

## Urinary Incontinence

### The Pet Health Care Library



*Illustration by Wendy Brooks, DVM*

When a house pet develops urinary incontinence, many owners fear the worst. Assumptions that incontinence signifies senility or irreparable age related change may lead to delay in medical consultation, relegation of the pet to an outdoor life, or even euthanasia. In reality, urinary incontinence is usually one of easiest problems to solve so it is crucial that veterinary assistance be sought before an owner's patience is completely worn out and before any permanent decisions about the pet's future become topical.

#### Causes of Incontinence

It is important to differentiate incontinence (involuntary urine leakage) from behavioral urinary issues ([submissive urination](#)), simple [lack of housetraining](#), territorial marking of [InternalLink:A:633:anxious cats](#) or of [unneutered males](#), or the senile loss of house-training from [canine cognitive dysfunction](#). Animals may urinate in the house voluntarily and this is different from incontinence. Watch your pet closely to be sure what you are seeing is really incontinence and if it is, the good news is that most cases are easily resolved with simple inexpensive medications.

There are several important causes of incontinence and most of these are ruled in or out with a urinalysis and urine culture. The urinalysis reveals cell types and biochemical elements in the patient's urine while the culture isolates the bacteria growing in the urine. The bacterial species grown are identified and tested for their sensitivity towards different antibiotics, the end result being confirmation of the presence of infection and a list of appropriate antibiotics.

Most cases of incontinence are due to:

- [Infection of the urinary tract](#) (usually bladder infection)
- Excessive consumption of water
- Weak bladder sphincter (especially common in female dogs)
- Spinal cord disease.

#### Bladder Infection

This is a common cause of urinary incontinence in female dogs of all ages and in geriatric cats. This condition is usually easily diagnosed by urine culture, though often signs of infection such as white blood cells or bacteria are actually visible in the urinalysis. A urine culture will confirm the infection, identify the organism, and list usually several antibiotics which will be effective. An antibiotic is selected based on expense, potential for side effects, and convenience of usage. After a short course (generally somewhere between 1 and 3 weeks) of medication, ideally a second urine culture is done to confirm that the infection has truly been cleared up. If a bladder infection is the cause of incontinence, most patients show improvement in their incontinence and comfort after only a few doses of antibiotics (but it is still important to finish the entire course so as to avoid recurrence).

#### Excessive Water Consumption

Some animals drink so much water that their bladders simply overflow too easily. While some owners have noticed that their pets seem to be drinking more than usual, our experience is that most owners are surprised when the urinalysis shows excessive water consumption. Dilute urine is obvious on the urinalysis through a measurement called specific gravity that compares the amount of dissolved biochemicals in the urine to that of pure water (which has no dissolved biochemicals). A urine specific gravity nearly the same as water, confirms excessive water consumption; blood tests may be



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indicated to go with the urine tests to determine the cause.

Causes of excessive water consumption include:

- [Diabetes mellitus](#)
- [Cushing's syndrome](#)
- [Hyperthyroidism](#)(cats)
- Bladder infection (see above)
- Diabetes insipidus
- [Kidney failure](#)

There are other causes as well but 90% are ruled in or out by a blood panel and urine culture.

### **Weak Bladder Sphincter**

Aging, obesity, reduced sensitivity of neurologic receptors in the sphincter and possibly other factors all contribute to this condition which is especially common (up to one in five affected) in female dogs. Once other more serious conditions have been ruled out, the weak sphincter may be treated symptomatically with one of several medications.

#### *Estrogens*

It is not entirely clear how estrogens are helpful in this treatment. Originally, estrogens were given to post-menopausal women with urinary incontinence and the treatment was simply extrapolated to dogs. It is possible that estrogens are important in the maintenance of neuroreceptors in the bladder sphincter and without estrogens the receptors become unresponsive to the transmission of the storage message from higher neurologic centers. (In other words, the message from the brain to hold the urine does not get through to the bladder.) In dogs, [diethylstilbestrol \(DES\)](#) is the most common estrogen used, though it is now only available through compounding pharmacies. Other estrogens that have been used include estriol (Incurin®) and conjugated estrogens such as Premarin®. Regardless of which product is used, the basic process is the same. A higher dose is utilized to begin therapy and, if it is effective, the dose is tapered to the lowest dose needed to maintain effect. For DES, dosing every couple of days is typical while with estriol most dogs end up dosed once daily.

In male dogs, testosterone seem to be more effective than estrogens, possibly through action on the prostate which sits at the neck of the bladder and incorporates the sphincter.

