

Transitional Cell Carcinoma in Dogs and Cats

Elizabeth Kergosien DVM DACVIM – Oncology

Transitional cell carcinoma is the most common bladder tumor in dogs and cats comprising over 75% of all bladder tumors. The average age for dogs and cats diagnosed with bladder tumors is 9 years. In a recent abstract presented at the Veterinary Cancer Society annual meeting, risk factors for TCC in a series of 102 dogs included female gender, obesity, and certain breeds including Scottish terriers, Shetland sheepdogs, beagles, Wire Hair Fox terriers, and West Highland White terriers. Most animals present with signs related to lower urinary tract disease including hematuria, dysuria and pollakiuria which can be present for weeks to months. Because secondary urinary tract infections are common, these signs may show a short-term response to antibiotic therapy.

The diagnosis of TCC is most reliably made on histopathology. Physical examination findings and routine blood tests are usually not helpful except in small dogs and cats. Urinalysis findings may include proteinuria, pyuria, and hematuria. Neoplastic cells may be seen on a sediment examination; however, these are difficult to differentiate from reactive transitional cells. The V-BTA™ test, a urine dipstick test, is



advertised as a sensitive test for detection of bladder TCC in dogs. Unfortunately, false positives can occur with the presence of glucosuria (4+), proteinuria (4+), pyuria, or hematuria (>30-40 WBC or RBC per hpf). For animals, which present with significant urinary tract infections and/or hematuria, this may not be a very specific test. The manufacturer advertises a negative predictive value of 95% and suggests that the test may have merit as a screening test for geriatric healthy animals or breeds at high risk. This test is available at Veterinary Diagnostics, LTD.

Diagnostic imaging is very useful in visualizing bladder tumors and detecting secondary changes and metastasis. Positive or negative contrast cystograms and double contrast cystograms show the location and extent of the lesion. With abdominal ultrasound, in addition to detecting the mass, one can evaluate the spleen, liver and lymph nodes for metastasis, and the ureters and kidneys for hydronephrosis. Thoracic radiographs should also be performed, as pulmonary metastasis is present in 10-30% of dogs at the time of diagnosis. A biopsy can be obtained via cystoscopy, traumatic catheterization, or laparotomy. A fine needle aspirate of bladder masses is not recommended, because transitional cells can be seeded into the abdomen causing carcinomatosis.

The treatment of choice for TCC is surgery with wide resection of the mass. Because most are located at the trigone, complete excision is rarely possible. Wide resection provides an average survival of 1 year, while partial resection provides only 4 months due to widespread metastasis.

For nonresectable masses, medical management using piroxicam (0.3 mg/kg by mouth every 24 to 48 hours) is recommended. This nonsteroidal anti-inflammatory drug has anti-tumor effects of an unknown mechanism. Piroxicam (Feldene™) alone provides a median survival of 6 months. The advantages of this treatment include ease of administration, low cost, and minimal side effects. However, owners must be warned of the possible gastrointestinal and renal side effects. Famotidine (Pepcid™) or misoprostol (Cytotech™) should be used in dogs showing signs of gastrointestinal bleeding. Also, it is important to have this drug compounded to the correct dose so that overdosing does not occur. Other chemotherapy agents including cisplatin and carboplatin have been used in dogs to treat TCC, but have not provided a longer survival than with piroxicam alone. Intravesical and intralesional chemotherapy have been attempted with variable success. Combinations of piroxicam and chemotherapy drugs are being considered. Cisplatin and piroxicam was studied and found to be severely nephrotoxic. Preliminary results of a study using carboplatin and piroxicam did not show improved survival over piroxicam alone. Also, ongoing studies of piroxicam with mitoxantrone are pending.

With an average survival time of 6 months using current treatments, more effective therapy for TCC is needed. However, piroxicam provides an inexpensive, easily administered treatment option for owners who want to provide their pets with better quality of life for as long as possible.



MedVet Associates, Ltd.

300 E. Wilson Bridge Road., Worthington, Ohio 43085
(614) 846-5800, Fax (614) 846-5803

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