

## Urinary Problems in Dogs

Dogs are much less prone to disease of the bladder and urethra as compared with cats. However, the lower urinary tract can be a site for inflammation, infection, stones, or obstructions. Signs that your dog may have lower urinary tract disease include difficulty urinating, urine that appears bloody or cloudy, foul-smelling urine, and frequent licking of the urinary opening.

### Bacterial Cystitis

Cystitis means inflammation of the bladder. The most common cause in dogs is bacterial infection. Bacteria from the skin surface enter the urethral opening and migrate inwards, where they attach to the bladder lining.

Diagnosis of cystitis starts with a careful medical history and a physical exam. Urinalysis is used to detect bacteria and inflammatory cells. A urine culture further identifies the types of bacteria present and the antibiotics most effective to treat the infection.

Infections of the bladder are treated with antibiotics. It's very important to follow medication instructions and give the antibiotics for the full duration prescribed, even if your dog seems to feel better sooner. Incomplete treatment can result in relapses and the formation of resistant bacteria.

### Urinary Stones

Urinary stones (uroliths) occur in approximately 1% of dogs. Uroliths are composed of crystallized minerals, such as struvite, oxalate, urate, cystine, or calcium phosphate. Certain breeds are more prone to urolithiasis, including Dalmatians, Dachshunds, Basset Hounds, English Bulldogs, Yorkshire Terriers, Irish Terriers, Lhasa Apsos, Miniature Poodles, Schnauzers, Shih Tzus and Chihuahuas. Stones can be found anywhere in the urinary tract. In the bladder they cause irritation, increasing the likelihood of cystitis or bacterial infections. In the urethra they can cause partial or complete obstruction. When this happens, urine flow is reduced. With complete obstruction, urine is trapped in the body. The kidneys are unable to continue cleansing the blood and death can result within a few days.

Dogs suffering from uroliths have signs similar to cystitis. If the stones interfere with urination the dog may also dribble urine, strain to urinate, vomit, stop eating, and have a painful abdomen. Diagnosis of urolithiasis is based on a physical exam and urinalysis. X-rays, ultrasound and blood tests may also be beneficial. For proper treatment, the veterinarian must identify the mineral content of the stones, either by finding crystals on the urinalysis or by collecting stones via urinary catheterization or surgery.

Some stones can be dissolved with special diets or flushed out of the bladder through a urinary catheter, but others require surgical removal. Following stone removal, dogs are treated to prevent recurrence. Stones typically form in concentrated urine at a pH specific to each type. Therefore, diet changes are aimed at increasing water intake, reducing mineral content of the urine, and producing urine with a pH incompatible with the type of stone involved.

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### **Other Diseases**

Other conditions that can cause urinary problems include tumors of the urinary tract and prostate ailments. Tumors of the bladder and urethra are uncommon in dogs. They can cause blood in the urine and urethral obstruction. Surgery and chemotherapy are beneficial, but the prognosis is uncertain because the tumors have a high rate of malignancy.

Prostate disease is quite common in older, un-neutered male dogs. Although the prostate is really part of the reproductive system, prostate disease can result in urinary symptoms. The prostate can become inflamed or infected, can grow abnormally large, or can become cancerous. All of these conditions increase the size of the prostate, leading to bloody urine, frequent urinary tract infections, difficulty defecating, and pain. Most types of prostatic disease are treatable.

