

## CYSTITIS IN DOGS

### *What is cystitis?*

The term "cystitis" literally means inflammation of the urinary bladder. This term is rather general and applies to any disease that inflames the urinary bladder.

### *What causes cystitis?*

The most common cause of cystitis in dogs is an infection due to bacteria. However, other common causes include bladder stones, tumors or polyps in the bladder, and diverticula.

### *What are the signs of cystitis?*

The most common sign seen by most owners is hematuria (blood in the urine). In addition, many dogs have discomfort when urinating; they will spend several minutes passing only a small amount of urine, and they may urinate more frequently than normal.

The signs will be determined by the specific cause of cystitis. Bacterial infections usually cause hematuria and dysuria (straining to urinate.) Bladder stones are often very rough; they cause irritation to the bladder as they rub against the bladder wall also creating hematuria and dysuria. Tumors or polyps are usually not highly irritating to the dog's bladder, but they can cause bleeding and mild straining to urinate. A diverticulum is a small pouch in the wall of the bladder that usually causes hematuria and dysuria secondary to the chronic bacterial infection that occurs. Bacteria often reside deep in the diverticulum and are nearly impossible to remove without surgery.

### *How is cystitis diagnosed?*

A history of hematuria, dysuria, and increased frequency of urination is strong evidence of some form of cystitis. When these are seen, several tests are appropriate.

The first group of tests include urinalysis, urine culture, and bladder palpation (feeling with the fingers). A **urinalysis** consists of several tests to detect abnormalities in the urine, including abnormalities in the urine sediment. These are generally adequate to confirm cystitis, but they are usually not adequate to determine the exact cause. A **urine culture** determines if bacteria are present and what antibiotics are likely to be effective in killing them. This is appropriate because most cases of cystitis are caused by bacteria which may be eliminated easily with antibiotics. **Bladder palpation** is the first "test" for bladder stones, since many are large enough to be felt by experienced fingers.

### *What is done if cystitis is present, but the culture is negative for bacteria and stones cannot be felt?*

This scenario occurs about 20% of the time. When it happens, it is important that more tests be

performed so that a diagnosis can be achieved.

**Plain radiographs** (x-rays) are taken to further evaluate the bladder because many stones can be seen with this technique. However, the mineral composition of other stones requires that special radiographs, using contrast materials, be utilized. Plain radiographs are usually not able to visualize bladder tumors, polyps, or diverticula. A plain radiograph can be made without sedation or anesthesia in a cooperative dog.

An **ultrasound** examination is also useful in evaluating the bladder. This technique uses sound waves to visualize stones and some tumors and polyps. It may also identify other abnormalities of the bladder wall, including wall thickening. It, too, can be performed without sedation or anesthesia in a cooperative dog.

**Contrast radiographs** are taken when plain radiographs and an ultrasound examination do not render the diagnosis. The bladder is filled with a negative contrast material (usually air), a positive contrast material (a special radiographic dye), and then a little positive contrast material with a negative contrast material (double contrast study). A radiograph is taken each time. These three procedures permit visualization of otherwise unseen bladder stones, tumors and polyps, diverticula, and wall thickening. It is necessary to pass a catheter into the bladder and to distend it with the contrast materials; therefore, general anesthesia is required.

Dogs showing other signs of illness, such as fever, poor appetite, or lethargy, should also be evaluated for systemic diseases and bleeding disorders that may be causing hematuria. For these dogs, a **chemistry profile** and **complete blood count (CBC)** should be performed. If a clotting problem is suspected, a **bleeding profile** is appropriate.

### ***How is cystitis treated?***

Treatment depends on the cause. Bacterial infections are generally treated rather easily with antibiotics. Some bladder stones can be dissolved with special diets; others require surgical removal. Benign bladder polyps can usually be surgically removed, but malignant bladder tumors are difficult to treat successfully. A bladder diverticulum should be removed surgically.