

## ***Northern Illinois Cat Clinic, P.C.***

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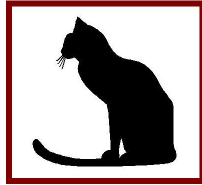
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### **Hyperthyroidism in Cats**

The thyroid gland is located in the neck and plays a very important role in regulating the body's rate of metabolism. Hyperthyroidism is a disorder characterized by the overproduction of thyroid hormone and a subsequent increase in the metabolic rate. This is a fairly common disease of older cats. Although the thyroid gland enlarges, it is usually a nonmalignant change (benign). Less than 2% of hyperthyroid cases involve a malignancy (cancer).

Many organs are affected by this disease, like the heart and the kidneys. The heart is stimulated to pump faster and more forcefully; eventually, the heart enlarges to meet these increase demands for blood flow. The increased pumping pressure leads to a greater output of blood and high blood pressure. About 80% of cats with hyperthyroidism have high blood pressure. This increased blood flow also affects how the kidneys function. The disease often masks kidney failure.

#### **Contributing Factors**

Advancing age is the main factor that increases a cat's risk for hyperthyroidism. Environmental and dietary risk factors have been investigated and may play a role in predisposing cats to hyperthyroidism, though the specific mechanisms are not known. Research continues in this area.

No individual breed is known to be at increased risk, although the Siamese appears to have a 10-fold lower risk of developing hyperthyroidism than other breeds.

#### **Clinical Signs**

The typical cat with hyperthyroidism is middle-aged or older; on the average, affected cats are about 12 years of age. The most consistent finding with this disorder is a loss of weight secondary to the increased rate of metabolism. The cat tries to compensate for this with an increased appetite. In fact, some of these cats have a ravenous appetite and will literally eat anything in sight! Despite the increased intake of food, most cats gradually lose weight. The weight loss may be so gradual that some owners will not even realize it has occurred. Affected cats usually drink a lot of water and urinate a lot. There may be periodic soft stool or diarrhea, and the hair coat may be unkempt. In some cats, anorexia (lack of appetite) develops as the disease progresses. Vomiting is often a common symptom. Many cats also exhibit behavioral changes such as restlessness, increased vocalization, and occasionally aggressiveness.

Two secondary complications of this disease can be significant. These include hypertension (high blood pressure) and a heart disease called thyrotoxic cardiomyopathy. Hypertension develops as a consequence of the increased pumping pressure of the heart. In some cats, blood pressure can become so high that retinal hemorrhage or detachment will occur and result in sudden blindness. The heart problems develop because the heart must enlarge and thicken to meet the increased metabolic demands. Both of these problems can be reversible if the problems are caught early and appropriate treatment is started.

#### **Causes**

A specific cause has not been identified. The possible role of dietary iodine continues to be investigated as a dietary influence on development of hyperthyroidism.

## Diagnosis

In most instances, diagnosis of this disease is relatively straightforward. One of the first things to happen is an increase in size of one or both thyroid lobes. If they can be palpated (felt) during the physical exam, the disease is very likely. The first blood test that is performed measures the level of one of the thyroid hormones, called thyroxine (or T4). Usually, the T4 level is so high that there is no question as to the diagnosis. Occasionally, a cat suspected of having hyperthyroidism will have T4 levels within the upper range of normal cats. When this occurs, a second test, called a T3 Suppression Test, is performed. If this is not diagnostic, a thyroid scan can be performed at a veterinary referral center or the T4 could be measured again in a few weeks.

## Treatment Options

Because less than 2% of these cats have cancerous growths of the thyroid gland, treatment is usually very successful. There are three choices for treatment; any one of them could be the best choice in certain situations. Many factors must come into consideration when choosing the best therapy for an individual cat.

Several tests are needed before adopting any form of treatment. These tests are needed to evaluate the overall health of the cat and predict the chances for complications. Such tests include blood work, urinalysis, x-rays, and sometimes an ECG and cardiac ultrasound may need to be performed.

Cats may have renal (kidney) disease that is masked by the hyperthyroidism. For this reason, it is important to perform a trial of Tapazole then recheck the blood work to look for hidden kidney disease before choosing a permanent treatment like surgery or iodine therapy.

1. **Surgery.** Surgical removal of the affected thyroid lobes is also very effective. Because hyperthyroid cats are usually over 8 years of age, there is a degree of risk involved. However, if the cat is otherwise healthy, the risk need not be considered significant. Because both thyroid lobes are removed, most cats need to be on long term thyroid supplementation after surgery. No adverse side effects have been seen with thyroid supplements.

If surgery is the treatment method chosen, the cat is usually treated with an anti-thyroid medication for several weeks prior to the operation. During that time, the ravenous appetite should subside and the cat will probably gain weight. Some cats also have a very fast heart rate and high blood pressure; these problems can be managed with medication before surgery. After one to two weeks, another T4 level is measured.

The cat is generally not hospitalized following surgery as most cats are more comfortable at home and more likely to eat. Eating habits should be normal after returning home.

The most common and serious complication is loss of parathyroid function. Since the parathyroid gland is so small, its artery is also very tiny. If this vessel is not preserved during surgery, the parathyroid gland will quit functioning for several days or permanently. In some cases, parathyroid function will be disrupted just by the handling involved in surgery. In either case, if both parathyroid glands are not functioning the result will be a dramatic fall in blood calcium levels (controlled by the parathyroid gland), seizures, and, in some cases, death.

2. **Radioactive iodine.** The most effective way to destroy all of the abnormal tissue is with radioactive iodine therapy. The treatment usually requires only one injection and anesthesia is not necessary. It causes no damage to normal thyroid tissue or to the nearby parathyroid gland. This requires 3 to 7 days of hospitalization at a veterinary clinic licensed to administer radiation therapy. The cat needs to be otherwise healthy since it will be in isolation for a period of time.

3. **Oral medication.** Administration of an oral drug, Methimazole (Tapazole), can control the effects of the overactive thyroid gland. **Some cats have reactions to the drug, but that number is fairly small (less than 20%). However, the side effects may begin as late as months after the beginning of treatment and can include**

**vomiting, lethargy, anorexia, fever, and anemia. Some cats become allergic to this medication and show symptoms of facial itching.** Methimazole does not destroy the abnormal thyroid tissue, but rather ties up the excess thyroid hormone. Therefore, the drug must be given for the remainder of the cat's life. Periodic blood tests must be done to keep the dosage regulated. This type of treatment is appropriate for the cat that is a poor surgical risk due to other health problems. As stated above, it may also be used for a few weeks to stabilize the cat that is at increased surgical risk because of cardiac complications.

Recurrence of the disease is a possibility in some cats. Recurrence is uncommon after radioactive iodine therapy. When surgery is done, it is possible. It is possible that not all of the abnormal thyroid cells will be removed. If those remaining cells grow, the disease may recur. However, this occurs less than 10% of the time and usually after 2-4 years.

### **Prognosis**

Many owners of cats with hyperthyroidism are hesitant to have radiation therapy or surgery because of their cat's advanced age. But remember, old age is not a disease. The outcome following both surgery and radiation therapy is usually very positive, and most cats have a very good chance of returning to an excellent state of health for many years.

### **Prevention**

There are no known preventive measures, but middle-aged and geriatric cats should all receive a complete physical examination, blood work, and a blood pressure by a veterinarian every 6-12 months.