

Canine Bladder/Urethral TCC

Client Informational Handout



VETERINARY
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Overview

Transitional cell carcinoma (TCC) is a tumor that arises from epithelial (lining cells) within the bladder and urethra. TCC is insidious and is advanced at the time of diagnosis. It is both locally infiltrative in the bladder and urethra but also has a moderate rate of spread to other organs (metastasis) such as lymph node, bone, and lungs (rarely to liver and spleen). Metastasis tends to occur later in the course of disease and is not often detected at the time of diagnosis. A variety of treatment options exist for this tumor type, depending on your pet's condition at diagnosis.

Clinical Signs

Most dogs develop clinical signs as the tumor grows and disrupts normal urination. Clinical signs include: bloody urination, inability to urinate a constant stream, frequent urination, painful urination, and inability or difficulty/straining to urinate. Rarely, other signs such as difficulty defecation, vomiting, diarrhea, inappetence, and lethargy can develop. An inability to urinate is a medical emergency and your pet should be seen by a veterinarian immediately if he/she cannot urinate.

Diagnosis & Staging

Definitive diagnosis of bladder or urethral TCC requires a biopsy, where a small section of tumor is removed and examined. In some cases, this may be achieved using a cystoscope (a small scope that travels up the urethra to the tumor so images and samples can be collected). Occasionally, a presumptive diagnosis of TCC can be made from a collection of cells at the level of the tumor; this typically requires a procedure called traumatic catheterization. Because tumors can create a lot of inflammation, sometimes a diagnosis of cancer can be difficult unless there is a clear mass present. New genetic testing is emerging that may be helpful to support a diagnosis of bladder/urethral TCC. Your oncologist may discuss this with you.

As these tumors can spread to other sites and occasionally cause other effects in the body, common staging tests include thoracic (chest) and abdominal imaging (radiographs and ultrasound or CT scan), complete blood count and chemistry profile, and urinalysis and urine culture. Other diagnostic tests may be needed depending on your pet's clinical history.

Treatment Options & Prognosis

Due to its location in the body and the advanced nature of the disease at diagnosis in dogs, surgical removal of the tumor is rarely possible. However, for tumors located at the apex of the bladder, which is away from the urethral entrance to the bladder, surgery may be possible. For dogs that cannot urinate because his/her tumor obstructs urine flow, this is an emergency that may require surgery if a tube or stent cannot be passed to allow urination.

For most dogs (and probably cats), the "standard of care" treatment (what we know the most about with consistent outcome data) for TCC consists of chemotherapy in conjunction with a nonsteroidal anti-inflammatory drug (NSAIDs). It can be difficult to gauge a clear benefit overall in dogs with chemotherapy however we feel that there is a clinical benefit in the majority of dogs with a decrease in severity of clinical signs. With modern radiation therapy (RT) units, radiation therapy may become a more common treatment tool for this disease, particularly

based on its use in treating human bladder cancer. Clear data demonstrating a benefit with RT is lacking but we feel that there is good potential for RT to improve comfort and at least temporarily control tumor.

