

Cushing's Syndrome in Dogs

Cushing's syndrome is a disease caused by long-term exposure to high levels of glucocorticosteroids, either manufactured by the body or given as medications.

-The **adrenal glands** are small, paired structures located just above each kidney. The outer zone of the adrenal gland (the cortex) is composed of glandular cells that manufacture and release corticosteroids.

There are two types of corticosteroids:- mineralocorticoids and glucocorticoids.

- **Mineralocorticoids regulate electrolyte concentrations.**
- **Glucocorticoids reduce inflammation and suppress the immune system.**

Glucocorticoids are the type of corticosteroids used in nearly all steroid medications. The output of corticosteroids from the adrenal glands is controlled by the pituitary gland through the production of adrenocorticotrophic hormone (ACTH).

Cushing's syndrome is a disease caused by long-term exposure to high levels of glucocorticosteroids, either manufactured by the body or given as medications.

-Tumors of the pituitary gland that secrete ACTH stimulate the adrenal glands to produce large amounts of adrenal hormones. This sustained overproduction in response to pituitary stimulation accounts for 85% of cases of spontaneous Cushing's syndrome. The remaining 15 % are caused by corticosteroid-producing tumors of the adrenal glands themselves.

Spontaneous Cushing's syndrome occurs primarily in middle-aged and older **dogs**, although **dogs** of all ages can be affected. Poodles, Boston Terriers, Dachshunds, and Boxers have the highest incidence.

-A number of cases of Cushing's syndrome are caused by long-term therapy with drugs that contain corticosteroids. **This is called iatrogenic Cushing's syndrome.**

Signs

Excess cortisone can cause hair loss over the body in a symmetric pattern, with darkening of the underlying **skin**.

The remaining hair is dry and dull.

- Small blackheads may be found on the abdomen. The abdomen is pendulous, distended, and pot-bellied.
- Other signs include lethargy with reduced activity, infertility in females, testicular atrophy and infertility in males, loss of muscle mass, and weakness.
- Excessive thirst and frequent urination also occur.
- **Dogs** with hyperadrenocorticism lose body condition and develop severe problems such as hypertension, **congestive heart failure**, and **diabetes** mellitus. Other complications include increased

susceptibility to infections, blood clots in the circulatory system (thromboembolism), and central nervous system signs including behavioral changes and [seizures](#).

diagnosis

of Cushing's syndrome is based on laboratory tests, especially those that measure serum cortisol concentrations before and after the injection of ACTH and dexamethasone.

-Advances in CT scans and magnetic resonance imaging (MRI) techniques have made it possible to visualize small tumors of the pituitary and adrenal glands.

- Ultrasound can also be used to measure the size and symmetry of the adrenal glands.

Treatment:

Spontaneous Cushing's syndrome is treated with mitotane. The medication acts on the adrenal cortex to selectively suppress the production of glucocorticoids.

The drug protocol is complex and requires close veterinary monitoring. The prognosis is guarded. The average life span with medical treatment is about two years, although longer survival is possible.

- Benign and malignant tumors of the adrenal glands can be surgically removed in some cases.

- Iatrogenic Cushing's syndrome is often reversible if the causative drug can be tapered and, preferably, discontinued.

-If dog is on long-term corticosteroids for a medical condition and develops signs of hyperadrenocorticism, the veterinarian may be able to reduce the dosage or find a substitute medication.

- Anipryl (deprenyl) has been approved for treating spontaneous Cushing's syndrome of that originates in the pituitary gland. It appears to be effective in improving some of the symptoms of Cushing's syndrome, particularly the reduced activity level.

-Pituitary tumors often respond to [radiation therapy](#), but the availability of equipment is limited and the cost is high