



at the heart of critical care

ANIMAL EMERGENCY CENTER

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LYMPHOMA IN DOGS

Lymphoma is a relatively common cancer in dogs. It is a cancer of lymphocytes (a type of white blood cell) and lymphoid tissues. Lymphoid tissue is normally present in many places in the body, including lymph nodes, spleen, liver, digestive tract and bone marrow. In most cases, we cannot tell what causes lymphoma.

Forms of Lymphoma

The most common form is involvement of one or more of the external lymph nodes. Many dogs may not feel sick or may have only very mild signs such as tiredness or decreased appetite. Other dogs may have more severe signs such as weight loss, vomiting, diarrhea, excessive thirst or urination, weakness, or difficulty breathing. The severity of the signs depends upon the extent of the disease and on whether the cancer has caused changes in organ function. Often, the only noticeable sign is an enlargement of the lymph nodes under the neck, behind the knees or in front of the shoulders. Other organs, such as the liver, spleen and bone marrow can be involved as well.

Diagnosis/Initial evaluation

A complete evaluation of a dog suspected of having lymphoma involves obtaining a biopsy or needle aspirate of the affected tissues and a search for tumor in other locations. A complete blood count (CBC), a serum chemistry profile and urinalysis are always performed and provide important information regarding the effects of the cancer on body functions as well as the ability of the patient to handle chemotherapy. X-rays allow us to look for enlarged internal lymph nodes involvement of the lungs, liver or spleen. A bone marrow aspirate allows us to look for lymphoma cells infiltrating the bone marrow as well as to evaluate the marrow's ability to produce normal blood cells. Once we have these results, we can give the owner a more accurate prognosis about the outcome with various types of treatment.

Treatment and Prognosis

Chemotherapy is the mainstay of treatment for lymphoma. Lymphoma is very sensitive to chemotherapy, and up to 90% of dogs treated will go into remission when our most effective treatment protocols are used. The definition of remission is the complete disappearance of all signs of cancer. A remission is NOT a cure but it does allow your pet to experience a good quality of life. It is important to remember this because chemotherapy should not be discontinued as soon as a remission is achieved. The length of remission depends upon many factors including the primary site, how sick an animal is at the start of treatment, blood calcium level, and the extent of disease. For those dogs that have the most common type (external lymph nodes enlarged) and are treated with the most effective treatment protocol, the average survival time is about 12-14 months; approximately 25% of dogs may live longer than 2 years.

There are several different treatment options to consider, depending upon owner preference, how aggressive the cancer is behaving, how sick an animal is at the start of treatment and any abnormalities in organ function (especially important are changes in liver and kidney function). On a typical schedule, a patient will receive treatments for approximately 6 months. Several different drugs are alternated in order to reduce the chance that the tumor cells will become resistant, and to reduce the risk of side effects. If patient remains in remission after treatment is finished, we will recheck them monthly to insure that remission persists. If and when recurrence of lymphoma is noted, chemotherapy can be started again. The duration of remission is often shorter each time an animal comes out of remission.

There are other treatment protocols that require less frequent hospital visits and/or may be less expensive. These are usually less effective than the standard treatment, but are considerably better than pursuing no treatment at all. These will all be discussed at the time of your pet's initial visit.

Most dogs will tolerate their chemotherapy well and have minimal side effects. Serious side effects are only seen in about 5% of the patients treated. These side effects could include nausea, vomiting, and loss of appetite, diarrhea, tiredness or infection. Hair loss or slow hair growth may also but usually in certain breeds of dog. Doxorubicin can cause damage to the heart muscle if given multiple times, although most dogs do not receive enough of this drug to be a concern. Cyclophosphamide can cause irritation to the bladder wall in a small percentage of dogs. If this occurs, you will see changes in urination (blood in the urine, straining to urinate, frequent urination). Please also see our handout [CHEMOTHERAPY IN PETS](#) for further information.