

# CUSHING'S DISEASE

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Cushing's Disease is most commonly seen in small breeds of dogs. Affenpinschers can be affected, but Poodles, Dachshunds and small terrier breeds seem to be particularly susceptible. It is caused by over production of a substance called glucocorticoid by the adrenal gland and another name for the condition is hyperadrenocorticism, but I shall stick to Cushing's!

The adrenal gland which is situated in the abdomen close to the kidney (hence it's name) is controlled by the pituitary gland in the brain and most cases of Cushing's result from overactivity on the part of the pituitary gland which controls the adrenal gland but as a result of small, usually benign, but nevertheless significant and important tumours growing in the pituitary gland it causes an overproduction of a hormone called Adreno-Cortico-Trophic-Hormone, known as ACTH for short! Tumours growing in the adrenal gland itself cause a minority of cases. These tumours can be benign or malignant and will have significant effects on their host in either case. This form of Cushing's Disease is more commonly seen in larger breed dogs.

As with most forms of tumour, the disease is most commonly seen in middle to late age. Pituitary dependent Cushing's is equally common in dogs and bitches, but primary adrenal tumours are three times more likely to be seen in bitches than dogs.

The symptoms of Cushing's Disease usually develop gradually so that an owner may not be aware of changes which are happening to their dog.

Probably the most common symptoms are an increase in thirst and passing of water. Increase in appetite is often seen and although this is usually a sign of good health, suspicions should be aroused if a picky eater develops a voracious appetite. A pot belly is another classic symptom, but may be so gradual that it's significance is not appreciated. The pot belly is not only due to increased appetite, but also to weakness of the abdominal muscles and a deposition of fat in the abdomen and liver. Generalised muscle wastage will lead to lethargy and exercise intolerance and panting all of which owners may initially suspect are the effects of increasing age.

Changes are also commonly seen in the skin which becomes thin and inelastic, will bruise easily and often take a long time to heal following wounds or even blood sampling. The coat becomes poor, often with bilaterally symmetrical baldness and may become lighter in colour. The changes to coat and skin are not accompanied by itching so should not be confused with primary skin disease which is almost invariably itchy. Entire bitches will cease to cycle and the testicles of entire dogs will become small and atrophied.

Less commonly the tumours will affect other tissues and organs around them as they grow and expand. The effects will vary from case to case but can be marked if the brain is involved and behavioural changes and even fits can occasionally be seen.

As with all diseases, not all cases will present with all of the classic symptoms, and indeed, most of the symptoms, for example excessive thirst, can be seen with other diseases such as renal disease or diabetes mellitus, and these conditions will need to be eliminated before Cushing's disease can be suspected.

Once Cushing's has made it's way to the top of the differential diagnosis list, tests are available to help establish a diagnosis. None of these tests are completely specific or wholly accurate, and your vet may have to perform a number of them before he is satisfied that his clinical suspicions are confirmed or denied. The picture can be further complicated by the fact that dogs with one hormone, or endocrine disease, can often have another such as diabetes mellitus or an under active thyroid gland, so diagnosis and unravelling of the dog's complete problem can sometimes be confusing and protracted.

Your vet will need to be completely confident of a diagnosis of Cushing's before he will be prepared to start treatment. Until fairly recently treatment involved the administration of a chemotherapy drug called Mitotane to destroy that part of the dog's adrenal gland which is overactive. Obviously this drug could not be used unless the gland is diseased, otherwise the normal gland tissue will be destroyed and the animal will be left with an under active adrenal gland, known as Addison's Disease, which is an even more serious disease than an overactive gland, and can be frequently and rapidly fatal. So please be patient if your vet seems to be taking a long time and spending a lot of your money before reaching his diagnosis. He has every good reason to do so and the job is never as easy as I may have made it sound above.

Once treatment has commenced the symptoms should begin to resolve fairly quickly, usually within 1-2 weeks, but your dog will almost certainly need to be on treatment for the rest of its life, albeit at a lower dose, and regular blood tests will need to be done to monitor that the dose remains correct and is not causing excess damage to the adrenal gland nor indeed to any other organ. These checks, the importance of which cannot be over emphasised, will be frequent initially but will become less so as time goes on without problems, but each case must be treated as an individual if treatment is to remain successful. The effects of the disease on the skin and coat, will, of course, take longer to resolve, but within 6 months the affected dog's coat will often have regained all of its former glory.

More recently the treatment of first choice for Cushing's Disease has changed to a drug called Trilostane which acts in a safer, less dramatic way than Mitotane by competitively inhibiting the production of the natural steroids produced by the overactive adrenal gland. Trilostane is well tolerated by most dogs and the side effects we see with Mitotane are far less common and potential side effects for owners administering the drug are much reduced. As with Mitotane, however, your vet will want to be confident in his diagnosis before treatment can start with Trilostane as again there is the danger of suppressing the adrenal gland too much resulting in an underactive gland. Again regular blood test monitoring will be necessary to monitor the level of suppression.

Unfortunately, the cost of both the medication and the testing is not inconsiderable, but the average survival time for dogs that are successfully treated is about 2.5 years. Those minority of dogs which have primary adrenal gland tumours can have the affected adrenal gland removed surgically but it is a risky operation with only about 60% success rate so that even these cases are probably best treated with Trilostane, at least initially.

Cushing's disease can also be one of the side effects of the excessive administration of steroids which are synthetic glucocorticoids, very similar to the natural glucocorticoids produced by the adrenal gland. The effects are identical to those seen in naturally occurring Cushing's disease. When steroids are used for therapeutic purposes and owner will usually notice an increase in thirst and appetite, which, as I mentioned above, are perhaps the most common and noticeable symptoms of Cushing's disease. If the steroids need to be used for longer periods, for example in severe autoimmune or allergy cases, the more lasting effects such as the pot belly and the skin and coat changes can become even more evident in some cases.

Treatment for this form of Cushing's, known as Iatrogenic Cushing's, is simply to reduce or stop the steroid administration, and the symptoms will abate, albeit usually in exchange for the symptoms of the disease for which the steroids were originally prescribed, but that is another story! A story which does however serve to remind us that steroids, although a very powerful and effective therapeutic tool in certain circumstances, should be used as sparingly as possible and at the minimum effective dose rate and only when no other therapy will give the same result.

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