

THE PET HEALTH LIBRARY

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Lymphoma in Dogs

The typical canine lymphoma patient is a middle-aged dog who goes to the veterinarian because one or more lumps have been found. The veterinarian rapidly determines that all of the peripheral lymph nodes (those near the skin surface) are enlarged and firm. Usually the dog has not been showing any signs of illness.

The next step is a blood panel and urinalysis to more completely assess the patient's health, and one or more lymph nodes are aspirated or biopsied to confirm the diagnosis of lymphoma.

So here we are.

We have confirmed lymphoma and we know the average life expectancy for a patient with untreated lymphoma is about 2 months from the time of diagnosis. If this is your dog's situation, you probably need some time to absorb the cancer diagnosis. You have many general questions and you know that a decision regarding chemotherapy must be made.

We will attempt to cover commonly asked questions owners have at this point.

How did my Dog get Lymphoma?

We do not know how dogs or people get cancer most of the time. There are many types of cancer and many possible causes of all those cancers (chemicals in our environment, especially cigarette smoke, sun exposure, assorted viruses and infections). There are important genetic factors as well. Cancer starts with one or a small group of cells that have gone wrong. It appears that such cells arise in our bodies all the time and we have an assortment of natural mechanisms to destroy these cells before they get out of hand. Sometimes these cancer cells escape our natural mechanisms and cancer develops.

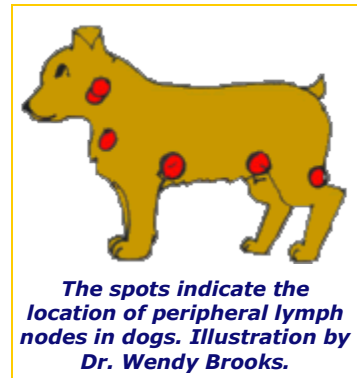
It is important to realize that cancer is not contagious and that, as a pet owner, you should not feel that you somehow caused this or brought it on your pet. Many people feel a need to find blame and latch onto the idea that a household cleaner or pesticide was the cause. This is a natural part of grieving but it is important not to focus on cause unduly. Cause is not relevant to treatment; furthermore, there is no way to verify cause. It is best to concentrate on treatment. At this time, there is no way to know what caused lymphoma development in a given patient.

Can my Dog be Cured?

Theoretically, yes, but practically speaking, no. It is best to focus on a realistic outcome that is the longest possible survival with a good quality of life. Different treatment protocols are associated with different disease-free intervals. See below for more details.

Does my Pet Need Further Tests?

Basic blood work and a urinalysis will be needed to assess the patient's ability to take the medications needed to achieve remission.



If a biopsy has not been performed, it may be a good idea to have one done so as to gain the maximum information about the tumor (whether it is slow or fast growing, what type of lymphocytes are involved, etc.) as this information can help predict the response to chemotherapy. Specific staining of the sample, either aspirate or biopsy, is needed to distinguish the type of lymphocyte involved in the tumor. T-cell lymphoma, for example, is less responsive to medication than B-cell lymphoma. Luckily, B-cell lymphoma accounts for 75% of canine lymphoma.

Other tests that may be recommended include a bone marrow aspirate and/or a spleen or liver aspirate. These tests are needed to stage the disease. Lymphoma is classified by stage.

Stage I: only one lymph node involved

Stage II: several lymph nodes in the same general area involved

Stage III: all peripheral lymph nodes involved

Stage IV: all peripheral lymph nodes plus the spleen, liver, and/or anterior mediastinum in the chest involved

Stage V: bone marrow involvement, regardless of any other areas involved

In cases of lymphoma that are not as straightforward as the classical multicentric lymphoma described below, staging may be more important. Staging used to be done regularly after the initial diagnosis of lymphoma but it has since been found that stage of disease does not impact the response to chemotherapy (i.e., it is not true that a stage II will have a better response than a stage IV) and thus there isn't much point to the trouble and expense of staging. The exception is stage V, the most advanced stage. Patients with stage V lymphoma tend to have a poor response to chemotherapy and it may be helpful to stage the patient to rule out whether or not the patient is in stage V.

Another important parameter that should be checked is the blood calcium level. This sounds unrelated to cancer but, in fact, some types of lymphoma produce a hormone called PTH-rp (parathyroid hormone related protein) that is capable of creating dangerous elevations in the blood calcium level (see hypercalcemia for more details.) A dog with an elevated blood calcium level tends to have a poorer prognosis. Approximately 15% of dogs with lymphoma (and 40% of dogs with T-cell lymphoma) have elevated blood calcium levels.

