

Cushing's Disease and Your Pet

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What is Cushing's disease?

Cushing's disease is a fairly common disease of the endocrine system in dogs. It occurs when the adrenal glands, located near the kidneys, produce too much of a steroid hormone called cortisol. Cortisol has a variety of important functions, including influencing your dog's stress response, suppressing inflammation, and helping regulate metabolism. There are two types of Cushing's disease. The most common type occurs when a part of the brain called the pituitary gland becomes overactive and secretes a hormone that tells the adrenal glands to overproduce cortisol. The other type is when a tumor grows on the adrenal gland that directly overproduces cortisol. These tumors can be benign or malignant. Fortunately malignant adrenal tumors are quite rare.

Owners often see first that their dog is very thirsty and urinates more, much like a dog that is taking steroids for a condition such as allergies. Cushing's disease also suppresses the immune system, leading to more (generally mild) infections such as bladder, skin, and respiratory infections. Because of the extra workload for the liver in processing cortisol the liver can become enlarged, leading to a pot-bellied appearance. Cushing's disease can also cause coat changes such as fur loss and calcium deposits on the skin.

How is Cushing's disease diagnosed?

In general, the first step in working up a patient for Cushing's disease is screening labwork which consists of a full chemistry panel that tells your vet about organ function, a complete blood count (CBC) that gives information about blood cells, and a urinalysis. This is also done to rule out other diseases with similar symptoms such as diabetes and kidney disease. Dogs with Cushing's disease often have elevated liver values and dilute urine, sometimes with protein and white blood cells or bacteria. They often have an elevated platelet count, cells that are used for clotting and healing. In some cases the lab changes may be mild. It is rare for a patient with Cushing's disease to have normal labwork, but it is possible.

If the labwork and symptoms of your patient are pointing towards Cushing's disease, your vet will likely recommend a confirmatory test called a low dose dexamethasone suppression test. This is an all-day blood test. Your dog will be dropped off at the clinic in the morning (breakfast and water are OK prior to the test). A baseline blood sample will be drawn, then your dog will be given a very small dosage of a steroid in the vein. Blood is drawn four and eight hours later to measure cortisol levels to see how your dog's body responded to the steroid injection. If these levels come back high, this is consistent with Cushing's disease.

How is Cushing's disease treated?

It is important to point out that even once diagnosed, you do not necessarily need to treat a dog with Cushing's disease. In general it does not shorten a dog's lifespan, even if not treated. Most owners

choose to treat if they feel the symptoms are affecting their dog's quality of life, such as their dog needs to constantly go out to urinate, or they are constantly battling infections.

If you choose to treat your dog with Cushing's, the treatment is actually relatively simple. Your veterinarian will prescribe a drug called Vetoryl that decreases the adrenal glands' production of cortisol. It is generally given once a day, in the morning, with food. This drug can have side effects such as vomiting, diarrhea, and decreased appetite. If you start the medication and see these side effects in your pet, please call us right away. If given at too high of a dose, Vetoryl also has the possibility of overcompensating and shutting down the adrenal glands completely. This is known as Addison's disease, which is also treatable, but a side effect we'd rather avoid if possible.

In dogs with adrenal tumors surgery is also an option, but can be expensive and complicated given the location of the adrenal glands being so close to major blood vessels. Most of these patients respond well to medication.

How is Cushing's disease monitored?

Because of the side effects of Vetoryl, we recommend monitoring your patient closely after starting the medication. Two weeks after starting treatment we will do another blood test that's fairly similar to the test we used to diagnose Cushing's disease. This is called an ACTH stimulation test. It is performed by taking a baseline blood sample then giving your dog an injection of a drug called Cortrosyn that stimulates the adrenal glands to produce cortisol. Blood is drawn again one hour after this injection and cortisol levels are checked. At the same time we check your dog's electrolyte levels to make sure they are not being affected by the medication.

We use the results of these tests to decide if we need to change the medication dosage. If the labwork looks good, we stretch out monitoring tests for 1-2 months. If those results are good, generally labwork rechecks are stretched out to every six months. If the cortisol levels are too high we usually go up on the dosage and recheck labwork sooner. If they are too low this is usually more of an issue. We may have you go down on the medication dosage, or even stop it completely, either temporarily or permanently. Again, we are trying to avoid causing Addison's disease, where the adrenal glands lose their ability to produce cortisol and regulate electrolytes.

In Summary

Most clients choose to test and treat for Cushing's disease if their dogs are showing the following symptoms: drinking/urinating more, coat changes, pot-bellied appearance, and/or getting more (generally mild) infections. If diagnosed, Cushing's disease is very treatable, although treatment and monitoring can be a little complicated and expensive in some patients. Treatment is not required, however, and many dogs with untreated Cushing's disease can also live out their lives normally, but with conditions that may need a little extra management at home. If you have any questions do not hesitate to reach out to us-we are happy to discuss this disease further, and come up with the best plan that works for you and your family!