#### *Alpha-Adrenergic Agonists*

These medications act by enhancing release of the neurotransmitter chemicals that act on the receptors of bladder sphincter. Effectively, they turn up the volume dial on the "hold it" message from the high neurologic areas. The usual medication for canine use is [phenylpropanolamine](#), currently available in liquid and chewable tablets and is typically given two or three times daily. Ephedrine and pseudoephedrine, common decongestants, are sometimes recommended alternatively. Side effects can include irritability, appetite suppression (phenylpropanolamine was the active ingredient in many human diet pills until recently), and blood pressure changes. Most dogs, male and female alike, tolerate phenylpropanolamine uneventfully. For especially resistant cases of incontinence, estrogens and alpha-adrenergic agonists can be used together.

#### *Anticholinergics*

Anticholinergic drugs are medications that work, not on the sphincter of the bladder, but on the rest of the bladder where urine is stored, relaxing the muscle fibers thus facilitating storage. An example of such drug would be imipramine, an anti-anxiety medication commonly used in humans. It has anticholinergic properties and can be used in combination with phenylpropanolamine in the treatment of animal incontinence. While phenylpropanolamine and DES are commonly used medications for this condition, imipramine is not but it does represent another option when a patient does not respond to the first two medications combined. Other anticholinergic drugs that might be used included oxybutynin or flavoxate.

#### *Gonadotropin-Releasing Hormone (GnRH)*

Several studies have been performed using analogs of this hormone (such as leuprolide) in incontinent dogs for which DES and phenylpropanolamine have failed. More than half of the dogs tested regained complete continence while still more achieved improvement.

### **Surgical Therapy**

Medication works for most patients with weak sphincters but when medication fails there are some surgical options to consider: colposuspension and cystourethropexy.

*Colposuspension*, for females only, is the most commonly performed procedure. Here, the vagina is tacked to the bottom of the belly wall entrapping and compressing the urethra. In one study of dogs that had failed on medication, there was complete resolution of incontinence in 53% with colposuspension. An additional 37% became less incontinent and 25% of those without full resolution gained complete continence when therapy with phenylpropanolamine was added. Another recent study reported that complete continence lasted for 1 year in only 14% of affected dogs, although many dogs improved.

*Cystourethropexy* is the modification of the above procedure that can be performed in either males or females. Since there is no vagina to use in the male, the ductus deferens are tacked down to compress the urethra. Fibers from the urethral muscles can also be tacked down (in either male or female patients). Complications include an increased frequency in the need to urinate (occurring in 2/3 of the patients in one study) and straining to urinate (in about 1/3 of patients).

*Urethral lengthening* works for patients for whom incontinence is caused by a short urethra. A short urethra causes a full bladder to be displaced into the pelvis and makes the urethra too short for either of the other two surgical procedures. This is a newer surgical procedure that so far has had good reports in the small number of dogs in which it has been studied. Further studies should be forthcoming.

Medications listed above are used in conjunction with surgery. Surgery alone improves approximately 50% of patients but often incontinence returns unless oral medication is restarted.

### **Collagen Injections: The Newest Therapy**

In this procedure an endoscope is inserted in the urethra and several injections of collagen (the same kind used for cosmetic injections in humans) are deposited. In a study of 40 dogs who had failed to become continent on medication alone, 27 became continent for an average of 17 months. Furthermore, 10 dogs that experienced only partial improvement after the procedure became completely continent when oral medication was added, even though medication alone had been ineffective.

The procedure can alternatively be performed with medical grade collagen, with Teflon® (which does not last as well but is apparently considerably less costly) or with a reconstructive product called ACell. Unfortunately, at this time there are few facilities that perform this procedure as cystoscopy is required.

### **Unusual Causes of Incontinence**

The list of causes of incontinence presented above is by no means exhaustive. While uncommon, other causes should not be entirely counted out. Some possible causes include:

- Ectopic ureter (instead of connecting to the urinary bladder, the ureter transporting urine from the kidney connects to the vagina or rectum so that there is no storage of urine. This condition is typically noted in a puppy that simply cannot be housebroken and leaks urine. The condition can be solved surgically.)
- Spinal damage especially in the lower lumbar area. Spinal surgery may be indicated to decompress an area of nerve pressure that is interfering with the nerves of urination control.

Your veterinarian is in the best position to determine if it is worthwhile to pursue a rare disease or not. Do not hesitate to ask your veterinarian questions regarding your pet's incontinence, the treatments or procedures described above.

### **When all Else Fails: Diapers and Pads**

Diapers are available from a number of companies and are available in both male and female styles. You may find what will work best in your situation at one of these providers.

[www.petdiapers.com](http://www.petdiapers.com)  
[www.doggyduds.com](http://www.doggyduds.com)  
[www.diapersfordogs.com](http://www.diapersfordogs.com)  
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