

Treatment: Adrenal Tumor

We will begin this section with the assumption that the presence of an adrenal tumor has already been confirmed with either blood testing, special imaging or both. There are two questions that must be answered next:

- IS THE TUMOR BENIGN OR MALIGNANT?
- SHOULD YOU CHOOSE SURGICAL TREATMENT OR MEDICAL MANAGEMENT?

BENIGN VS. MALIGNANT

While only approximately 15% of canine Cushing's syndrome patients have adrenal tumors, half of these patients will have benign tumor and half will have malignant tumors. The choice of therapy may well depend on which is present.

If imaging has not yet been performed, this is the time to do so. Chest radiographs will be important as malignant adrenal tumors tend to spread to the chest. If such spread is seen, the tumor can be assumed to be malignant. Absence of such findings does not mean the tumor is benign. Ultrasound of the abdomen (or even CT scanning or MRI imaging) will be needed to determine the size of the tumor, and to check for invasion of local abdominal tissues (especially the liver).

Between evaluation of the chest and the abdomen, it may be possible to non-invasively determine if the tumor is malignant. It should be noted that the absence of tumor spread does not mean that the tumor is benign.

WHAT IF IMAGING SUGGESTS THAT THE TUMOR IS NOT INVASIVE?

If the tumor is not invasive, then chances are it is benign, but there is no way to be 100% sure—time will tell. Even malignant tumors start out small and may look benign at first, but they can become larger and more invasive later. Unless there is evidence on imaging that the tumor is invasive, there is no way to know if the tumor is benign or malignant, without removing it surgically and having it examined by a pathologist. If the adrenal tumor is benign, there is an excellent chance for complete recovery if the tumor is surgically removed. The smaller the tumor, the easier the surgery, though the surgery involves delicate tissue in a difficult area.

WHAT IF IMAGING INDICATES THAT THE TUMOR IS MALIGNANT?

If there is obvious tumor spread to the liver or the structures surrounding the adrenal tumor, surgery may be too risky. The decision to proceed with medical therapy will depend on the condition of the patient and the degree of tumor spread versus the severity of the clinical signs of Cushing's disease. Palliation of the clinical signs may be achieved with just partial removal of the tumor. Medical management with high doses of Lysodren would be a fair alternative.

WHAT YOU SHOULD KNOW ABOUT SURGERY

- Removal of the adrenal gland is a relatively difficult surgery and is probably best done by surgeons experienced in this procedure. The adrenal gland is

located between the aorta, which is the largest artery of the body, the renal artery and vein, which are the sole blood supply to the kidney, and the phrenicoabdominal artery. This especially vascular area is half-jokingly referred to by surgeons as the "Bermuda triangle." Surgery here is not for the inexperienced, nor for the faint of heart.

- Risk of bleeding is higher for larger tumors especially if they are malignant and have invaded local structures. It is quite possible that the full extent of such invasion will not be apparent prior to the time of surgery, even if ultrasound has been done.
- Animals with Cushing's syndrome have poor healing ability and tend to have high blood pressure. Several months of medical therapy (i.e. Lysodren, Anipryl, or ketoconazole) prior to surgery may be a good means to strengthen the patient, especially if the tumor is believed to be benign. If the tumor is believed to be malignant, there may not be time for such stabilization.
- The dog's natural cortisone mechanisms will have been suppressed by the tumors presence. Several months of prednisone will likely be required at home. Some patients require Fluorinef as an additional supplement ACTH stimulation test are used to monitor the need for medication.
- Adrenal tissue is notoriously difficult for pathologists to grade as benign or malignant. It is possible that as tumor initially graded as benign will turn out later to be malignant.
- A statistical survey of 63 dogs under-going surgery for their adrenal tumors:
 - 6% (4) had inoperable tumors and were euthanized on the surgery table.
 - 29% (18) died either in surgery or shortly thereafter due to complications.
- Average life span for dogs undergoing surgery is 3 years (this includes averaging in those who died shortly after surgery) .

MEDICAL THERAPY FOR THE ADRENAL TUMOR

Lysodren is chemotherapy drug which is able to erode the cortisol-producing layers of the adrenal gland. This ability has made Lysodren the traditional medication for the treatment of adrenal tumors, though higher doses are often needed compared to pituitary hyperadrenocorticism. The higher doses needed to control adrenal tumors tend to produce more reactions than are seen in the treatment of pituitary tumors. The average survival time for this type of therapy is 1 year and 4 months.

References:

Wendy Blount, DVM – PracticalVetMed
Wendy Brooks, DVM – VeterinaryPartner.com