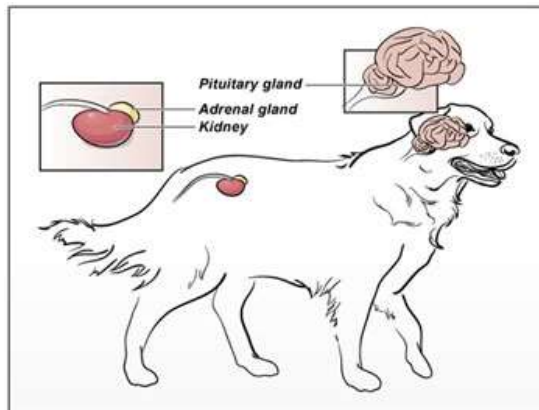




Cushing's Disease

Cushing's disease, Hypoadrenocorticism, is a disease that results from an increase of a steroid called cortisol. Cushing's is more common in dogs, especially middle age or older female dogs, though it can occur in cats.

The body normally produces steroids to maintain body function. The pituitary gland is located in the brain and controls the steroid release from the adrenal glands that are located near the kidneys. The body has a delicate response system to keep everything in check and make sure the body has the needed steroids at the right time.



Causes

Most often, a tumor in the pituitary gland or adrenal gland causes Cushing's disease. The type of tumor present can vary and may be malignant (have the ability to spread throughout the body) while others, usually tumors on the pituitary gland, will not spread.

If the tumor is in the pituitary gland, it increases the cortisol release by the adrenal glands. If the tumor is located on the adrenal gland, it causes the adrenal gland to over-produce cortisol. In either case, the tumor ignores the body's signals to stop producing cortisol.

It can also be Cushing's syndrome. This occurs from giving an excessive amount of steroid medication to a pet. The signs will look the same. It is usually corrected with alteration of the steroid dose.

Types of Cushing's Disease

The location of the tumor results in two different types of disease: pituitary dependent hyperadrenocorticism (PDH) or adrenal tumor hyperadrenocorticism (ATH). Eighty to eighty-five percent of dogs with Cushing's have PDH while the remaining 15-20% has ATH.

Signs

The most common signs of Cushing's disease are increased thirst and urination, increased hunger, appearance of weight gain (pendulous belly), and hair loss. Other signs include weakness, lethargy, and excessive bruising.



There may be skin changes including thinning, excessive oils, abnormal areas of thickening, excessive pigmentation, and comedones (commonly called blackheads).

There can also be skin infections, an enlarged liver, and abnormal size of external reproductive organs.

Diagnosis

Unfortunately, Cushing's disease resembles many other diseases. Lab work helps to rule out other diseases as well as look for signs of Cushing's. A urinalysis and culture will look for urinary tract infections that can commonly occur with Cushing's.

X-rays of the chest look for signs of cancer within the lungs in case it's due to a tumor that spreads. Abdominal x-rays and ultrasound evaluate the liver and look for signs of mineralization of the adrenal gland. We also need to check blood pressure. A complete eye exam to look at the back of the eye globe will check for signs of bleeding.

A special test, called an ACTH stimulation test, will confirm the diagnosis. We check cortisol levels in the blood before and after an injection of medicine that would normally stimulate cortisol to increase.

A normal dog will have an initial low level of cortisol that increases because of the injection. A dog that has Cushing's disease may have a normal or high initial level of cortisol that usually increases excessively after the injection. This test usually confirms Cushing's disease but does not differentiate between the types.

To try to differentiate pituitary dependent Cushing's disease from adrenal tumor Cushing's disease, other tests such as a low-dose dexamethasone suppression (LDDS) test or high-dose dexamethasone suppression (HDDS) test are performed. These tests can also help to confirm a diagnosis of Cushing's if the ACTH stimulation test is not clear.

With a dexamethasone suppression test, we check the cortisol levels before and at 4 and 8 hours after giving a low or high dose of dexamethasone (a steroid). In a normal dog, the cortisol levels are decreased or suppressed after the injection. In a dog with Cushing's disease, the cortisol levels do not suppress like normal.

The pattern of cortisol levels can help to determine which form of Cushing's is present but is not always reliable. For a definitive diagnosis of disease type, we would need additional imaging such as a CT scan to see the tumor.

Treatment

The goal of treatment is to control signs of the disease with medication. There are several medicines available. Each work differently and each pet responds differently to the medicine. We monitor the treatment through regular ACTH stimulation tests to ensure the medicine is working. Unfortunately, the medicine and monitoring can be expensive over time.

Surgery to remove the adrenal glands is also an option for some pets with Cushing's disease.

Prognosis

The average survival time for dogs is between 2-5 years depending on the type of disease and treatment. For dogs with tumors that have spread, prognosis is poor. Cats often have Cushing's disease along with diabetes so the prognosis depends on treating both conditions.



Before and after treatment for Cushing's and diabetes.