

HYPERADRENOCORTICISM OR CUSHING'S DISEASE

What is Hyperadrenocorticism (also known as Cushing's Disease)?

The adrenal glands regulate a variety of body functions and are necessary to sustain life. The most widely known of the substances that they produce is cortisol. With Cushing's Disease the adrenal glands overproduce some of the regulators, particularly cortisol.

How does this disease occur?

There are three major causes of Cushing's Disease. It is important to identify the cause as they are treated differently and have variable prognoses or outlooks.

1. The most common cause of Cushing's Disease is a tumour of the **pituitary gland**. The pituitary overproduces a hormone which stimulates the adrenal glands. Excessive cortisol secretion results. The tumour may be either microscopic or quite large, and it may be either benign or malignant. Depending on the size of the tumour, the presence of signs other than Cushing's Disease will be variable. However, 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.
2. Iatrogenic Cushing's Disease may result from excessive administration of **synthetic cortisones**. Oral, injectable or skin medications containing cortisones such as prednisolone, triamcinolone or dexamethasone, may result in Cushing's Disease if given over a long period of time. Although the injections or tablets may have been given for a legitimate medical reason, an excess of them can be detrimental in some individuals. Occasionally the use of an ointment containing cortisone or its derivatives over a long period of time can result in excessive intake. This may be due to absorption through the skin or eyes or to the pet licking the product.
3. An **adrenal gland tumour** may cause Cushing's Disease. If it is a benign tumour, surgical removal by a specialist surgeon can cure the disease. If malignant, surgery may help for a while, but the prognosis is less favourable.

What are the clinical signs?

The most common signs of Cushing's Disease include a marked increase in appetite, water consumption, and urination. Lethargy, or lack of activity, and a poor hair coat are also common. A pot-bellied appearance, or bloated abdomen, due to an increase of fat within the abdominal organs and a thinning of the abdominal wall may develop. Thin skin on the belly and panting are also typical of this disease.

Disclaimer: This information is of a general nature only, and must not be used as veterinary advice except where directed by your veterinarian. Hall Veterinary Surgery Pty Ltd does not warrant the suitability of this information for specific cases. If your animal is unwell or you want to act on this information, please contact us on 6230 2223.

How is it diagnosed?

If we suspect Cushings Disease we run a blood test to check your dog's general health. An enzyme in the test called Alkaline Phosphatase (ALKP) is usually high in dogs with Cushings. If ALKP is high then we do a Low Dose Dexamethasone test (LDDT) which will confirm or deny Cushings Disease. To find out which type of Cushing's Disease your pet has, we ultrasound the adrenal glands and do an endogenous ACTH blood test. Although some of these tests are expensive, they are necessary to allow us to accurately target our treatment.

What are the treatment options?

Pituitary Tumour: Treatment of the pituitary-induced form of Cushing's Disease involves suppressing adrenal function with medication. Lysodren or Trilostaine can be used. If not enough drug is used, the abnormal tissue persists and the disease continues. If too much is used, most or all of the adrenal cortex will be destroyed, which can be life-threatening. Therefore, careful monitoring and good communication with your vet is necessary during the initial intensive treatment to achieve good results.

Because the pituitary itself is not affected by the treatment, it continues to stimulate the adrenal gland. Maintenance twice weekly treatment with Lysodren is therefore necessary. Although a cure is not achieved, *successful control for many years in most dogs is possible* if the tumour is small. If the tumour is large, it may invade surrounding brain tissue and cause other signs.

When Trilostaine is used, it has to be administered more frequently and the cost of treatment is greater. It is helpful in pets that do not tolerate Lysodren.

Iatrogenic Cushing's Disease: Treatment of this form requires a discontinuation of the 'cortisone' that is being given. This must be done in a very controlled manner so that other consequences do not occur. Unfortunately, it usually results in a recurrence of the disease that was being treated by the 'cortisone'. Because there may have been adverse effects on the adrenal glands, treatment is also needed to correct that problem.

Treatment of an Adrenal Tumour:

Treatment of an adrenal tumour requires major surgery. Although this surgery is not without risk, if it is successful and the tumour is not malignant, there is a good chance that the dog will regain normal health.

More about treatment of the more common pituitary-induced form

Treatment of this form involves an initiating phase and a maintenance phase. The initiating phase arrests the disease and restores the dog to a more normal state.

Disclaimer: This information is of a general nature only, and must not be used as veterinary advice except where directed by your veterinarian. Hall Veterinary Surgery does not warrant the suitability of this information for specific cases. If your animal is unwell or you want to act on this information, please contact us on 6230 2223.

Some of the clinical signs, especially increased food and water intake, should stop within the first 1-3 weeks. Other signs, such as a poor hair coat or a bloated abdomen, may take several weeks or months to correct. The maintenance phase represents the phase of long-term therapy. This phase lasts the rest of the dog's life. Food and water intake should be monitored. Both should return to a normal level. Normal water intake is 60-100 ml/kg body weight per day. However water should not be restricted. If your dog weighs 10kg the normal daily intake should be approximately 600-1000 ml. Food amount should also be monitored.

Initiating Phase

Your veterinary surgeon will have given you precise instructions regarding the medication and when it will be necessary to examine your dog again. However if any of the following occur, please contact your veterinary surgeon without delay.

- water intake appears to drop dramatically
- appetite drops dramatically
- your dog does not eat a regular meal
- if any vomiting or diarrhoea occurs
- if the patient becomes unusually listless

If any of the above occur it may be necessary to perform a monitoring blood test (ACTH stimulation test). This test should be done early in the morning and will require your dog to stay in hospital for two hours. If the test is abnormal, the initiating phase will continue. If the test is normal, the maintenance phase will begin.

If any of the above signs occur after hours, your pet may be at risk of serious collapse due to inadequate cortisol and the cortisol antidote medication should be given without delay. Follow the instructions given by the veterinary surgeon very carefully. If in any doubt at all, contact the practice or emergency afterhours number. It is really important that there is close cooperation between owner and the veterinary surgeon at the beginning of any treatment for Cushing's Disease.

Report any other changes in your dog's behaviour that are out of the ordinary. The disease and treatment can result in abnormal behaviour. However, your dog can also have other diseases that occur concurrently but independently of Cushing's Disease. It is important that we differentiate between the two situations so that proper treatment can be taken.

Do not despair. Although a serious disease, many dogs with Cushing's Disease enjoy greatly improved quality of life for many years.

Maintenance Phase

Once stabilised, medication will be administered usually twice every week. Again your veterinary surgeon's instructions, particularly regarding recalls or reports regarding progress must be strictly complied with. An ACTH stimulation test will be necessary about every 3 months to be sure that regulation is satisfactory.