



LYMPHOMA IN DOGS

Lymphoma, also known as lymphosarcoma, is a cancer of immune system cells called lymphocytes. These cells reside within lymphatic tissue and play an important role in immune defense. Lymphatic tissue includes a filtration network of vessels and lymph nodes located throughout the body. A genetic predisposition has been identified in some breeds, but the exact cause of lymphoma is unknown. Lymphoma is considered a very treatable form of cancer; 85 to 90% of treated dogs will achieve remission.

DIAGNOSIS / CLINICAL SIGNS

Lymphoma most commonly affects the lymph nodes, liver, and spleen, although *any* body system can be involved. The most common sign of lymphoma is a painless enlargement of the lymph nodes. Some dogs may show signs of illness such as decreased appetite, decreased energy, increased thirst, and intestinal upset. Samples of an affected lymph node, bone marrow, or other tissue must be examined microscopically to diagnose lymphoma. Blood tests cannot diagnose lymphoma unless the cancer cells are actually present in the blood stream (stage V lymphoma or leukemia).

DIAGNOSTIC STAGING

Cancer staging is performed to identify the extent of cancer in the body, any effect the cancer has on organ function, and to see if any additional concurrent medical conditions exist that might influence treatment. Staging tests typically include a physical examination, thoracic radiographs (chest x-rays), abdominal ultrasound, immunophenotyping (B-cell vs T-cell), and blood and urine tests to evaluate liver, kidney and other organ function. Additional testing may be indicated and can include an echocardiogram (heart ultrasound), ECG (aka EKG), and/or other specialized testing based on your pet's exam findings.

TREATMENT

Lymphoma is not curable in most dogs, but treatment can alleviate clinical signs and add quality time to your dog's life. Chemotherapy is the most effective form of treatment for lymphoma. You may be familiar with the side effects of chemotherapy in people. Fortunately, dogs tend to experience few, if any, of the severe side effects that many people experience. For instance, most dogs do not lose hair from chemotherapy, though certain breeds do. More importantly, side effects such as decreased appetite, vomiting and/or diarrhea occur in only about 15% of dogs receiving chemotherapy.

Chemotherapy refers to the use of medications that interrupt the growth or duplication of cells. Since actively dividing cells are more sensitive to damage, and cancer cells exhibit uncontrolled growth, they are the intended target of these medications. Most healthy cells in the body are not actively growing, so are not generally affected by chemotherapy. However, some cells, such as those involving the intestinal tract and bone marrow, are faster replicating and can be negatively impacted. Temporary damage to the lining of the intestinal tract may result in decreased appetite, nausea, loose stool or vomiting. Immune system cells within the bone marrow can become temporarily decreased, which can make the body less able to fight infection. While many dogs do not show any outward signs of changes in the blood cell counts, some dogs experience lethargy, decreased appetite and/or fever. Careful monitoring with blood tests can help avoid complications. The majority of dogs do not experience any adverse effects, but if needed, over-the-counter or prescription medications can resolve clinical signs in most cases. Less than 5-10% of dogs require a return visit to the hospital due to side effects. *Our philosophy is that cancer patients should feel better, not worse, from their therapy.*

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When dogs with lymphoma are treated with chemotherapy, the results are usually dramatic. For most patients, their lymphoma regresses and their lymph nodes return to a more normal size within the first few weeks of therapy. This is known as remission. A microscopic amount of the cancer remains, but the patient has no signs and enjoys a normal quality of life. Many dogs seem to feel better than before the cancer was diagnosed! Eventually the remaining cancer cells begin to divide and clinical signs reappear, but most dogs can achieve a second remission by resuming chemotherapy if they have been off of treatment or by changing their chemotherapy treatment plan. Unfortunately, the cancer cells eventually develop resistance, which is the ability to escape damage from the chemotherapy drugs. The cancer cells “learn” how the chemo works to kill them and develop mechanisms to circumvent this. When lymphoma becomes resistant to chemotherapy, or when patients do not receive treatment for the disease, the cancer eventually overwhelms the body. Signs include severe lethargy, poor appetite and difficulty breathing.

The longest remissions are generally achieved by combining multiple chemotherapy agents. Each medication has a unique method of attacking cancer cells and combining different drugs has been shown to extend remission, and therefore, life expectancy. Chemotherapy is given according to a specific schedule to decrease the likelihood of resistance and adverse effects. The most commonly used protocol includes weekly visits for the first 8-10 weeks, followed by treatments on an every other week schedule for an additional 16 weeks. Chemotherapy protocols are individualized to meet the specific needs of you and your pet. Modifications to the number, schedule, and type of chemotherapy treatments can be made to ensure your pet’s quality of life as well as effectiveness of the treatments. At each chemotherapy appointment, you will meet with your dog’s oncologist, the response to treatment will be evaluated and a blood count will be checked prior to treatment. Treatment typically takes between 20 and 60 minutes. Most chemotherapy medications must be given as intravenous (IV) injections, but some can be given by mouth, typically at home. No fasting or special preparation is needed for most chemotherapy treatments. Once a chemotherapy protocol is completed, your dog’s oncologist will meet with you and your dog periodically to monitor your dog’s remission.

PROGNOSIS

With chemotherapy, most dogs achieve a complete remission and enjoy happy, healthy lives throughout treatment. Without chemotherapy, or if only prednisone is used, most dogs will succumb to lymphoma within 4 to 8 weeks. The effectiveness of treatment depends on the stage of the disease, the cell type, and whether your pet has other health problems. We are still learning about the factors that result in a wide range of life expectancy. As individuals, each of our patients will have a unique response and outcome and our goal is to maintain the best quality of life possible.

FUTURE CONSIDERATIONS

Scientists and oncologists alike continue to evaluate both the genetics of cancer as well as new treatment approaches. Molecular tests to aid in the diagnosis and monitoring of remission are available and their benefit is under investigation. Novel approaches to complement our current chemotherapy treatments are also forthcoming. Two exciting areas include monoclonal antibody therapy and immunotherapy (vaccine therapy). These treatments have begun to be used clinically and research into their benefit and best use is ongoing.

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