Feline Lymphoma

Lymphosarcoma (also called lymphoma) is a cancer of a subset of immune system cells known as lymphocytes. Lymphocytes are found in many organs of the body, including the lymph nodes, intestines, spleen, liver, blood, and bone marrow.

These cells serve as part of the body’s defense system and usually respond to the signals sent from other cells of the body to replicate (in times of infection, for example) or die. Cancer arises when the check-and-balance system is disrupted. Cells no longer heed the signal to stop replicating or to die and reproduce unabated. Cells divide and tumor grows in one or several organs of the body, disrupting the normal function of that organ or of the organs around it.

In cats, one cause of lymphoma is infection with the feline leukemia virus (FeLV). Cats who are FeLV+ may develop lymphoma at an earlier age, most often in one of the lymph organs found in the chest cavity called the thymus. They develop lymphoma in the area of the chest known as the mediastinum, or the space between the left and right lung lobes. They often present with a large solitary mass in front of the heart that is causing respiratory distress, often displacing the trachea upwards and sometimes even squashing it. Often these cats present to the doctor in acute distress appearing to have trouble breathing. FIV is another factor that puts cats at increased risk. One study also indicates that exposure to secondary cigarette smoke in the household increases risk. However, cats don’t have to have any of these factors to develop lymphoma. They can be almost any age, sex, or breed.

As mentioned, FeLV+ cats usually present when they are younger. Most other cats present in middle age, around 10 to 12 years of age. Unlike the FeLV+ cats, these cats are most likely to present with intestinal lymphoma. Clinical signs are usually related to impairment of intestinal function. Owners notice gradual weight loss, vomiting, lethargy, malaise, and/or diarrhea. Often, no mass is detected. The following is a quick overview of the more common forms:

*Gastrointestinal tract: This is most common. Tumors may be in the intestines or stomach. Other organs are often involved.

*Mediastinal: This was covered above. Many of these patients are FeLV+ and young.
However, they are not always FeLV+. Further, sometimes other tumors, such as thymomas, can grow in this area. Thus, diagnostics are still needed to definitely diagnose this disease.

*Renal (kidney): Sometimes the kidneys enlarge so much the owner notices a mass. These kitties often have weight loss, lethargy, increased thirst and urination, and/or vomiting. This type of lymphoma can have a tendency to also spread to the tissues of the brain.

*Bone marrow: Similar if not the same as leukemia. Often, a diagnosis of leukemia includes a percentage of involvement of the bone marrow. In leukemia, the bone marrow is the primary site. With lymphoma, the bone marrow is an additional or secondary site of tumor infiltration. Either way, it is not a great form of the disease.

*Nodal: Some cats present with large external lymph nodes. This is much more common in dogs. There can be subtypes of nodal lymphoma and other diseases which mimic it, so often a biopsy is recommended to confirm the diagnosis.

*Nasal: This is a type which often has a more favorable outcome with treatment. Cats often present with runny eyes, nasal discharge, and sometimes nasal bleeding or facial deformity.

Other: Lymphoma has been found most everywhere. Thus, it is often on the differential list. Cats present to us with symptoms related to the organ which is being impaired by the disease.

**Diagnosis/Initial Evaluation**
A tissue sample is required for diagnosis. For some forms, we need an actual piece of tissue (a biopsy). In many if not most cases, a sample of cells taken from a needle aspirate will suffice. On occasion, the cells appear so morphologically weird that additional staining or diagnostic tests are required to verify the pathologists’ suspicions.

Once confirmed, we recommend staging. This includes blood work, urinalysis, 3-view chest x-rays (radiographs), abdominal ultrasound, and, in some cases, a bone marrow evaluation. Occasionally, other diagnostics are required as well. These tests serve to (1) assess overall health (2) check for additional diseases prior to treatment (3) assess how far the tumor has spread (4) provide a baseline so that we know where the cancer is when we start and where we hope it is not when we stop.

**Treatment**
Chemotherapy – treatment with medications - is the mainstay of treatment. This is because the vast majority of cases have systemic disease. If you remove the tumor in one location, the disease will inevitably pop up somewhere else. In some situations, surgery or radiation may also be recommended. These are based on the clinical signs and the location of the
Prognosis

Prognosis depends on many factors:

* Location – nasal tumors often do better than gastrointestinal or mediastinal tumors, for instance.

* FeLV status – FeLV+ cats fare worse than FeLV- ones.

* Co-morbid states – pre-existing heart or kidney disease or extreme debilitation can complicate treatment.

* Cell type – while lymphoma is a disease of lymphocytes, we have come to recognize that not all lymph cells are equal. There are small cell forms of lymphoma which are more slowly progressive and much less aggressive. These cases in general fare much better in the long run.

* History of immune-suppressive treatment – this is often a negative factor in terms of treatment response.

Overall, 60% of cats respond to treatment. This number is much lower than in dogs or humans. It means that 40% will not respond and will not, therefore, do well. Those cats who go into a complete remission do best. Remission is when we can perform all of the staging tests on a cat and not find presence of cancer any more, usually for a period of a few weeks after treatment. It is not a cure, but it is the first step in getting to one if one is to occur. After complete remission, it is usually imperative to continue treatment for a period of time to “mop” the residual, microscopic disease. We can’t really find a few million cancer cells running amuck in a body. Technology available is not that good. Usually, we have to find an aggregate of a billion or more before we can detect its presence.

Overall, survival times are about 6 to 8 months. This number includes those cats that partially responded or didn’t respond at all. Therefore, despite the modest survival expectations, I let owners know that of the complete responders, a fair percentage will go on to remain in remission for a long time or enjoy what we call a “clinical cure.” In the cancer world, we almost never call any patient “cured,” as we are aware that cancer can always rear its ugly face again.

Traditionally, cats have been treated with what we call “long” chemotherapy protocols which go one for about 18 months. Human and canine treatment papers suggest treating with a “short” protocol might do just as well. Recently, we’ve also been experimenting
with a shorter protocol as well. While it doesn’t seem short at 25 weeks, this is the approximate amount of time we feel is needed to ensure a patient who is going to enjoy long-term control of a tumor will need.

While there are many different protocols and protocol combinations, the “gold standard” for cats has not been definitely determined. Most protocols use cytoxan, vincristine, Elspar, prednisone, and, occasionally, doxorubicin, to treat feline lymphoma. When cats fail treatment, we often try other medications as well, such as CCNU (lomustine). These are drugs with different spectrums of toxicity and different mechanisms of action. They are given on a rotating cycle of treatments. At CARES, we usually use the oral form of one drug which makes treatment more convenient for you the owner. Thus, patient visits are scheduled approximately one every two weeks.

Most cats tolerate chemotherapy well. Owners report they can become finicky with feeding. Some can vomit, become lethargic, or have diarrhea. We provide supportive medications to minimize risks. Overall, we see serious side effects in about 5% of our feline patients. These are ones serious enough to require hospitalization, though most of these patients, with supportive care, will recover in a few days. If a patient becomes ill, we usually replace the offending drug with a different one, reduce the dose, or provide preventive medications to help prevent problems on the next time the medication is administered.

Side effects?
Cats do not lose their hair! They may lose their whiskers or grow a softer, fuzzier coat known as a “chemo coat.” But they maintain their good looks throughout treatment. For other side effects, please see the handout on chemotherapy.

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