



Chastain Veterinary Medical Group Pet Health Fact Sheet

Canine Cushing's Disease (Hyperadrenocorticism)

What is Canine Cushing's Disease?

Canine Cushing's disease, or Hyperadrenocorticism, is a disease in which one or both adrenal glands produce excessive amounts of certain hormones. The condition is one of the most common endocrine disease of middle-aged and older dogs.

A very similar, but metabolically distinct disease process commonly affects older ferrets, but beyond that, hyperadrenocorticism is infrequent in other domestic animals.

The adrenal glands produce several vital substances – hormones - which regulate a variety of body functions and are necessary to sustain life. The most widely known of these substances is cortisol, commonly known as cortisone. Overproduction of cortisol can lead to serious problems.

Cause

There are two mechanisms by which spontaneous hyperadrenocorticism can occur. These are described below. Regardless of the cause, the symptoms are essentially the same. It is important to identify the cause, if possible, however, because different forms of the disease are treated in different ways and typically have different outcomes.

Pituitary gland tumor. The most common cause of Canine Cushing's disease (85 -90 % of all cases) is a tumor of the pituitary gland, which is a small organ, located in the skull, just below the brain. This form of the disease is referred to as pituitary-dependent hyperadrenocorticism (PDH). The pituitary tumor produces abnormal chemicals which, in turn, cause the adrenal glands to produce excessive cortisol. The pituitary tumor may be either benign or malignant, and it may be either microscopic or quite large. Large tumors may produce additional symptoms in addition to the typical Cushing's disease symptoms. Generally, if the activity of the adrenal gland can be controlled, many dogs with this form of Cushing's disease can live normal lives for many years as long as they take their medication and stay under close medical supervision.

Adrenal gland tumor. Functional adrenal tumors are a far less frequent cause of hyperadrenocorticism in dogs. Adrenal tumors causing Canine Cushing's Disease can also be either benign or malignant. If benign, surgical removal is usually curative. Malignant adrenal tumors can sometimes be managed for a time, sometimes with surgery, but the long term prognosis is much less favorable.

Chastain Veterinary Medical Group

Meadow Brook Animal Hospital – 972-529-5033 · Preston Road Animal Hospital – 972-239-1309

<http://chastainvets.info>

Iatrogenic Cushing's disease. Many of the signs, symptoms, and lesions of naturally occurring hyperadrenocorticism can be induced by long-term, daily administration of large doses of corticosteroids. This is called *Iatrogenic Hyperadrenocorticism* or *Iatrogenic Cushing's Disease*. Dogs are much more susceptible to this medicinal side effect than are cats.

What are the symptoms and clinical signs?

The symptoms and clinical signs of Canine Cushing's Disease are somewhat vague and variable in the beginning; late stage changes are more obvious. Findings may include any or all of the following:

- Polyuria – excessive urination, a very common finding
- Polydipsia - excessive thirst – a very common finding
- Polyphagia - excessive hunger – a very common finding
- Behavioral problems - lethargy, sleep-wake cycle disturbances, panting, and decreased interaction with owners
- Muscle weakness - especially affecting the extremities and abdomen
- Muscle atrophy - especially affecting the extremities and abdomen
- Gradual abdominal enlargement
- Sway back appearance (lordosis)
- Muscle trembling
- General lethargy and weakness
- Hepatomegaly (liver enlargement)
- Hair thinning and hair loss (Alopecia) - symmetrical and may involve a significant portion of the body surface
- Thin skin – due to atrophy of the epidermis and pilosebaceous apparatus, combined with loss of skin's collagen and elastin
- Cutaneous (skin) mineralization

Diagnosis

Diagnosis of Canine Cushing's Disease can be tricky. Typically, several different tests over a period of days are necessary.

One of the most important tests for canine Cushing Disease is the ACTH Stimulation Test. If it does not confirm the diagnosis, the Low-Dose Dexamethasone Suppression Test is performed. Other tests are needed to decide which form of the disease is present. Our experience at the Chastain Veterinary Medical Group has shown that an ultrasound examination can be a valuable part of the testing process. This permits us to visualize the adrenal gland tumor and determine its size. Although testing can be expensive, it is necessary before treatment can be started.

Treatment

Iatrogenic Cushing's disease: This is the easiest form of Hyperadrenocorticism to treat. All we do here is gradually taper off, and then finally discontinue, the corticosteroids that are responsible for the condition. Note that this should be done in a careful and controlled manner so as to avoid or minimize metabolic problems associated with corticosteroid withdrawal. Discontinuation of corticosteroids may result in a recurrence of the symptoms of the disease for which the corticosteroids were originally prescribed.

Chastain Veterinary Medical Group

Meadow Brook Animal Hospital – 972-529-5033 · Preston Road Animal Hospital – 972-239-1309

<http://chastainvets.info>

Adrenal Tumor. Treatment of Canine Cushing's Disease caused by an adrenal tumor requires surgery. If surgery is not an option, some of these can be well managed with medications.

Pituitary Tumor: Many dogs with PDH can be adequately managed by administration of the drug mitotane (o,p"-DDD). Because the sensitivity of individual dogs to mitotane varies considerably, pet owners should be aware of the possibility of rebound hypoadrenocorticism (cortisol deficiency) developing after several months of treatment. Pet owners should remain vigilant for suggestive signs of possible hypoadrenocorticism (e.g., vomiting and diarrhea).

Most dogs treated with mitotane show rapid improvement in their symptoms of Canine Cushing's Disease. Initially, water consumption, frequency of urination, and appetite are reduced. Muscle strength and physical activity improve over the next few weeks. Hair re-growth usually takes several months. Dogs that respond favorably to mitotane therapy must remain on the medicine for life to prevent recurrence of clinical signs.

In addition to mitotane, the drugs ketoconazole and l-deprenyl have been effective in the management of PDH in dogs. In fact, l-deprenyl has recently won FDA approval for this use. It is effective in ~80% of cases and is associated with fewer side effects and less stringent patient monitoring.

Chastain Veterinary Medical Group

Meadow Brook Animal Hospital – 972-529-5033 · Preston Road Animal Hospital – 972-239-1309

<http://chastainvets.info>