

THE ADRENAL DISEASES

CUSHING'S & ADDISON'S



Gaston Phoebus and Hunters, (c.1500), Gaston Phoebus, Book of the Hunt
Gaston Phoebus, Count of Foix and author of the book, surrounded by hunters.

Suzanne Stack, DVM

CUSHING'S

Cushing's disease (hyperadrenocorticism) is the more common of the adrenal disturbances. It is seen in middle aged to older dogs. The adrenals are pea-sized glands adjacent to the kidneys whose normal function is to produce the body's steroids. The overactive adrenals of Cushing dogs produce an overabundance of steroids. The actual defect in most cases is a benign pituitary (brain) tumor that secretes excessive amounts of adrenal stimulating hormone (ACTH), sending the adrenals into high gear. Only 15% of Cushing dogs have a secretory tumor of the adrenal gland itself.

Cushing dogs act (and can look) just like dogs who have been given too much prednisone. They drink a lot, pee a lot, are always hungry, gain weight, and may pant excessively. Over time, the bad effect of "oversteroiding" causes the hair to thin and the muscles to weaken, producing the classic poochy-bellied "barrel on four pins" appearance. Cushing dogs may rupture a cruciate (knee) ligament for no apparent reason. Just as might be expected for a dog on steroids, they don't heal well and are subject to pressure sores. They are also more susceptible to infections, particularly UTIs.

Screening tests such as ALKP, urine cortisol:creatinine, and ACTH stimulation help rule in or out Cushing's. "Definitive diagnosis" is by dexamethasone suppression test. "Definitive diagnosis" because dogs can be misdiagnosed on the basis of lab tests alone. Cushing suspects must show clinical signs. Though not every dog will show every sign, Cushing dogs uniformly drink and pee a lot. A practical observation is that they cannot go overnight without peeing. The confounding element in lab tests is that any sickness or stress can elevate cortisol levels, resulting in a "Cushingoid" diagnosis. Further, tests must wait until any form of medication with steroid ingredients - even ear drops or skin cream - is out of the dog's system.

There are two treatment options for Cushing's. Lysodren (mitotane) pills are a "sure thing" because they destroy the adrenal glands, thus stopping the oversupply of steroids. Because the body needs some steroid to function properly, Lysodren treatment must be fine-tuned and monitored regularly by ACTH stimulation testing. Most dogs will wind up on a twice weekly pill

schedule.

The other treatment option is daily Anipryl (selegiline) pills, which work by counteracting the steroid as it's made. Anipryl has a lower success rate, but is reasonable to try first if the dog is still in good shape. There is no test to monitor Anipryl response - dose adjustments are made on the basis of the owner's observation of clinical signs. Though Cushing dogs cannot always be made "perfect," there is no reason that a well-controlled Cushing dog cannot live a normal life and lifespan.

ADDISON'S

Addison's disease is essentially the opposite of Cushing's - hypoadrenocorticism. Addison dogs have underactive adrenal glands, most often the product of immune-mediated adrenal destruction which can occur younger and is much rarer than Cushing's. In addition to destruction of the glucocorticoid ("steroid") layer of the adrenal gland, Addison's may also destroy the mineralocorticoid layer of the adrenal gland, which regulates sodium and potassium conservation.

As might be expected, these dogs without enough steroid in their body may be dull and thinnish, to the point of "poor doer." Others appear outwardly normal. Bouts of gastrointestinal upset are common - signs tend to wax and wane. Because of these nonspecific signs, Addison's is known as the "great imitator" and it's not uncommon for clients to be on their second and third opinions before a diagnosis is made. To catch these, one must always keep Addison's in the back of their mind as a possibility for ADR ("ain't doin' right") cases. Addisonians often respond to symptomatic treatment (IV fluids and/or steroids), thus some dogs "recover" and go on undiagnosed until they collapse from extreme electrolyte imbalance - the classic "Addisonian crisis." High potassium and low sodium are the usual tipoff on bloodwork - from there the diagnosis is straightforward with an ACTH stimulation test. There are, however, "trick cases" that may only have destruction of the glucocorticoid layer, and bloodwork on these dogs will not necessarily show changes in sodium and potassium

Treatment consists of replacing the missing steroids. A small daily prednisone dose takes care of the glucocorticoid requirement. Mineralocorticoids are replaced with either twice daily Florinef (fludrocortisone) pills or monthly Percorten (desoxycorticosterone pivalate) injections. As long as you catch an Addisonian before he dies in a crisis, he can live normally on medication. A small percentage of Addisonians go on to develop immune destruction of other organs.