



CANINE THYROID TUMORS

What are thyroid tumors?

Thyroid tumors arise from the thyroid gland, located in the neck. Occasionally, thyroid tissue is present in other areas such as the chest cavity or under the tongue, and this tissue can also give rise to tumors in these regions. Nearly all clinical thyroid tumors in dogs are malignant cancers known as carcinomas. Most dogs with thyroid tumors have normal thyroid function. In a low percentage of dogs (10%), the thyroid tumor will instead result in excessive production of thyroid hormone. Decreased thyroid gland production can also occur due to tumor destruction of normal thyroid tissue. Thyroid carcinomas have a moderate potential for metastases, with approximately 33% of patients having evidence of metastases at the time of diagnosis.

How are thyroid tumors diagnosed?

Most dogs will present for a mass or swelling in the neck. Tumors may be discrete and freely moveable or may cause a large diffuse swelling of the neck. Diagnosis may be made with either a fine needle aspirate or a biopsy. Because these tumors have a large blood supply, blood contamination may prevent identification of cancer cells in samples with limited tissue or fine needle aspiration. Incisional biopsy removes a small piece of tumor without removing the entire mass, and thus is considered risky in cases of suspected thyroid tumors due to the extensive blood supply and risk of severe hemorrhage. For small, moveable tumors, removal with biopsy generally yields a definitive diagnosis.

Ultrasound evaluation of the neck is often helpful with large masses to determine the degree of invasion and possibility of surgical removal. Neck ultrasound also permits evaluation of lymph nodes in the region, with ultrasound-guided fine needle aspirates of these lymph nodes if they are abnormal. Once a thyroid tumor is diagnosed or suspected, chest X-rays are recommended to evaluate for possible metastases (spread) to the lungs. Routine blood work, including a thyroid level, is also recommended to evaluate your pet's overall health, including thyroid function. Sometimes an abdominal ultrasound is also performed, to look for less common possible sites of thyroid carcinoma metastasis and to assess other potential health problems within the abdomen.



What is the treatment?

Surgery

Treatment recommendations for thyroid tumors are dictated by the size of the mass, degree of invasion, and whether the tumor is functional. For small, moveable masses, surgical removal is recommended. If the tumor is contained within the capsule of the gland, is completely removed, and is low grade, no further therapy may be needed. For tumors where surgery is unable to remove all of the tissue or there is evidence of invasion into blood and lymphatic vessels, additional therapy is warranted.

Radiation Therapy

Definitive (curative intent) - Definitive course radiation therapy can be used for patients whose tumors have been debulked with surgery, but where surgery has not removed all microscopic local tumor tissue. Radiation therapy is then administered in order to kill remaining tumor cells at the surgical site. In other cases, a full definitive course of radiation therapy is used for bulky, nonresectable thyroid tumors. Occasionally, this treatment will shrink the tumor enough to then permit surgical removal. Chemotherapy is also sometimes recommended in combination with radiation therapy to try to prevent or delay metastatic disease. Full course, definitive-intent radiation therapy for thyroid carcinomas is typically administered daily (Monday through Friday) for 16 treatments. General anesthesia is necessary for each treatment. Please refer to the radiation handout for further information.

Palliative - Palliative radiation therapy is sometimes used for patients with large, invasive tumors that cannot be removed with surgery. The goal is to shrink the tumor or slow its growth temporarily, in an attempt to make patients more comfortable. Palliative radiation therapy is administered once daily for 5 days. Please refer to the radiation handout for further information.

Chemotherapy

Chemotherapy is recommended for patients whose tumors exhibit characteristics of aggressive behavior, such as invasion into blood or lymphatic vessels. Chemotherapy may be used as an adjuvant to surgery and/or radiation therapy. Chemotherapy without surgery or radiation has not been very effective in controlling thyroid carcinomas long-term, although it may offer some palliation by temporarily shrinking the tumor. Little information has been published regarding the effectiveness of chemotherapy following surgery for thyroid carcinomas. Cisplatin, carboplatin, and doxorubicin chemotherapies appear to have some efficacy in thyroid carcinomas. Chemotherapy is usually administered intravenously every 3 weeks for 4-6 treatments.



Your pet's oncologist will discuss with you which course of chemotherapy is best for your pet.

What is the prognosis?

The prognosis for thyroid carcinomas is dependent on size of the tumor, grade (differentiation), degree of local invasion, and presence of lymphatic and/or vascular invasion. For small, moveable tumors, surgery alone may yield survival times of 2-3 years or longer.

For tumors that cannot be completely removed with surgery or tumors that have evidence of lymphatic and/or vascular invasion, additional therapy (radiation and/or chemotherapy) is recommended. Ultimately, many patients with thyroid carcinomas will develop metastatic disease; however, with combination therapy, many patients will enjoy good-quality, cancer-free life for 1-2 years.

For large, invasive tumors that cannot be removed with surgery, combination chemotherapy and radiation therapy will often result in decrease of the size of the tumor and an improvement in your pet's quality of life.