



When to Worry- Is it More than Another Urinary Tract Infection?

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Cancer of the urinary tract occurs in most mammals including people, dogs, cats, even sea lions. Symptoms of cancer affecting the urinary bladder or urethra can mimic symptoms of a urinary tract infection (straining, voiding frequently, small amounts, accidents in the house, blood in the urine). Cancer in this location increases the risk of developing a urinary tract infection which can then mask the underlying problem. Treatment of the infection (with antibiotics +/- anti-inflammatories) can improve the symptoms but when a tumor is present the symptoms should quickly return.

Bladder cancer can occur in any breed of dog, pure-breed or mixed breed, but certain breeds have a strong predilection: **Scottish terriers, West Highland white terriers, Wire hair fox terriers, Shetland sheepdogs, Beagles, Keeshonds, Samoyeds**, and others have a moderate predilection: Miniature Schnauzers, Miniature Poodles, Dobermans, Labradors, Golden Retrievers, Collies, Airedale terriers, Chesapeake Bay Retrievers, American Eskimos and German Shepherds. If you own one of these breeds and are dealing with recurrent urinary tract infections, please ask your veterinarian to screen for bladder cancer.

Development of bladder cancer in people and pets has been linked to exposure of various toxins. For dogs this includes older generation flea products and lawn pesticides. The newer spot-on flea products have not shown this same risk and are safe to use. High risk breeds fed cruciferous vegetables (vegetables in the cabbage family) such as broccoli, cauliflower, Brussels sprouts, kale, cabbage, and bok-choy at least 3 times per week had a lower incidence of bladder cancer as these vegetables contain cancer preventing substances.

Recent advancements in the understanding of canine bladder cancer uncovered a genetic mutation in the *BRAF* gene present in most dogs with this disease. This mutation can be detected in a simple non-sterile "free catch" urine sample as these tumors will shed cells into the urine. A positive result is 100% diagnostic for cancer of the urinary tract termed, Transitional Cell Carcinoma (TCC). A false negative result can occur in a small number of dogs who do have bladder cancer but do not have a mutated *BRAF* gene. For these cases, additional tests will be needed. Additional tests may include abdominal ultrasound, urine cytology, suction biopsy via catheterization, cystoscopy, or investigational genetic testing.

The goal of early detection is to improve comfort and survival. Traditionally, treatment relies on non-steroidal anti-inflammatories (NSAIDs) with or without the additional of chemotherapy to halt growth. More recently, non-surgical minimally invasive options such as laser ablation and stent placement are finding their place in the treatment of this disease.

There is ongoing research into the genetic changes that lead to uncontrolled growth of these tumors. Hopefully this research will identify a common mutation that gives these tumors their strength that can be blocked with a novel targeted therapy.

If your dog has been diagnosed with bladder cancer, you can contact the Animal Medical Center of Seattle's Oncology Department to schedule a consultation. They will discuss all of your options to find out how we can best help you and your pet!