

Lymphoma *What You Need to Know*

by Kathy Wilson

Lymphoma (also called lymphosarcoma, lymphatic sarcoma, or LSA) is a common cancer in middle-aged and older dogs of all breeds, including Irish Wolfhounds. It is the third most common cancer in dogs, and is probably the most common malignancy treated in veterinary oncology. Chemotherapy is widely used to bring about remission, and success rates are quite good.

Lymphoma is a disease of the lymphocytes (a type of white blood cell involved in immune responses) and the lymphatic system, which includes the spleen, thymus, and liver, as well as other lymphatic tissues. Besides producing lymphocytes, which help protect the body against infection, the lymphatic system also aids in fat absorption, and in helping the body maintain fluid balance as well. Lymphoma is a systemic disease, so cancer cells are usually present in many parts of the body. Eventually, the cancer cells infiltrate an organ (frequently the bone marrow or the liver) to such an extent that failure of that organ occurs.

Diagnosis

Typically, enlarged, but painless, lymph nodes (lymphadenopathy) are the symptom which makes owners consult their veterinarians. Other early symptoms can be non-specific and elusive, such as inappetence, lethargy, and weight loss. A definitive diagnosis of lymphoma can usually be achieved with a fine needle aspirate of an affected lymph node examined under the microscope. This is necessary to differentiate between lymphoma and such diseases as ehrlichiosis. In addition, biopsy or removal of an enlarged node can give the pathologist a better opportunity to stage the disease, which can help predict the outcome of chemotherapy. In most cases, it is important that prednisone not be given before a definitive diagnosis of lymphoma has been made, since prednisone can mask lymphoma's presence.

Types of Lymphoma

Nodal or Multicentric This is the most common lymphoma, usually involving the peripheral lymph nodes (those near the skin surface). In many cases, the only noticeable sign is an enlargement of the lymph nodes under the neck, behind the knees, or in front of the shoulders. Some dogs may not feel sick, or may have only very mild signs, such as tiredness or decreased appetite. Others may have weight loss, vomiting, or fatigue. The severity of the signs depends upon the extent of the tumor and whether the cancer has caused changes in organ function. Other organs, such as the liver, spleen, and bone marrow, can be involved as well.

Gastrointestinal or Alimentary Dogs with this type of lymphosarcoma may have vomiting, diarrhea, weight loss, or a decreased appetite.

Mediastinal The mediastinum is a term used for a special agglomeration of lymph nodes and lymphoid tissue within the chest. Dogs with this type of lymphosarcoma often are seen because of difficulty breathing or excessive urination and thirst.

Extra Nodal This form of lymphoma is uncommon, and accounts for less than 15% of lymphomas. If the lymphoma starts in the skin, it is known as cutaneous lymphosarcoma.

Leukemia is a cancer confined to the bone marrow. The signs in dogs are usually related to decreased numbers of normal cells (red cells, white cells, and platelets), which are made in the bone marrow. Anemia, infections, and bleeding are common problems associated with this type of cancer.

Prognosis

Lymphomas arise from either a B-cell line or a T-cell lineage. The phenotype of each tumor (whether it is B-cell or T-cell) is probably the most important prognostic factor identified. About 15 to 20% of dogs have T-cell lymphomas. Dogs with T-cell lymphomas do not fare as well as those with B-cell lymphomas.

Other important prognostic factors include:

1. Dogs showing symptoms at time of diagnosis usually do not do as well as those with no symptoms at time of diagnosis.

2. Elevated calcium levels in the bloodstream (hypercalcemia) indicate bone marrow involvement. Prognosis is worse when associated with an anterior mediastinal mass.
3. Female dogs usually do better than males.
4. Smaller dogs generally fare better than larger dogs.
5. Higher grade tumors (more aggressive cancers) show a higher response rate to chemotherapy, and remissions last longer.

Treatment Options

Chemotherapy protocols for lymphoma are many and widely available to general practice veterinarians. One of the most successful, and widely used, is the Wisconsin-Madison protocol, which is a multi-agent protocol. Doxorubicin has been shown to be an important component in multi-agent protocols, although it does require closer monitoring than other agents. Often, a multi-agent protocol will include sequential injections of vincristine, cyclophosphamide, and doxorubicin, combined with daily oral prednisone. Complete response rates are about 85 to 90% with these protocols, and median survival times are reportedly between 8 and 12 months.

Single agent chemotherapy is not as successful as the well-established multi-agent protocols. Single agent doxorubicin has been shown to provide a complete remission for a median of 6 to 8 months.

Treatment with prednisone alone usually results in improvement for only one or two months, and is considered palliative. However, prednisone is an invaluable drug in managing lymphoma, and probably does not induce multi-drug resistance, as was previously believed.

Rescue Chemotherapy

When remission is lost following either an interval with no chemotherapy, or after treatment at 2 to 3 week intervals, many dogs will experience a second remission simply by returning to weekly treatments and re-initiating prednisone therapy. However, the second remission is likely to be about half as long as the first.

Ongoing Clinical Trials

1. The Animal Cancer Institute
Oral antimitotic agent for dogs with newly diagnosed lymphoma.
Contact: Jennifer Turner at (202) 363-7300. Email: jturner@animalcancerinstitute.com
2. University of Pennsylvania Veterinary Hospital
Utilizing flow cytometry to characterize the cancerous cells of canine lymphoma
Contact: VHUP Oncology, (215) 898-4680.
3. Auburn University
Evaluating adrenal function in dogs with canine lymphoma.
Contact: Auburn Vet School at (334) 844-4690
4. Gulf Coast Veterinary Specialists
A trial for dogs with newly-diagnosed lymphoma will begin on April 15th.
Contact: Dr. Kevin Hahn, drhahn@gulfcoastvetspec.com.