



## CANINE LUNG TUMORS

### What are lung tumors?

Lung tumors are relatively rare in dogs, accounting for only 1% of all cancers diagnosed. The average age at diagnosis is 10 years with no sex or breed predilection. Metastatic cancer to the lungs is much more common than primary lung cancer. The far majority of primary cancers of the lung are carcinomas with adenocarcinoma being the most common. Although rare, other primary lung tumors include benign adenomas, squamous cell carcinoma, sarcomas, and lymphatic granulomatosis. Lung tumors have moderate to high potential for metastases. Metastases occur to other lung lobes, pleura (lining) of the chest cavity, bone, and brain.

### How are lung tumors diagnosed?

Most dogs with lung tumors present with coughing, exercise intolerance or other respiratory signs. Occasionally, patients will present for more vague non specific signs such as loss of appetite, weight loss, or lethargy. Chest X-rays will demonstrate a solitary lung mass. Ultrasound guided aspirate or biopsy can be performed for definitive diagnosis, but is not necessary for consideration of surgical removal. Abdominal ultrasound is recommended to evaluate for a possible primary or secondary mass. Occasionally a CT scan will be recommended to better evaluate for secondary lung metastases or feasibility of surgical removal. Routine blood work is helpful in evaluation of your pet's overall health prior to surgery. At the time of surgery, the regional lymph nodes (tracheobronchial) are biopsied to determine whether the cancer has spread.

### What is the treatment?

#### Surgery

Surgery is the mainstay of treatment for dogs with lung carcinoma, providing no metastatic lesions are observed in other lung lobes. Removal of the affected lung lobe is usually by means of a lateral thoracotomy. Dogs generally tolerate this surgery well and are discharged from the hospital within 1-4 days following surgery. Additional therapy (chemotherapy) may be recommended depending on the grade of the tumor, size of the tumor, presence of tumor in lymphatics, and/or blood vessels (see below).

#### Chemotherapy

Chemotherapy is often recommended for high grade tumors, large tumors or tumors that show evidence of lymphatic or vascular invasion. Little information has been published on the efficacy of chemotherapy for dogs with primary lung carcinomas. Recommended protocols will often include platinum chemotherapy (cisplatin or carboplatin). Our currently recommended protocol for canine lung tumors consists of alternating doses of carboplatin and vinorelbine every 3 weeks for a total

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of 6 treatments. Chemotherapy alone, without surgical removal of the mass, does not often yield a significant decrease in the mass or significant improvement in survival time.

### **What is the prognosis?**

Dogs with small, low grade (well-differentiated) tumors without lymph node involvement, the average survival time is 16 months with surgery alone. Dogs with high grade (poorly differentiated) tumors with lymph node involvement have an average survival of 2 months. Because many patients will ultimately develop metastatic disease following surgery, chemotherapy is commonly recommended. However, it is unknown whether the use of chemotherapy following surgery significantly improves survival over surgery alone.

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