

Lymphoma

What is cancer?

Cancer is the uncontrolled growth of a small population of abnormal cells. These abnormal cells form by a mutation during normal cell division and are able to escape detection by the body's immune system. They have an intrinsic capacity to divide rapidly and uncontrollably leading to the development of tumours.

Lymphoma accounts for 10-20% of all canine cancers and is by far the most common canine blood cancer. It is a cancer of a white blood cell called a lymphocyte. Lymphocytes are an important part of your pet's immune system involved in fighting infection and disease. There are two major types of lymphocytes: T cell and B cell. This distinction becomes important when diagnosing lymphoma as the type of cell (T or B) that is neoplastic can have an impact on treatment and outcome.

There are many different forms of lymphoma, the most common (in 80% of dogs) involves an enlargement of all the lymph nodes in the body. Lymphoma can also commonly occur within the spleen, liver and bone marrow. Other less common forms involve a mass in the chest, cancer of the gastrointestinal tract, skin, central nervous system and the eye. The exact cause of lymphoma is unknown. Some dog breeds such as Boxers, Golden Retrievers and Bull Mastiffs appear to be at greater risk of developing lymphoma.

What are the signs your pet has lymphoma?

There is a lot of variation in the presenting signs of dogs with lymphoma. Lymphocytes normally circulate around the body and they continue to do so when they become cancerous. Hence this disease is typically considered systemic (involving the whole body) regardless of where the cancer was initially found. The most common presentation, when many of the body's lymph nodes are enlarged, is called the multicentric form. These pets are often well at the time their cancer is diagnosed, improving their tolerance of treatment and overall prognosis. Others can have clinical signs of illness, often related to where in the body the cancer is predominately located. This may include lethargy, weight loss, inappetence, vomiting or diarrhoea, excessive thirst and difficulty breathing. It is very uncommon to have lymphoma in only one organ or part of the body.

How is it diagnosed?

Lymphoma can be diagnosed in many different ways depending upon where the cancer is. Palpating enlarged peripheral lymph nodes behind the knee or under the chin can be suggestive of lymphoma. Most commonly a diagnosis is obtained by taking an aspirate or biopsy from a lymph node or affected organ. If the lymphoma is in a more difficult place to obtain a needle sample, then a surgical or endoscopic biopsy may be required or fluid around the spinal cord may need to be collected. For absolute confirmation the sample from the needle or a biopsy obtained should be sent off to a pathologist.

How is Lymphoma staged?

Staging is a term to describe screening the body for cancer at other sites. For lymphoma this could include bone marrow aspiration, abdominal ultrasound and chest radiographs. The team at AVC will discuss which tests are appropriate for your pet and how they might alter prognosis and treatment. Blood and urine tests are performed to assess the general health of your pet prior to treatment and to screen for cancer cells visibly circulating within the blood (leukaemia). Lymphoma is staged according to the World Health Organisation into 5 stages and two substages.

Stages

- 1 One affected lymph node or anatomical location
- 2 Regional lymph node involvement (>1 node) in one area
- 3 Generalised lymph node involvement
- 4 Liver or spleen involvement
- 5 Blood, bone marrow or other organ involvement

Substage

- a. Well, eating and healthy
- b. Unwell, vomiting, inappetent, lethargic (any clinical signs due to lymphoma)

What are your pet's options for treatment?

If left untreated this cancer is often rapidly fatal for most dogs (with the exception of lower grade forms). As lymphoma is considered systemic, a treatment that targets the whole body is necessary. This means chemotherapy, or drug therapy, is the mainstay of treatment. Up to 95% of dogs treated with chemotherapy will go into remission. Remission means that the cancer cannot be detected. In remission your pet should have a normal quality of life, however they are unlikely to be cured.

In rare cases when lymphoma is confined to one part of the body, we may recommend surgery or radiation therapy, possibly followed by chemotherapy. Sometimes surgery is also recommended for palliative reasons; the team at AVC will discuss this if it pertains to your pet.

There are many chemotherapy protocols available that vary in cost and intensity (i.e. number of treatments over time). AVC will discuss all options with you. In general, protocols using more than one drug work better. These multidrug protocols have a better response rate, for a longer period of time, but can be associated with more clinic visits and higher costs.

The most effective single agent protocol utilises doxorubicin, given as an intravenous injection every three weeks for 4-6 treatments. The median survival time (MST) for this protocol is 6-8 months.

Multi-agent chemotherapy for dogs with lymphoma is based around 4 drugs, cyclophosphamide, vincristine, doxorubicin +/- prednisolone. The protocol runs for approximately 19 weeks with 16 treatments in that time (most intravenous, some are oral chemotherapy tablets at home). The overall cost for this treatment is in the vicinity of \$7000-8000 – this is paid on a visit by visit basis. This will vary a little bit with how your pet tolerates the chemotherapy and if your pet becomes sick and needs intensive hospital care. The average survival time for dogs with multicentric lymphoma treated with multi-agent chemotherapy is ~ 1 year, with 20-25% alive two years after diagnosis. A cure is uncommon, occurring in < 10% of dogs. These are averages only do not predict how an individual patient will fare.

Palliative therapy involves giving corticosteroid tablets (“cortisone”) which will often improve quality, but not length, of life. Most pets succumb within 2 months of diagnosis

however some may have less aggressive forms and survive for longer.

What are some side effects or complications associated with treatment?

Please see the chemotherapy handout for further information on chemotherapy.

What are the prognostic factors for this cancer?

The main factors we consider when giving you an estimate of how long your pet has to live is based upon the WHO stage, type of cell (T or B) and substage (a or b). If the lymphoma is stage 4 or less, if it is a B cell rather than a T cell and if the dog is substage a rather than b, then the prognosis is better. Also, rapidly growing tumours tend to respond better to chemotherapy but relapse quicker, whereas slower growing indolent tumours tend to have a poor response to chemotherapy but an overall survival advantage.

What happens once your pet has finished chemotherapy?

After your pet's chemotherapy protocol has finished, there will be a period of monitoring and surveillance. This will be tailored to each patient, depending on their response to treatment and their individual situation. Typically, we prefer a revisit examination in 1 month and then every 2-3 months afterwards. Complete remission is not a cure and unfortunately the day will come when the cancer returns or relapses. Once this occurs there are still options for treatment, and we will discuss these with you. One of the reasons why relapse occurs is that the cancer becomes resistant to the chemotherapy drugs. After relapse, sometimes we can re-induce remission with the same initial chemotherapy protocol repeated, or we may need to commence a rescue protocol with a drug the tumour has never seen before. If your pet does respond the second time, a general rule of thumb is that the second remission is approximately 2/3rd's that of the first.