

## Hyperthyroidism in the Cat

A disease developing in middle-aged/older cats, usually over the age of 10 years, caused by an overactive thyroid gland

### Signs of hyperthyroidism

Weight loss, increased appetite, increased thirst, rapid heart rate and hyperactivity are the most common signs. Some cats will have vomiting and diarrhoea. A small minority of cats will become lethargic and lose their appetite

### Diagnosis

The signs seen with hyperthyroid cats are not always specific to the disease. Particularly as most of the patients are older cats other problems such as kidney disease and diabetes need to be ruled out first by blood tests run in the practice. A hyperthyroid cat may have **increased liver enzyme levels** on these tests. If we are suspicious of hyperthyroidism we check a blood sample to measure the level of **thyroid hormone (T4)**. A **high T4** level gives us the diagnosis for a hyperthyroid cat.

### Why is treatment important?

An overactive thyroid gland causes an increase in the metabolic rate of the cat, causing them to lose weight despite excessive eating. The excess thyroid hormone also has adverse effects on many of the organs, particularly the heart. Affected cats will have a fast heart rate and their heart muscle becomes thickened, which can lead to heart murmurs, changes in heart rhythm and eventually heart failure. In most cases treatment of the hyperthyroidism can reverse or reduce these effects on the heart.

### Treatment Options

There are three main ways of treating hyperthyroid cats - medical, surgical and radioiodide treatment, which is chosen depends on many factors including cost, ability to give tablets to the cat and other health problems.

#### 1. Medical Management

This is achieved by tablets given daily to the cat. Tablet products available for this are - **Felimazole**, which is given once or twice daily OR

**Vidalta**, which is given once daily. They can be given directly by mouth or whole in food but cannot be crushed. There is also a liquid form

**Thyronorm** which some owners find easier to administer.

The dose required varies between cats so often we need to monitor the T4 levels frequently at first to find the dose giving best control in each patient. We also monitor improvement by heart rate and weight gain.

This method of treatment is NOT curative, it controls the overactive thyroid gland. If medical treatment is chosen for long term management for the cat then tablets will need to be given for life. Once stable on a particular dose cats are monitored by check ups at regular intervals including checking their T4 levels as necessary.

Medical treatment is also important for stabilising the condition in cats before other methods of treatment, even if it is not going to be used long term. Medication can help to reduce the effects of thyroid hormone on the heart, reducing some of the anaesthetic risks before surgical treatment. It can also allow us to check for any change in kidney function after treatment of the condition. Kidney insufficiency is common in older cats and in some cases the increased blood flow to the kidneys in hyperthyroidism can be masking the blood changes seen in renal failure. If we see this happen after medical treatment we can adjust the treatment plan to manage both conditions as well as possible.

## **2. Surgical Treatment - Thyroidectomy**

This involves a general anaesthetic and surgery to remove the affected gland(s). An incision is made on the underside of the neck and one or both glands are removed. Often we are unable to tell if one or both glands are affected until they are seen during the surgery. This is usually curative, although where the problem is initially in one gland only it can recur in the other gland later on in life. As most cats can be difficult to give tablets on a long-term basis surgery is usually the best option for most patients. If owners cannot give tablets at all to their cat we can perform the operation without initial stabilisation on medication but there is an increased risk with the anaesthetic. In some cases we can hospitalise the cat for a few days first for medication to be given to allow some reduction of the risk.

## **3. Radio-iodide treatment**

A specific radioactive form of iodine is given to the cat which selectively removes the overactive thyroid tissue without the need for surgery or long term medication. This involves the patient being hospitalised for about 10 days at a special treatment centre to allow the iodine to be

cleared from the system. Previously this was only available in Cambridge, Glasgow and Edinburgh but there are now centres in Wetherby and Chester. We have referred several patients to the Hyperthyroid Cat Centre in Wetherby for treatment. This is non-invasive and avoids the anaesthetic and surgical complications of thyroidectomy but is more expensive. Following treatment blood thyroid levels and kidney function are monitored periodically for 6-12 months.

### **Are there any problems with treatment?**

#### **1. Medical management**

- Having to give **medication** daily
- **Long term costs** of tablets and monitoring
- Some cats experience **side effects** such as vomiting and lethargy but these usually respond quickly to stopping or reducing dose of medication
- **Unmasked kidney failure** - monitoring of kidney levels after thyroid treatment is important as already discussed. There is no evidence to suggest that thyroid disease should be under treated due to unmasked kidney disease. Our aim is to keep thyroid hormone levels within normal range and manage the kidney disease with other medical treatment
- **Risk of thyroid tissue becoming cancerous** - at diagnosis most cats have benign overactive thyroid tissue but there have been reports that after many years this tissue can become cancerous. Due to the time scale involved this is more of a concern for cats that are younger at diagnosis and could be on medical treatment for a long time

#### **2. Surgical treatment**

- **Anaesthetic and surgical risk**, can be minimised by medication to stabilise cat prior to operation
- **Cost of surgery**, although initially this may seem costly it saves on long term costs of medication. Cost can be claimed back for insured cats
- **Recurrence of hyperthyroidism** can occur if the second gland later becomes overactive (if only one removed) or occasionally after both glands are removed there can be extra thyroid tissue elsewhere in the body which can become overactive. This can be treated by a surgery to remove a

second gland or if both glands already removed the cat will need medical or radio-iodide therapy

- **Thyroid hormone deficiency** very rarely happens as there is small amounts of thyroid tissue elsewhere in the body which take over hormone production
- **Unmasked kidney failure**, medicating before surgery may highlight this and allow us to assess if surgical treatment is still the best option. While the thyroid condition still needs treating it may be decided that a general anaesthetic for surgery is better avoided and other treatments considered
- **Low calcium levels** - the thyroid glands are closely attached to the parathyroid gland which controls calcium levels. Surgery can sometimes affect this gland temporarily or permanently, leading to problems of calcium control if **both thyroid glands** have been removed (**bilateral thyroidectomy**). In patients where this happens we see a low calcium level days to weeks post surgery. Severity varies and signs include twitchiness, reduced appetite, irritability and occasionally in severe cases fits, although usually owners mainly notice a change in personality of the cat. This does not happen in all patients but it is important for owners to be aware of the signs so it can be treated as early as possible. Treatment is initially by calcium given intravenously and then by prescribed oral calcium and vitamin D supplements. In many cases it is temporary or intermittent and the cat will eventually regain normal calcium control.

### 3. Radio-iodide therapy

- **Hospitalisation** for a period
- **Travel for treatment**
- **High cost** - this option can be expensive in the short term but usually avoids the need for ongoing medical treatment costs. Costs can be reclaimed for insured cats
- **Unmasked kidney failure** - Kidney function is thoroughly assessed before and after radioiodine treatment to allow any unmasked kidney insufficiency to be managed alongside treatment