



TRANSITIONAL CELL CARCINOMA

What is transitional cell carcinoma?

Transitional cell carcinoma (TCC) is a malignant tumor of the specialized cells that line the urinary tract. Transitional cell carcinoma can occur anywhere in the urinary tract, including kidney, bladder, or urethra. TCC is the most common form of urinary bladder cancer in the dog. The most common site affected is the trigone, or neck, of the bladder, where the urethra joins the bladder. It is not uncommon for the tumor to extend into the urethra or into the prostate in the male.

What are the symptoms?

Symptoms of TCC include frequent painful urination, straining to urinate, and blood in the urine. Urinary tract infections and irritation of the bladder secondary to urinary stones can cause similar signs. These symptoms may be partially or temporarily responsive to antibiotics. In rare instances, the first symptom of TCC is inability to urinate due to obstruction of the urinary tract by the tumor or lameness secondary to bony metastases.

How is it diagnosed?

When TCC is suspected, evaluation should include a complete blood cell count, serum chemistry profile, urinalysis, and urine culture. Ultrasonography is useful in identifying a mass within the bladder and evaluating for the presence of metastatic disease to lymph nodes or other abdominal organs. Contrast studies are helpful in evaluating tumors located primarily within the urethra. A diagnosis of TCC requires biopsy confirmation. Tumor cells may be present in the urine, but can often be confused with reactive cells associated with inflammation or infection. Methods of obtaining tissue include surgery (cystotomy), via an endoscope (cystoscopy) or via a catheter under ultrasound guidance. Percutaneous aspiration or biopsy through the abdominal wall is not recommended for suspected TCC due to potential seeding of tumor cells along the needle tract. Once a diagnosis of TCC has been confirmed, chest X-rays should be performed to evaluate for distant spread to the lungs.

How is it treated?

Surgery

Most TCC are not amenable to surgical removal due to the location within the urethra or neck of the bladder. Surgery may be possible for tumors that occur at the apex; however many dogs appear to develop multifocal tumors of the urinary bladder and local regrowth is common.

Radiation therapy

Radiation therapy does not appear to be of benefit in canine TCC at the schedules and doses currently used. Although it may result in rapid decrease in the size of some tumors, the tumors usually regrow within months of completion of therapy.



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Chemotherapy

Several chemotherapy drugs have shown some efficacy with canine TCC, including mitoxantrone, cisplatin, gemcitabine, and doxorubicin. Response rates are generally 40-45% and are short lived. Vinblastine appears to have good efficacy against TCC (personal communication with researchers at Purdue Vet School) and we are currently recommending treatment with this drug every 2 weeks. The long term prognosis with this drug is not yet known.

Piroxicam

Piroxicam is a nonsteroidal drug that has potent analgesic (pain-relieving) and anti-inflammatory effects. It is given orally on a once daily to every other day schedule. Eighty per cent of dogs will have a noticeable improvement in their symptoms. The exact mechanism of piroxicam's benefit with bladder cancer is largely unknown. Piroxicam does not appear to directly kill tumor cells, but may enhance the ability of the immune system to help fight the cancer.

Chinese Herbal Medicine

Chinese herbals may be considered as an adjunct to surgery and/or chemotherapy or in combination with piroxicam. Chinese herbals help to support the immune system and slow recurrence or progression of disease. Chinese herbals may also decrease symptoms of the tumor and improve patient comfort.

What is the prognosis?

The long term prognosis for TCC is poor. The prognosis is improved for tumors which can be surgically removed, however long term control (>2 years) or "cure" is rare. Many dogs will have improvement of symptoms with piroxicam for several months. Although symptoms will improve, most patients will have some degree of straining and frequent urination. The average survival reported with piroxicam is 6-8 months. The survival time may be improved to 8-12 months with chemotherapy. We have observed patients living at good quality of life for 12-18 months with piroxicam and Chinese herbals. Survival rarely exceeds 18 months for inoperable tumors. Most dogs are euthanized due to urinary tract obstruction or kidney failure regardless of treatment.