How does Lymphoma Cause Death?

Lymphoma is a rapidly-growing malignancy that is able to go and grow anywhere where there is lymph tissue. This is virtually every organ in the body. Eventually, the cancer will infiltrate an organ to such an extent that that organ fails (often this is the bone marrow or the liver). The patient loses appetite, vomits or gets diarrhea, weakens and dies. At some point the tumor becomes resistant to therapy and no further remissions can be obtained.

My Dog does not fit the Above Scenario at all. What are other Forms of Lymphoma?

Lymphoma is classified by the anatomic area affected. By far, the most common form in dogs is the multicentric form, which accounts for 84% of canine lymphoma. In this form, as in the hypothetical case we opened with, all peripheral lymph nodes are large and firm. There are three other forms of lymphoma:

- Gastrointestinal form (affecting only the GI tract) accounts for 5 - 7% of canine lymphoma
- Mediastinal (chest)
- Extranodal (skin, eye and other miscellaneous areas).

Lymphoma can occur anywhere in the body where there is lymph tissue. At this time, we will concentrate on multicentric lymphoma. Eventually further information on these more rare forms will be added.

Chemotherapy FAQ

The word chemotherapy conjures images of people losing their hair and suffering chronic nausea. It is unfortunate that many pets (and probably people, too) do not receive chemotherapy based upon these unpleasant images that do not truly represent the current state of treatment response at least in pets. Chemotherapy simply means therapy using medication (as opposed to surgery or radiation). Decades of research has gone into patient comfort, minimizing side effects and maximizing response so it is important to keep an open mind. The following are common questions pet owners commonly have regarding chemotherapy for their dog.

The median survival time for most dogs on chemotherapy is approximately one year with 25% of dogs surviving two years.

My dog is not acting sick in any way. Shouldn't I wait until she at least feels sick before beginning chemotherapy?

This might seem like a reasonable approach at first glance but let us assure you that it is not. One of the most important factors in determining the quality of remission (i.e., how fast we get remission and how long it lasts) is whether or not the patient is feeling sick at the time chemotherapy is started. When lymphoma patients are staged (see above under "does my pet need further tests?"), stages are subcategorized as *a* or *b*, depending on whether or not the patient is feeling ill or not. (For example, a multicentric lymphoma dog who feels well is in stage IIIa compared to a multicentric lymphoma dog who is vomiting or not eating is in stage IIIb). You will have a much better chance for long-term quality survival if lymphoma is treated while the patient is an *a*.

Should we see an oncologist?

Lymphoma is a condition that not all veterinarians are comfortable treating. Discuss with your veterinarian whether referral to a specialist would be best for you and your pet.

Will chemotherapy make my dog sick?

Probably not. Nausea and infection are possibilities but most dogs do not experience any such complications. Only 7% of patients require hospitalization due to side effects of chemotherapy. The bottom line here is to know that animals rarely get sick from chemotherapy but that you should know what to do in case of a problem (see later).

Will chemotherapy make my dog lose his hair or go bald?

While whiskers are commonly lost, substantial hair loss is not experienced by most dogs or cats on chemotherapy for cancer. There are some notable exceptions: breeds that have synchronous hair follicle activity. Most breeds have hairs in all different stages of the growth-shed cycle at the same time. A few breeds have all hairs in the same stage of growth-shed at the same time. These are the breeds that can have a baldness issue: the Old English Sheepdog, the poodle, the Lhasa apso, the Shih Tzu.

How will I know when we have achieved remission?

A patient in remission is indistinguishable from a completely cancer-free patient. The lymph nodes will go down to normal size and if there were any signs of illness related to the cancer, these should resolve. There is approximately a 75% chance of achieving remission regardless of protocol selected.

How will I know when we have lost remission?

The most obvious sign will be that the lymph node enlargement has returned. This means that the cancer is now resistant to the drugs being used and new drugs must be chosen. (This is called a rescue.)

How long will my dog have quality life on chemotherapy?

This depends on what protocol you choose, and there are many. There are also many factors that influence how an individual will do relative to the average response. Important parameters to note when reviewing a protocol are:

1. the disease-free interval (i.e., how long the patient is free from illness)
2. survival time
3. typical duration of remission
4. expense
5. scheduling.

For more information on protocols, return to the main [lymphoma](#) article. We will profile the more common protocols as we continue to update this series.

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