

Hyperthyroidism

ABOUT THE DIAGNOSIS

Hyperthyroidism is a generalized, high metabolic state caused by oversecretion of thyroid hormones by the thyroid glands. It is a common disease in adult cats.

The thyroid glands are a pair of small, soft glands that lie deep in the tissues on the underside of the neck. In a cat, each normal thyroid gland is about the size of a cooked rice grain. In most cases of hyperthyroidism, the condition is caused by overfunctioning benign tumors (nodules) in the thyroid glands. Malignant thyroid tumors are rare, causing only 1–2% of cases of hyperthyroidism in cats. Hyperthyroidism is rare in dogs and is usually caused by thyroid tumors or oversupplementation with thyroid hormones used for treating low thyroid levels.

SYMPTOMS: Since thyroid hormone is a major controller of the body's metabolic rate, a common symptom of hyperthyroid cats is that they typically lose weight despite having an increased—sometimes ravenous—appetite. Vomiting and diarrhea may also occur, due to the overeating and the changes in metabolism of the intestine. Some cats drink more water and urinate larger volumes than normal, but many other diseases may cause this symptom, too. Hyperactivity is a common sign, and other behavioral changes may occur, such as aggressiveness. Hyperthyroid cats often give the impression of being surprisingly active and energetic for their age, and unfortunately this effect of excess thyroid hormone is outweighed by its negative impact on the heart, the muscles, and the skin, all of which are overburdened by hyperthyroidism. It is important to realize that although the increased energy level of a hyperthyroid cat is appealing, the negative effects that come with it are harmful, and treating hyperthyroidism often causes a cat to “slow down,” showing a decrease in energy level that is more appropriate and is compatible with more normal, long-lasting function of the heart, muscles, skin, and other organs.

During an examination, your veterinarian may detect a rapid heart rate or a heart murmur when listening to the chest with a stethoscope because the increased metabolic rate present in hyperthyroidism affects the heart. Your veterinarian may also be able to feel the enlarged thyroid gland simply by palpation (feeling the lower neck with the fingertips).

DIAGNOSIS: Most cases of hyperthyroidism can be diagnosed by routine testing for thyroid hormone (T_4), which is a simple blood test that specifically measures the circulating level of thyroid hormone. Rarely, some cats suspected of having hyperthyroidism will have normal or equivocal (“grey-zone”) T_4 levels on blood testing, and additional tests may be recommended to determine whether or not hyperthyroidism is truly present. Chest x-rays or ultrasound examinations may be recommended to evaluate the heart effects of hyperthyroidism. Routine blood and urine screening, including a complete blood cell count, serum chemistry profile, urinalysis, and testing for feline leukemia virus (FeLV) and feline immunodeficiency virus (FIV) are necessary to assess the effects of hyperthyroidism on other organs and to screen for other serious illnesses, especially chronic kidney disease. Chronic kidney disease occurs independently of hyperthyroidism, but because it and hyperthyroidism both tend to occur in adult or older cats, they often are found to be present simultaneously in the same cat. Detecting chronic kidney disease with a blood test and a urine test is important because sometimes kidney disease is partially offset by

hyperthyroidism. This may become a concern when treatment for the hyperthyroidism begins. Treatment to control hyperthyroidism, as described below, is beneficial because it normalizes the metabolism of the organs in the body. However, correcting hyperthyroidism may also remove some of the support for poorly-functioning kidneys. Therefore, in cats with both hyperthyroidism and kidney problems, it may be preferable to partially treat the hyperthyroidism in some cases and not to treat it at all in others, depending on the relative severity of the hyperthyroidism and the kidney disease.

LIVING WITH THE DIAGNOSIS

Untreated hyperthyroidism gradually produces increasingly serious symptoms, with severely affected cats becoming emaciated, ravenously hungry, and hyperactive, extremely irritable, or aggressive. Cats that are successfully treated by any of the three methods described below can return to normal, and the long-term outlook for a normal lifespan is good.

TREATMENT

Hyperthyroidism can be managed one of three ways: with daily antithyroid medication, with surgical removal of the thyroid gland, or with radioactive iodine treatment. From a medical standpoint, the best of the three is radioactive iodine treatment, but it may not be easily accessible or available.

