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## PITUITARY TUMORS

These notes are provided to help you understand the diagnosis or possible diagnosis of cancer in your pet. For general information on cancer in pets ask for our handout "What is Cancer". Your veterinarian may suggest certain tests to help confirm or eliminate diagnosis, and to help assess treatment options and likely outcomes. Because individual situations and responses vary, and because cancers often behave unpredictably, science can only give us a guide. However, information and understanding for tumors in animals is improving all the time.

We understand that this can be a very worrying time. We apologize for the need to use some technical language. If you have any questions please do not hesitate to ask us.

### ***What is the pituitary gland?***

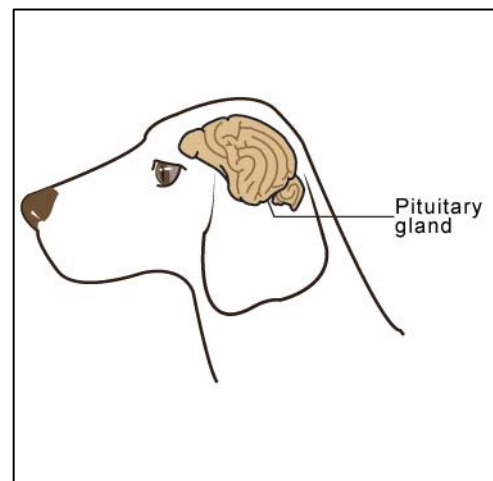
The pituitary gland is an organ located at the base of the brain. It is one of the endocrine glands. Endocrine glands produce specialized chemicals called "hormones". These regulate and integrate many activities to maintain internal stability of the body. The hormones pass directly into the blood to affect target cells elsewhere. The macroscopically recognizable endocrine glands are the adrenals, thyroid, parathyroids, pituitary gland and islets in the pancreas although hormones are produced by many cells in other tissues. The pituitary links to other glands through its hormones and regulates hormone production by the adrenal, thyroid and sexual organs as well as growth and our day to day cycles of activity (diurnal rhythm).

### ***What are the tumors of the pituitary gland?***

Most pituitary tumors are benign (and a few are non-cancerous cysts) but because of their location, they still produce serious adverse effects as they enlarge and they are rarely curable. Many produce hormones that have effects on the glands normally targeted by pituitary hormones, and have a knock-on effect on the targets of the hormones of these glands. The most common hormone produced by pituitary tumors stimulates the adrenal cortex leading to clinical signs associated with overstimulation of these glands.

### ***What do we know about the cause?***

The reason why a particular pet may develop this, or any cancer, is not straightforward. Cancer is often seemingly the culmination of a series of circumstances that come together for the unfortunate individual.



Non-cancerous cysts of the pituitary glands may be genetic or due to poor formation of the area in early life. We know little about the causes of pituitary cancers.

Cancer induction is a multistep process called tumor progression. Some cancers never progress past the first stages so remain benign. Others progress rapidly.

### ***Why has my pet developed this cancer?***

Cysts around and in the pituitary are common in some breeds. Developmental cysts of one type caused breathing difficulties in short-nosed dogs. Another type causes growth failure and is a genetic problem, mainly in German Shepherd dogs.

Some animals have a greater tendency (genetic susceptibility) to cancer. Some breeds have far more cancers than others, often of specific types. Boxers, Boston Terriers and Dachshunds have the highest incidence of pituitary tumors causing adrenal cortical hyperactivity.

### ***Are these common tumors?***

None of these tumors is common but tumors of the pituitary that produce the hormone (ACTH), which stimulates the adrenal cortex leading to clinical signs associated with overstimulation of these glands are the least rare.

### ***How will these cancers affect my pet?***

Tumors of the pituitary exert pressure on the surrounding tissues. Not only does this affect the function of the gland but it may also affect the adjacent brain. Clinical signs associated with compression of adjacent structures include difficulty seeing, and 'diabetes insipidus' (excessive drinking and urination due to an inability to concentrate urine). Clinical signs associated with decreased output of the pituitary include slowing of the body's functions, low blood sugar and loss of sexual libido and performance.

Most pituitary tumors also produce hormones. The most common hormone is adrenocorticotrophic hormone (ACTH) excess of which leads to increased size and activity of the adrenal cortex and over-production of adrenal hormones. The second most common type of pituitary tumor is not functional in dogs but in cats secondary effects include diabetes mellitus, degenerative arthritis and kidney disease.

Clinical signs of primary pituitary tumors secondarily affecting the adrenal glands and primary adrenocortical tumors are the same. They include increased appetite and thirst, loss of hair, dry skin and "blackheads" on the belly, hard (calcium) masses in the skin on the neck and back with ulcers and formation of pus, redistribution of body fat and weakening of muscles so the abdomen sags. The immune system is damaged so infections persist. Some dogs are also diabetic.

### ***How are these cancers diagnosed?***

Cancer is often suspected from clinical signs. X-rays, ultrasound and MRI (magnetic resonance imaging) or CT (computerized tomography) scans may be useful in detecting the tumors, including metastases.

Blood tests help to indicate functional tumors of the pituitary and adrenal cortex. To identify the tumor type precisely, it is necessary to examine the tumor itself but this is not practical for most pituitary tumors.

### ***What types of treatment are available?***

Surgical removal of pituitary gland tumors is difficult and rarely attempted. Pituitary tumors causing excessive stimulation of the



adrenals may be treated by surgical removal of both adrenals but medical treatment is more usual. The treatment needs long-term monitoring.

***Can these cancers disappear without treatment?***

It is not common, but the loss of blood supply to a cancer can make the cells die. Unfortunately, the disappearance of the cancer is rarely complete.

***How can I nurse my pet?***

Medical treatment of these tumors involves the use of toxic drugs so monitoring of your animal is essential. Good observation by you will enable this to be more accurate and improves the outlook because relapses are common. Please ensure you understand what you should check, how frequently and signs you should look out for.

***How will I know how the cancer will behave?***

Your veterinarian will be able to explain how the specific tumor in your animal is likely to respond to treatment and behave in the future.

***When will I know if the cancer is permanently cured?***

Pituitary tumors are rarely diagnosed until they are large enough to induce clinical problems. Those that do not produce hormones and which cannot be treated surgically will not be curable. They are likely to continue to grow so clinical signs attributable to them will persist and may worsen. The rate of growth will vary and depends on the individual tumor.



In cases of medically treated pituitary tumors causing hyperadrenocorticism, the treatment needs monitoring and life expectancy is variable from days to ten years but averaging less than three years. Good observation by you, the owner, improves the outlook because relapses are common. Deaths are due to problems associated with the original disease (e.g. heart failure, infection, pancreatic disease such as diabetes) rather than related to drug toxicity. Feline pituitary tumors producing other hormones can only be treated symptomatically for the secondary effects. They are therefore incurable.

***Are there any risks to my family or other pets?***

No, these are not infectious tumors and are not transmitted from pet to pet or from pets to people.