause adverse reactions when combined with certain other medications; be sure that any veterinarian you see in the future is aware that your dog receives an alpha-agonist such as PPA. Estrogen supplement drugs can depress the bone marrow, which is responsible for production of blood cells. Special low dose formulations of hormones should always be used; there are such drugs made especially for the treatment of urethral sphincter mechanism incontinence.

Until the incontinence has resolved, it is important that you keep your dog's hind end clean and dry. The hair may be shaved from the groin area under the tail (perineum) to make this easier. Your veterinarian can instruct you on how to clean the area, and an antibiotic ointment or cream may be recommended if a skin infection is present.

Additionally, for the unusual cases where drug therapy does not resolve urethral sphincter mechanism incontinence, there are surgical options. These might involve the placement of a balloon-like ring around the urethra, injections of collagen, or other options. You can find out more about such procedures from a specialist in veterinary surgery (your veterinarian might refer you to a surgeon, or you can find one by checking www.acvs.org in North America, or www.ecvs.org in Europe).

DOs

- Realize that urethral sphincter mechanism incompetence is an involuntary disorder. The dog has no sensation of the urination occurring, and the urine leakage does *not* indicate a desire on the dog's part to annoy, take revenge, or otherwise deliberately urinate.
- Follow your veterinarian's instructions regarding medication and recheck appointments.
- Keep your dog clean, dry, and comfortable. She may need to go outside to urinate more frequently. Provide clean dry bedding and access to fresh water at all times.
- Monitor urination. Watch for signs of concurrent urinary tract infection (blood in urine, foul odor, straining to urinate).

DON'Ts

- Don't ignore the side effects listed below. Although medication can control this condition, there are consequences that are uncommon but, when they occur, can be serious.
- Don't assume that an incontinence problem means that your dog's quality of life is reduced. Most dogs have many good years left with the help of simple treatment.

WHEN TO CALL YOUR VETERINARIAN

- If your dog is receiving hormonal medication and you notice lethargy, depression, vomiting (with blood), or pale gums, she could be suffering from a blood cell abnormality due to reduced bone marrow function. This is very rare but should be evaluated with a visit to the veterinarian.

SIGNS TO WATCH FOR

- As signs of persistence of urethral sphincter mechanism incompetence:
  - Dribbling urine
  - Wet spot where dog has been lying down
  - Red, irritated skin around hind end
- If giving hormonal medication, watch for:
  - Vaginal discharge.
  - Depression, pale gums, loss of appetite, nausea, vomiting, or abnormal bleeding (blood in stool or vomit).
- If giving an alpha-agonist medication, watch for:
  - Restlessness, panting, vomiting, or loss of appetite.

ROUTINE FOLLOW-UP

- Dogs receiving hormonal therapy may need to have repeated blood tests to monitor the health of the bone marrow.
- It may take several appointments and adjusting doses of medication before urethral sphincter mechanism incompetence is stabilized.

ADDITIONAL INFORMATION

- Because urethral sphincter mechanism incompetence usually affects adult dogs, it is important to remember that other illnesses of the senior canine can also cause urination problems. Depending on the particulars of your dog's case, your veterinarian will generally need to perform blood and urine tests to evaluate this possibility.
  - Diabetes mellitus, kidney disease, and hyperadrenocorticism (Cushing's disease) can all cause urinary accidents in the house because of increased volume of urine.
  - Urinary tract infections or uroliths (e.g., bladder stones) will cause increased frequency and possible straining to pass small amounts of urine.

Other information that may be useful: "How-To" Client Education Sheet:

- How to Collect a Urine Sample

PINE ANIMAL HOSPITAL

900 Pine Ave
Long Beach, CA 90813
Text/Call: (562) 912-7463
Email: info@PineAnimalHospital.com
Website: www.PineAnimalHospital.com

Also available in Spanish.