

Thyroid Tumors in Dogs

Surgery Service

What are thyroid tumors?

Dogs have two thyroid glands that are located along side of the windpipe in the region of the neck. This gland produces thyroxin, a hormone that regulates the body's metabolism. Thyroid tumors in dogs are relatively uncommon. Golden retrievers, Beagles, and Boxers between the ages of 9 and 11 are most common to develop this tumor. These tumors are almost always malignant, meaning that they tend to spread to the lungs and lymph nodes and can grow into nearby structures such as the windpipe, blood vessels and esophagus. At the time of diagnosis, 35 to 40% of the dogs will have visible evidence of spread of the tumor to other parts of the body (especially the lungs). As high as 60% of dogs will have the cancer affect both thyroid glands, which causes the glands to malfunction in 50% of these cases. In about 10% of the cases, the tumor will produce excessive amounts of thyroid hormone, which can have systemic side effects.

Signs and diagnosis

The most common clinical sign of this tumor is a mass in the neck. Other signs usually are attributable to the tumor affecting the nerves of the voice box and may include a change in the tone of the bark, harsh breathing sounds, difficulty breathing, and rapid breathing. If the nerves that control swallowing have been affected or the esophagus is compressed by the tumor, difficulty swallowing may be noted. Other less common findings include bruising under the skin and swelling of the head. If the tumor produces excessive amounts of thyroid hormone, weight loss, marked increased appetite, muscle wasting, increased thirst, and increased urination may be seen.

A complete blood count, chemistry profile and urine testing are completed in the initial stages of the evaluation of the patient that has a suspected thyroid tumor. Blood tests can be run to see if the thyroid glands are functioning normally or are hyperactive. A fine needle biopsy of the tumor provides a diagnosis about 50% of the time. Ultrasound of the neck frequently can show the extent of the tumor and may demonstrate spread of the tumor to lymph nodes in the neck. Chest x-rays are important to identify visible spread of tumor to the lungs. It is important to note that no imaging test can identify microscopic spread of cancer to the lungs and other internal organs.



The day of surgery

Our anesthesia and surgical team will prescribe a pain management program, both during and after surgery that will keep your companion comfortable. This will include a combination of general anesthesia, injectable analgesics, and oral analgesics.

Treatment

It has been estimated that only 25 to 50% of patients that are presented with a thyroid tumor are candidates for surgery. Only tumors that are not attached to the underlying tissues in the neck should be removed. Surgery involves making an incision on the underside of the neck, separating the muscles that cover the thyroid gland and then removing the thyroid tumor. Both thyroid glands are inspected as some patients have tumors in both glands.

Thyroid Tumors in Dogs Continued...

Radiation therapy is used to treat thyroid cancer that is invasive into underlying tissues. Typically one daily radiation treatment is administered from Monday to Friday with the weekends off for a total of 18 to 21 treatments. By administering small multiple doses of radiation, the side effects of radiation are lessened.

Thyroid tumors tend to be moderately responsive to chemotherapy; therefore, there is value in this treatment modality. Unlike humans, most dogs receiving chemotherapy do not lose their hair and usually have only mild side effects, which may include transient loss of appetite and vomiting.

Treatment with radioactive iodine can be successfully used to treat some thyroid tumors. Since this treatment requires a high dose of radioactive iodine, most hospitals do not offer this treatment due to staff safety concerns.

Aftercare

After surgery, you can continue to give your pet a prescribed pain reliever to minimize discomfort. In order to minimize bruising and swelling of the surgical site, apply a cold pack to the neck 20 minutes per session for four sessions daily during the first three days after surgery. Do not allow your dog to scratch the incision on the neck. If necessary, the neck can be bandaged by one of our doctors to protect the incision. Use a harness to walk your dog instead of a collar so that no pressure is applied to the incision. Your pet may develop a fluid pocket in the region of the surgical site called a seroma. However, the body usually will naturally resorb the fluid over one month after surgery. Restricting your dog's activity for three weeks after surgery will help minimize this complication.

If your companion is recovering well following surgery and no complications develop, the healing process will be monitored by the surgeon with one follow-up exam scheduled two weeks after the surgery. Chemotherapy can be initiated by our oncologist two weeks after surgery or at the time of radiation therapy.

Prognosis

Negative prognostic factors for patient survival include large size of the tumor (tumors larger than 100 cm³ have a 100% spread rate), presence of measurable metastasis, bilateral tumors, immovable tumors, and tumors that cause paralysis of the voice box.

One study that included 20 patients that received surgery alone for treatment of freely removable thyroid tumors with no spread of tumor to the lungs or lymph nodes found median and mean survival times of 20.5 months. Of these patients, 8 died of non tumor-related diseases. With removal of these patients from the study, the median survival time was more than 36 months. Surgery therefore is the treatment of choice in patients that have moveable tumors.

Another study included 13 patients that were treated with cisplatin chemotherapy. Most of these had tumors that were invasive and not freely moveable. One dog had complete remission, 6 dogs had partial remissions, 3 dogs had stable disease and 3 did not respond at all. The mean survival time was 191.8 days.

One study that included a group of dogs that had infiltrative thyroid carcinomas that were treated with radiation therapy alone. The tumors shrunk to undetectable disease in all dogs. Metastasis to the lungs was seen in 3 dogs and to the bone in another dog. Overall median survival time was 24.5 months.

Another study that included 13 dogs with invasive thyroid carcinoma showed a median survival time of 96 weeks. Four dogs died of metastatic disease and 4 from progression of disease. It is concluded that radiation therapy is a better treatment modality than chemotherapy alone. Although the studies have not been published, chemotherapy combined with radiation therapy may be more beneficial than a single treatment modality.

Thyroid Tumors in Dogs Continued...

References

1. Klein MK, Powers BE, Withrow SJ, et al. Treatment of thyroid carcinoma in dogs by surgical resection alone: 20 cases (1981-1989). J Am Vet Med Assoc 206 (7): 1007-1009, 1995.
2. Fineman LS, Hamilton TA, Gortari A, DeBonney P. Cisplatin chemotherapy for treatment of thyroid carcinoma in dogs: 13 cases. J Am Anima Hosp Assoc 34(2):109-112, 1998.
3. Pack LA, Roberts RE, Dawson SD, Dookwah HD. Definitive radiation therapy for infiltrative thyroid carcinoma in dogs. Vet Radiology Ultrasound, 42(5):471-474, 2001.
4. Bearley MJ, Hayes AM, Murphy S. Hypofractionated radiation therapy for invasive thyroid carcinoma in dogs: a retrospective analysis of survival. J Small Anim Pract 40(5): 206-210, 1999.

Assessment and recommendations

Patient: _____ Date: _____

Treatment

- Surgery is recommended
- Surgery is not recommended – please consult with an oncologist for radiation and chemotherapy

The following has been prescribed

- No medications or special diet are necessary at this time
- Prescription diet: _____
- Medication: _____

Exercise

- Unlimited
- Confine your pet to the house other than very short leash walks necessary for bowel movements and urination
- Restrict exercise to leash walks 10 minutes twice daily

Preparation for surgery

- Start fasting your companion at midnight before the surgery; water should not be withheld
- Pepcid AC 10 mg tablets: give _____ tablet(s) with water (use a syringe if needed) at 6 AM on the day of surgery
- Other medications: _____

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