



# ACVIM

Small Animal Internal Medicine  
Fact Sheet

## ACVIM Fact Sheet: Cushing's Disease in Dogs

### *Overview*

Healthy people, dogs, cats and other animals have several sets of “ductless glands.” These glands are like small “factories,” each responsible for manufacturing a unique “chemical messenger” that is packaged and then distributed by the blood throughout the body. Examples of such glands include the thyroids, ovaries and testicles. Their products are called “hormones,” which act to increase or decrease activity of other organs or tissues. For good health, each hormone must be produced in the amount needed. Too much or too little of any hormone may cause illness.

The “adrenals” represent a pair of glands responsible for producing several vital hormones, including *cortisone*. “Renal” refers to “kidney” and “ad” means “next to.” One adrenal gland is located next to each kidney. The condition associated with chronic excesses of cortisone is called by several names: hypercortisolism, hyperadrenocorticism, or “Cushing’s Syndrome.” About 80 years ago, Dr. Harvey Cushing is credited for being the first to describe a group of people, each ill due to chronic excesses in cortisone. This is why some refer to the disease using his last name. A tumor producing excess cortisone can develop in either adrenal gland. This is called “adrenal tumor hypercortisolism” and is recognized in about 15 to 20% of dogs with naturally occurring Cushing’s syndrome. The majority of dogs with naturally occurring Cushing’s syndrome (80 to 85%) have a tumor in the “pituitary” gland, located near the bottom of the brain. The pituitary gland is also called the “master gland” because its job is to control function of other glands, including the adrenals. Some pituitary tumors produce excessive chemical messages telling the adrenals to produce cortisone. The result is “pituitary dependent Cushing’s syndrome.” Finally, dogs being administered steroid hormones by their owners or veterinarians may develop clinical signs which mimic naturally occurring disease and this is called “iatrogenic hypercortisolism.”

### *Signs & Symptoms*

While people and cats are occasionally diagnosed as having “Cushing’s Syndrome,” the condition is most common in dogs. It is a chronic and progressive disease, meaning that the condition begins slowly with mild or subtle symptoms that commonly become more and more obvious with time. Symptoms usually include some combination of excess thirst and urine production, increases in appetite, hair loss that does not involve the head or legs, hair that is slow to grow back after clipping, panting, muscle weakness and an enlarged belly. Dogs with this condition need to urinate more often and some previously “house-broken” dogs may begin to urinate indoors. Muscle weakness may be noted as decreased ability to go for walks, difficulty climbing stairs, or being unable to jump onto furniture or into a car. Some dogs have obviously thin skin and/or skin infections. While dogs with Cushing’s syndrome have excellent appetites, they do not have vomiting or diarrhea. If a dog has no owner-observed symptoms, Cushing’s is extremely unlikely.

### ***Diagnosis***

Cushing's syndrome is most commonly suspected after a veterinarian learns the owner observations. However, there are different conditions whose symptoms may overlap, therefore "basic" blood and urine tests are recommended as the first diagnostic step. Initial testing can increase or decrease our suspicions while also providing information regarding your dog's general health. Unexpected abnormalities may replace Cushing's syndrome as the primary concern or they may need to be investigated at the same time. With a suspicion of Cushing's syndrome, veterinarians look for increases or decreases in certain routine blood and urine test results. For example, many dogs with Cushing's syndrome have increases in blood cholesterol, dilute urine, high blood pressure and urinary tract infections. If the suspicions continue, hormone "*screening tests*" are employed to help separate dogs with Cushing's syndrome from dogs unlikely to have the disease. While no test is perfect, the commonly employed urine or blood *screening tests* for this condition are excellent and usually helpful. No test, however, is as important as owner observations. If the screening test(s) results are abnormal and consistent with Cushing's syndrome, your veterinarian will now likely recommend one or more new tests, used to help *discriminate* dogs with an adrenal tumor from those with a pituitary tumor. In addition to blood or urine tests, radiographs (X-rays) of the chest may be recommended along with either radiographs or ultrasound of the abdomen. Results of these tests provide information regarding your dog's overall health, as well as helping to discriminate adrenal tumor hypercortisolism from pituitary tumor hypercortisolism. These two conditions may be treated differently.

### ***Treatment & Aftercare***

Most dogs with naturally occurring Cushing's syndrome respond extremely well to treatment. Ideally, dogs with an adrenal tumor are treated by having the tumor removed surgically or with a laparoscope. Prior to surgery, most veterinarians recommend medical treatment for several weeks. About half of the adrenal tumors removed are benign (not cancerous) and those dogs are permanently cured after recovering from surgery. They often require weeks to months of cortisone replacement therapy following surgery. About half of adrenal tumors are malignant (cancerous) and the long-term outlook for those dogs depends on whether or not cancer spread occurred before the mass was removed. Sometimes, after a malignant tumor is removed, dogs never have any further problems related to Cushing's syndrome. Others can have recurrence or become ill from cancer that has spread. If a dog has an adrenal tumor causing Cushing's and evidence of tumor spread, surgery is not usually an option and we recommend medical therapy to control the symptoms.

Ideally, dogs with a pituitary tumor are treated by having that tumor removed surgically. Since this surgery is not widely available, most dogs with pituitary Cushing's are treated with pills that block cortisone production or that kill cortisone producing cells. Such medical treatments are excellent for controlling the symptoms of Cushing's, but there is no pill-treatment that works directly on pituitary tumors. If a dog does not receive enough medicine, the symptoms of Cushing's persist. Over dosage can reduce cortisone too much and make a dog ill. Close communication between owner, veterinarian and the veterinary team are quite valuable.

***Prognosis***

Most dogs treated for Cushing's respond extremely well. A huge majority of owners have been pleased with results of treatment.

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