

Adrenal Tumors

Information for the Ferret Owner

Adrenal tumors are very common in ferrets. Many researchers believe that it is due to the close relationship between the ferret's reproductive organs and the adrenal glands. Early neutering or spaying (as required by New Hampshire law) may result in a compensatory growth in the adrenal glands that leads to the tumor. Other possible risk factors include diet (most ferrets are fed cat food) and genetics (over 90 percent of ferrets in this country come from Marshall Farms, Inc.).

Fifty to ninety percent of ferrets have the tumor only in the left adrenal gland. The other percent have tumors in only the right gland or in both glands. There is no way to determine which gland is affected before surgery.

Diagnosis

Diagnosis is made based on the physical examination and a high degree of suspicion. Symptoms include:

- Hair loss on the tail, buttocks and up along the backbone area.
- Swollen vulvas in spayed female ferrets. Male ferrets may become aggressive.
- Male ferrets may also have prostate enlargement that can lead to urinary tract infections or urinary obstruction (a life threatening disease).
- There is available a blood test to prove the diagnosis. However, in the vast majority of cases it is not necessary.

How to Minimize Signs of Adrenal Disease

Studies completed in 2006 show that the early use of a medication called leuprolide (brand name is Lupron) in young ferrets can reduce the signs or eliminate adrenal disease later on in life.

Timing is critical!

Male ferrets should receive a dose of Lupron in January. Female ferrets should receive a dose of Lupron in mid-February to mid-March.

These injections are annual for the life of the ferret.

Concurrent Diseases

Older ferrets are very prone to more than one disease at a time. The two more common concurrent diseases are insulinoma (a benign tumor of the pancreas) and a type of heart disease call cardiomyopathy. For this reason, we strongly recommend testing for these diseases before treating for adrenal disease.

Treatment

The Recommended Option

The recommendation at the Exotic and Bird Clinic is to surgically explore and remove the affected adrenal glands of the ferret. Currently we use cryosurgery (freezing the tissue). Post-operatively, an injection of Lupron is given. This injection is then repeated in January (for males) and mid-February to mid-March (for females)



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Uncomplicated Left Adrenal Removal

Ninety percent of ferrets have the left adrenal gland affected. This gland is relatively easy to isolate and remove.

Uncomplicated Right Adrenal Gland Removal

A small percentage of ferrets have a tumor in the right adrenal gland. To reach this gland is more difficult surgically.

Complicated Right Adrenal Gland Removal

Even a smaller percentage of ferrets have the right adrenal gland growing into a structure known as the vena cava. The vena cava is the 'main highway' for blood to return to the heart from the veins in the lower body. It may not be possible to remove all of this adrenal gland. We use a combination of surgical dissection, debulging and cryosurgery to reduce the tumor as much as possible.

Bilateral Disease

Some ferrets have both glands affected. We do our best to remove both as indicated above. The occasional ferret may need lifelong supplementation after surgery.

Cost of Surgery

The cost of surgery, not including the initial examination or any pre-anesthetic blood work or x-rays, runs from \$350.00 to \$500.00. The Lupron injection is an additional \$85.00. This is an estimate based on prior experience and may not apply to your pet's particular case and surgery.

Medical Treatment

A medication called Lupron can be used, especially for ferrets who are not surgery candidates. It needs to be repeated every 4-6 months lifelong. The side effects of Lupron are very minimal. There are a variety of doses and frequency of administration. Approximately 60% of ferrets will have remission of their symptoms. Lupron does not reduce the size of the tumor. Cost can be anywhere from \$85.00 to \$225.00 per injection depending on the dosage.

A newer medication called a melatonin implant is available. It seems to work to reduce symptoms but does not change the tumor size and growth. A small percentage of ferrets may have the side effect of prolonged drowsiness. This needs to be repeated every 4-6 months in the ferrets if it works.

What to do if the Symptoms Recur

The most common cause of recurrence of the symptoms is that the ferret has developed a tumor in the remaining adrenal gland tissue.

At this time, we are recommending surgical removal of the entire other adrenal gland. Short term this does not seem to be a problem, but no long-term studies have been done. Ferrets that have both adrenal glands removed require approximately 30 days of supplemental steroids. Occasionally, this medication may be lifelong.