1. Chemotherapy + nonsteroidal anti-inflammatory (NSAID) – typically, broad-spectrum anti-cancer drugs (such as mitoxantrone, doxorubicin or carboplatin) have historically been administered every 2 - 3 weeks for several treatments to determine if the tumor is responsive/shrinks. Chemotherapy is generally well tolerated however approximately 10-15% of dogs will have toxicity such as vomiting, diarrhea, inappetence and lethargy, and bone marrow suppression (decreased white blood cells that are important for preventing secondary bacterial infections and illness). Side effects most commonly occur 3-7 days after administration of chemotherapy however can occur outside that window of time. Most side effects are self-limiting and resolve within a few days; medications can be prescribed to help treat some clinical signs such as vomiting. Approximately 1-5% of dogs will become critically ill and need to be hospitalized for supportive care (IV fluids, antibiotics, anti-vomiting medications). Subsequent chemotherapy doses are altered following marked side effects. Our goal with chemotherapy is to maintain good quality of life for as long as possible and avoid the need for chemotherapy-induced hospitalization. Median survival times reported with mitoxantrone/piroxicam (the most commonly used combination) are 9-11 months, which means that 50% of dogs will live less than 9-11 months while 50% of dogs will live longer. It is difficult for us to predict which dogs will do better than others so we will typically give 2 treatments and re-evaluate with imaging to ensure the tumor is not growing in the face of chemotherapy.
2. Radiation therapy (RT) – Bladder carcinoma in people is considered responsive to radiation, thus it is reasonable to presume that bladder cancer in dogs and cats is also amenable to RT. It is unclear how much benefit this affords dogs in lieu of or in addition to chemotherapy but this is something we would like to determine over time. For definitive-intent therapy, which is aimed at controlling the tumor for as long as possible, we typically prescribe radiation Monday through Friday for 4 weeks in a row. Pets are anesthetized for each treatment so we can precisely treat the tumor site; we use fast acting general anesthesia and most animals are only under anesthesia for a short period of time each day. Pets are welcome to board with us during the week and/or come in and out of the hospital as an outpatient each day. Acute toxicity (side effects that occur during or shortly after radiation) tends to be mild and may consist of mild diarrhea, the development of a sunburn-type reaction on the skin over the bladder, and occasionally inflammation of the vulva in females (if the tumor extends throughout the urethra). There is some variation amongst pets depending on the size and location of their tumors and once a radiation plan is designed for your pet, it is easier to predict expected toxicity. Occasionally urinary signs may become worse before they become better, secondary to inflammation caused by radiation. Usually acute side effects heal within 2 weeks of completion of treatment. The outcome is expected to be at least as good as chemotherapy however it is unclear how much RT prolongs survival. Potential late radiation side effects (permanent, irreversible effects that could occur 1-2 years following radiation therapy) include a stricture (narrowing) in the large intestine/rectum that makes it difficult to have a bowel movement, fibrosis/scarring (altered structure) in the urethra and bladder that impair normal urination, or fibrosis/scarring of the spinal cord (very rare). Typically fewer than 5% of our patients have significant radiation side effects, although many dogs have insignificant side effects such as skin changes (white haircoat color change, loss of hair in the irradiated field, thickened skin in the irradiated field). Palliative radiation, where larger doses of radiation are given less frequently (5 days in a row for 1 week or once weekly for 4 weeks), can also be used to alleviate clinical signs. While acute side effects are rare with palliative intent radiation, the risk of late effects increases with this type of

protocol. The goal with palliative radiation however is to achieve a temporary improvement in clinical signs rather than to achieve the best chance at long term tumor control.

3. NSAID - There are several drugs that are formulated and tested in dogs (piroxicam, meloxicam, carprofen, or deracoxib) that are generally well tolerated and given orally every day at home. NSAIDs alone can alleviate many clinical signs associated with the TCC and some tumors will occasionally shrink temporarily (3-6 months) with this treatment. Like NSAIDs in people, some dogs will not tolerate piroxicam well - side effects typically include vomiting, diarrhea, melena (black, tarry stool), inappetence, stomach ulceration and kidney toxicity. The incidence of severe side effects with NSAIDs in dogs is 3-5%. We periodically monitor kidney and liver values while your pet is receiving NSAIDs. It is important to notify your veterinarian or oncology team if your pet develops any of the clinical signs mentioned above.
4. Palliative Care/Emergency Care - Things to monitor over time include changes in urination (straining to urinate, decreased volumes produced more frequently, painful urination, accidents in the house); this often indicates that the tumor is growing or progressing. If urination is not possible, this is considered a medical emergency and you should call your oncology team, regular veterinarian or emergency clinic immediately. Palliative measures that can be considered include stenting of the urethra (placing a mesh in the urethra to expand it gently and allow urine to flow), urinary diversion (attaching the ureter to the colon - this is not common and not done by many surgeons), and the placement of a cystostomy tube (surgery in which the bladder is attached the body wall and a small opening that is "plugged" allows you to empty urine from the bladder several times a day). If urethral stenting is possible, this may drastically improve quality of life, as it permits more normal urine function.

Overall outcome with TCC can be difficult to predict; we do not typically expect long-term survival >2 years, however many dogs live beyond 1 year with this disease and we are striving to improve outcome with newer methods such as RT and urethral stenting. Please know that while these treatments are available, we are here to help you make an educated decision for your pet and will support any route of action you choose to take.

***It is important to discuss all options with your oncology team as alternative treatments may be more appropriate for your pet. Please do not hesitate to let us know if you have questions or concerns*.**