



The American Ferret Association, Inc.
PMB 255, 626-C Admiral Drive, Annapolis, Maryland 21401
1-888-FERRET-1 afa@ferret.org www.ferret.org

ADRENAL DISEASE IN FERRETS

Ruth L. Heller, D.V.M.
Borderbrook Animal Hospital
Murrysville, PA, 15668

Adrenal disease in ferrets is a common syndrome seen in America, more frequently in ferrets of American bloodlines, but also in those of foreign descent. It is most common in ferrets of middle age (three to seven years) but has been diagnosed in ferrets under a year and over ten years of age. The most common cause is hyperplasia (excessive growth) of the adrenal gland(s), but it can also be caused by tumors, both malignant and benign. Metastasis (spread outside of the immediate area) is uncommon, but some tumors can be very invasive locally, and may grow into the blood vessels or internal organs near the tumor's origin.

It is uncertain at this time what causes adrenal disease to occur, although a number of possible causes are being investigated. These potential causes include inbreeding, husbandry practices such as diet and housing indoors with an artificial light cycle, and an early age at neutering. However, ferrets who were older at the time of neutering can develop adrenal disease.

The most common symptom of adrenal disease is a symmetrical hair loss, usually starting at or near the base of the tail and moving toward the head. Advanced cases can look nearly bald, and may have very dry, itchy skin. Ferrets may return to behaviors typical of an animal that is sexually intact, and may develop aggression toward other ferrets. In some cases this behavior change may be the only sign. Females may appear to be in heat, with an enlarged vulva. Male ferrets may have difficulty urinating or repeated urinary tract infections due to prostatic enlargement. Ferrets may seem to be excessively thirsty. Some ferrets may lose muscle tone and become weak and lethargic. An increased odor may be noticed. Rarely, there may be blood cell problems such as anemia.

There are other illnesses that may have similar signs, such as nutritional deficiencies, seasonal hair loss, parasites, fungal infections, and ovarian remnants.

The diagnosis of adrenal disease in ferrets is frequently straightforward and can often be made on history and clinical signs alone. A skilled veterinarian may be able to palpate an enlarged adrenal gland. An ultrasound may identify an enlarged gland, and if successful, also offers the benefit of determining which (or if both) glands are affected prior to surgery. For questionable cases, laboratory testing may be helpful.

Urinary cortisol:creatinine ratios have been reported to be elevated in cases of AAE. The University of Tennessee provides an assay which measures the circulating levels of several hormones produced by the adrenal glands. An elevated serum estradiol is diagnostic of adrenal disease. Laboratory testing should be done on an as needed basis.

The most effective treatment is surgical removal of the affected adrenal(s). This is the only treatment plan which offers a cure for the disease. Bloodwork should be done prior to surgery to evaluate the ferret for anemia and for insulinoma, as many ferrets will have both diseases. Chest x-rays should be done, and if there is any concern about the heart, an echocardiogram (ultrasound of the heart) should be done. There are several surgical methods currently available, including laser surgery and cryosurgery (for more information, see the AFA's information sheet on adrenal cryosurgery), which may be the best method for removal of an affected right adrenal gland, which is closer to the vena cava, a major blood vessel. However, the choice of surgical methods will be dependent on the surgeon's experience and level of skill, and some surgeons feel that conventional surgery (using a scalpel) is the method most likely to remove all of the affected tissue. Antibiotics and fluids should be given during and after surgery. If the ferret has both adrenal glands removed, medication may be required after surgery. Bloodwork done after surgery will be helpful in determining this.

There are a variety of medical treatments available for those ferrets who are not good surgical candidates. None of them cure the disease itself, and the tumor will continue to grow, however, clinical signs can often be eliminated completely, giving the ferret a good quality of life. The most commonly used and most effective is Lupron (leuprolide acetate) injections, which can often reverse the signs for months at a time. Melatonin may be helpful in some cases, and is available in a time-release implant (Ferretonin) as well as in an oral formulation for daily use. Other medications that can be used include Casodex and Arimidex. For more information on medical treatment options, see the AFA's information sheet on medical treatment of adrenal disease.

Adrenal disease in ferrets is common among American pets. It has been stated that "if a ferret lives long enough, it will develop adrenal disease". While this may be an exaggeration, there is no denying the fact that it is a disease that any veterinarian who works with ferrets, and any ferret owner, must be familiar with. Fortunately, with the many options now available, it is possible to effectively treat this disease.