The most commonly used antithyroid drug is methimazole (Tapazole, Felimazole). It is a small tablet (pill) given by mouth every 8 to 12 hours. Pharmacies can prepare liquid formulations of the drug to make dosing easier, since many cats dislike receiving pills. However, the quality of formulations (uniformity of concentration in the syrup) is difficult to standardize, and for this reason tablets are preferable if feasible. Methimazole controls the hyperthyroid state very effectively. In a small minority of cases it also can cause one or more of several side effects including lack of appetite, weight loss, and inactivity. Rarely, it can cause intense facial itchiness, leading a cat to scratch its face and neck until sores appear; you should be aware of this possibility during treatment and contact your veterinarian if your cat begins this type of scratching. Bleeding problems, anemia, and other blood cell abnormalities may occur with methimazole, again in a very small minority of cats. If problems occur related to methimazole, they usually do so within the first 3 months of treatment, and blood testing should be done every few weeks to monitor for complications during this period. A few cats cannot tolerate methimazole at all, and the medication must be stopped. In such cases, other treatments (radioactive iodine or surgical removal of the thyroid gland[s]) must be considered instead. Additional oral medications, called beta-blockers, are sometimes used for protecting the heart during the initial stages of treatment of hyperthyroidism. This depends on whether specific cardiac abnormalities, such as an irregular heartbeat (cardiac arrhythmias) and significant thickening of the walls of the heart (concentric hypertrophy) are present.

Surgical treatment requires prior medication (as above) to initially control the hyperthyroidism and make the cat a better surgical candidate. During surgery the thyroid glands are visualized directly by the surgeon and the one with a visible nodule is removed. Thyroid surgery is delicate, but generally successful. The main drawback of surgical removal of the affected thyroid gland is that about 70% of cats with hyperthyroidism go on to develop hyperthyroidism from thyroid tissue in the other thyroid gland or

other “ectopic” thyroid tissue elsewhere in the body. Therefore, hyperthyroidism often recurs months or years after surgery. It is possible to remove both thyroid glands at surgery, especially if nodules are present on both, but then oral medication (thyroid supplementation in pill form that you give every day) will be necessary for the rest of the cat’s life.

The third, and generally the best, treatment alternative is the administration of radioactive iodine (iodine-131). The iodine is given by injection and it naturally accumulates in the thyroid gland, destroying the abnormal thyroid tissue. Because it concentrates in the thyroid tissue, it is a very effective, very low-risk form of treatment for cats with hyperthyroidism. This treatment can only be given in hospitals that are licensed to handle the radioactive substance, which limits the availability of the service. The cat must be hospitalized until all of the radioactive iodine has been eliminated from its body, which may take from several days up to a few weeks. This is generally the preferred form of treatment: the treatment is extremely effective (98% cure with one treatment), the chance of recurrence in the future is virtually nil (less than 1%), the occurrence of overtreatment (causing hypothyroidism) likewise is very low (1-2%), and there are no daily pills to give thereafter. The possibility of unmasking kidney problems by reestablishing a normal thyroid state, as described above, is such that many specialists recommend a period of oral antithyroid medication, then a recheck of kidney function, to determine if a cat is a good candidate for permanent correction of hyperthyroidism with radioactive iodine.

DOs

- Administer any medications as prescribed, even if your cat seems normal. Often this may be due to the positive effect of the medication.
- If you are giving your cat methimazole (Tapazole), watch for the symptoms of adverse effects listed above, and if they occur, stop the medication and call your veterinarian.
- Realize that hyperthyroidism is a lifelong condition that does not get better on its own and that eventually causes life-threatening symptoms if not treated.
- Consider a referral to a veterinary internist for the latest information on treatment, if the diagnosis of hyperthyroidism is uncertain or complicated, or simply for a second opinion. Your veterinarian can recommend one of these internal medicine specialists, if appropriate (directories: www.acvim.org and www.ecvim-ca.org).

DON'Ts

- Don't be alarmed if your cat seems quieter or less hungry once treatment starts, since treatment may simply be controlling the symptoms of hyperactivity and excessive appetite. If a cat receiving treatment doesn't eat at all for 24 hours or seems

profoundly lethargic (unwilling to move around), then you need to contact your veterinarian.

- During monitoring of antithyroid treatment, don't overinterpret small periodic changes in blood thyroid levels. It is the overall trend, along with symptoms at rechecks, that determines how well treatment is working.

WHEN TO CALL YOUR VETERINARIAN

- During methimazole treatment, if you notice any of the side effects listed in the treatment section.

SIGNS TO WATCH FOR

Indications of uncontrolled hyperthyroidism:

- Excessive appetite with weight loss.
- Vomiting of food or diarrhea.
- Hyperactivity or inactivity.
- Drinking excessive amounts of water or urinating larger volumes than normal.

ROUTINE FOLLOW-UP

- Cats on methimazole therapy need examination (for the veterinarian to listen to the heart with the stethoscope and check your cat's weight) and laboratory testing (blood samples) every few weeks during the first few months to monitor for side effects, and periodically thereafter based on symptoms.

ADDITIONAL INFORMATION

- Hyperthyroidism may be triggered or worsened by long-term consumption of canned cat foods, especially from pop-top cans and/or liver & giblets flavor. Cats with borderline or confirmed hyperthyroidism may benefit from switching to food that is not from a pop-top can and is not liver & giblets flavored. Conversely, specific diets are formulated for hyperthyroidism, and switching to these types of diets alone may be sufficient for cats with borderline hyperthyroidism and no outward symptoms.

Practice Stamp or Name & Address