

Adrenocortical Disease in the Ferret

Adrenocortical disease is a common endocrine disorder that affects one or both adrenal glands in middle-aged to older ferrets. The adrenal glands are a pair of organs that lie next to the kidneys and produce many important hormones, including sex steroid hormones. In ferrets, enlargement of one or both of these glands will lead to an overproduction of mainly sex steroid hormones. Enlargement of the adrenal gland may either be due to an adenoma (benign tumor), adenocarcinoma (malignant tumor), or adrenocortical hyperplasia (increased size).

What causes adrenal disease?

The exact cause is unknown. It is speculated that neutering at a very early age may play a role in causing the adrenal glands to assume the role of producing sex hormones. Other potential causes that have been proposed include diet, genetics, and photoperiod, or the light/dark cycle.

What changes will I see in my ferret?

The most common sign of adrenal disease is hair loss. Intense itchiness and scratching is also seen in some ferrets. Female ferrets will often have an enlarged vulva, which may be associated with a mucoid discharge.

Male ferrets may also have difficulty urinating, or an inability to urinate due to enlargement of the prostate. The prostate gland will increase in size secondary to the rise in sex steroid hormones. As the prostate

enlarges, it compresses the urethra, the tube that connects the urinary bladder to the penis. Less commonly, neutered ferrets may exhibit sexual behavior.



How can adrenal disease be diagnosed?

A diagnosis is based on the combined results of many different tests. No single test result is evaluated alone. The results of the tests listed below are used together to evaluate what is best for your ferret.

- The history provided by you, the owner, along with the certain physical examination findings, can be highly suggestive of adrenocortical disease.
- A blood test should be performed to evaluate your ferret's overall health. Results suggestive of concurrent disease, such as insulinoma, another common ferret disease, may be identified.
- Radiographs (x-rays) may be performed to evaluate your ferret's general health status. Abdominal ultrasound can detect and measure the enlarged adrenal glands.

- Finally a ferret adrenal endocrine blood panel will indicate which hormones, if any, are elevated.

How can adrenal disease be treated?

Adrenocortical disease can be treated in two ways: surgical removal of the affected adrenal gland(s), or medical management. The best treatment for your ferret will depend on many factors, including age and the presence of other health problems.

Medical therapy using deslorelin implants (Suprelorin-F, Virbac), suppresses stimulation of the portion of the adrenal glands that produces sex steroid hormones. Deslorelin does not cure adrenocortical disease but its use will suppress the signs of adrenal disease for at least 1-2 years. Leuprolide acetate depot (Lupron) may also be used, but its effects last a median 3.8 months.

After a deslorelin implant is placed, signs associated with adrenocortical disease may actually worsen during the first 2 weeks. Vulvar swelling and itchiness decrease 10-14 days after treatment, and the vulva returns to a normal appearance by 6 weeks post-treatment. Hair regrowth occurs within 4-6 weeks post-implantation. Most ferrets have complete regrowth by 8 weeks post treatment, however regrowth can be incomplete in some individuals.

Surgical removal of diseased adrenal tissue, or adrenalectomy, can be considered for ferrets that also possess another condition that would benefit from surgery, such as insulinoma, and are good candidates for anesthesia. Geriatric ferrets or ferrets with cardiomyopathy are not good candidates for surgical therapy. After surgery has been performed, a decrease in prostate size is variable, but usually takes 2-3 days. A swollen vulva will decrease in size within a few days to 2 weeks. It will take longer (up to a few months) for signs of hair re-growth to be observed.

Why should I treat adrenal disease?

If left untreated, advanced adrenocortical disease can cause serious, potentially fatal problems, including urinary obstruction in males or bone marrow suppression and anemia. If a malignant adrenal tumor (adenocarcinoma) is present, it can spread to nearby organs.

References

- Huynh M, Chassang L, Zoller G. Evidence-based advances in ferret medicine. *Vet Clin North Am Exot Anim Pract.* 2017 Sep;20(3):773-803. [doi: 10.1016/j.cvex.2017.04.009](https://doi.org/10.1016/j.cvex.2017.04.009). PMID: 28781033.
- Lennox AM, Wagner R. Comparison of 4.7-mg deslorelin implants and surgery for the treatment of adrenocortical disease in ferrets. *J Exotic Pet Med* 2012;21(4):332-335. [doi: 10.1053/j.jepm.2012/09.001](https://doi.org/10.1053/j.jepm.2012/09.001).
- Schoemaker NJ, van Zeeland YRA. Endocrine diseases of ferrets. In: Quesenberry KE, Orcutt CJ, Mans C, Carpenter JW (eds). *Ferrets, Rabbits, and Rodents*, 4th Philadelphia: W.B. Saunders; 2021:77-91.
- Swiderski JK, Seim HB 3rd, MacPhail CM, et al. Long-term outcome of domestic ferrets treated surgically for hyperadrenocorticism: 130 cases (1995-2004). *J Am Vet Med Assoc.* 2008; 232(9):1338-43. [doi: 10.2460/javma.232.9.1338](https://doi.org/10.2460/javma.232.9.1338). PMID: 18447778.

Wagner RA, Finkler MR, Fecteau KA, *et al.* The treatment of adrenal cortical disease in ferrets with 4.7-mg deslorelin acetate implants. *J Exotic Pet Med* 2009;18(2):146-152. [doi: 10.1053/j.jepm.2008.11/003](https://doi.org/10.1053/j.jepm.2008.11.003).