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## Hyperthyroidism

### General Information

The thyroid gland is located in the neck near the larynx and produces thyroid hormone. Thyroid hormone is important for the maintenance of normal body functions and metabolism. There are many clinical signs associated with hyperthyroidism. The hallmark sign is weight loss despite an excellent appetite. Some other signs you may have noticed are restlessness, vomiting, diarrhea, increased water intake and urination, and areas of hair loss.

### Cause

In 95% of the cases, hyperthyroidism is caused by a benign growth in the thyroid gland which overproduces T4. It is important to realize that these tumors are almost always benign and represent a form of goiter rather than a form of cancer. Only 3-5% of hyperthyroid cats have a cancerous growth. *Why is it so important to treat a hyperthyroid cat?* Hyperthyroid cats frequently experience reduced quality of life through weight loss, muscle deterioration, chronic vomiting or chronic diarrhea. There are also less visible reasons to treat: heart disease, high blood pressure and kidney disease are common complications of untreated hyperthyroidism.

### Diagnosis

Diagnosis is made by a simple blood test that measures the resting level of thyroid hormone circulating in the blood stream. A chemistry panel and complete blood cell count help to rule out any concurrent diseases.

### Treatment

There are 3 different treatment options for you to consider: surgery, radiotherapy, and medical therapy.

**Surgery.** The goal of surgery is to remove the abnormal thyroid tissue, leaving the normal adjacent tissue alone. Considering that the average hyperthyroid cat is a geriatric patient with special potential for heart disease and kidney problems, quite a bit of patient preparation is necessary to reduce the anesthetic risk (we recommend an ECG and IV catheter prior to surgery). First, the cat's thyroid level is brought into the normal range with 6-8 weeks of oral medication. Once in surgery, in 30% of cases, one gland is obviously abnormal and one gland appears normal. The decision about which gland to remove is easy in this case. However, in 70% of cases, both glands appear abnormal and must be removed. The risk here that by taking out both thyroid glands you may accidentally take out the tiny but very important parathyroid glands (located just above the thyroid glands). If both parathyroid glands are removed inadvertently, a calcium crisis can occur following surgery. Some cats can become hypo-thyroid following surgery if too much tissue is removed. If this occurs, you would need to give daily medication for the rest of the cat's life. Cost for the surgery, including follow-up bloodwork and hospitalization, is \$400-600.

**Radiotherapy.** Considered the gold standard of therapy for hyperthyroidism, this is the safest and most effective method of treatment. The procedure involves first a nuclear medicine scan in which the cat receives an injection of a radioactive compound. A picture is taken and the resulting scan shows the location of the cat's thyroid glands and confirms the disease. Next, an injection of Iodine-131 (a radioactive material) is given to the cat which is carried directly to the thyroid gland. Iodine-131 selectively destroys the abnormal thyroid tissue and spares the normal tissue. *Because the I-131 emits radiation only fractions of an inch, your pet is spared radiation outside of the area of the thyroid gland.* This treatment is a one time event (only 2-4% of cats require a second treatment) and no on-going therapy is necessary. While humans receiving this treatment are promptly allowed to go home post-treatment, the process is different with cats. The Nuclear Regulatory Commission requires that cats remain in the hospital in a special isolation ward until the I-131 is gone from the body. This usually amounts to about 9 days of boarding following treatment. The disease is not simply managed, but is actually cured! No anesthesia is required – treatment consists of an injection followed by 1-2 weeks of boarding. If the cat is one of the unlucky 3-5% for which the thyroid tumor is malignant, the initial scan (done prior to treatment) will indicate this right away. The cost for this treatment is \$1000-1200 and it is done at a referral hospital (generally in New York).

**Oral Medication.** The most common medication used to treat hyperthyroidism is called methimazole. It blocks the synthesis of T4 and helps to maintain a normal T4 level. It comes in several different forms, including a pill, a chewable treat, and a gel that is rubbed onto the ear. The medication must be given at least once daily and sometimes twice. Side effects are relatively uncommon but can include vomiting, lethargy, and loss of appetite. If one of these side effects occurs, the medication is discontinued until the symptoms resolve. Medication is then restarted at a lower dose and gradually increased to the former dose. The benefits to this treatment are that the medication is relatively inexpensive (dose dependent but usually \$20-30/month), no hospitalization is needed, and treatment can be discontinued at any time if complications (such as kidney problems) arise. Disadvantages are that the cost of the medication adds up over time, some cats are difficult to get medication into on a daily basis and that this simply controls the disease and does not cure it.

Overall, more people choose to do the oral medication than the surgery or I-131 treatment. It is cost-effective in the short-term, has good results, and the cats generally do very well on the medication. However, we want to provide you with as much information as you need in order to make your decision regarding treatment of your pet. The I-131 treatment is the most expensive in the short-term, but is a wonderful and effective treatment for feline hyperthyroidism and carries the added advantage of a complete cure. Please let us know if you have further questions.