

## Feline Lymphoma

### WHAT IS LYMPHOMA?

Lymphoma is a cancer of the cells of the immune system called lymphocytes. Lymphocytes are present throughout the body, so cats can develop lymphoma in multiple organs. Lymphoma is classified by location of the disease (e.g. gastrointestinal tract, nasal cavity, mediastinal) and the size of the lymphocytes (large cell versus small cell).

### HOW IS LYMPHOMA DIAGNOSED?

Lymphoma is diagnosed via fine needle aspirate cytology or biopsy, depending on the location and extent of disease. In some cases, diagnosis may require sampling of bone marrow or other organs or molecular testing on blood or other tissue samples (e.g. flow cytometry, PARR).

### WHAT ARE THE CLINICAL SIGNS?

Clinical signs depend on the anatomical location of disease. Cats with gastrointestinal lymphoma show weight loss, decreased appetite, vomiting, and/or diarrhea. Cats with large cell gastrointestinal lymphoma tend to have a rapid onset of signs (days or weeks) versus cats with small cell gastrointestinal lymphoma that usually have chronic signs (months). Other signs include trouble breathing (nasal or mediastinal) lymphoma. Cats with renal (kidney) lymphoma can have concurrent central nervous system involvement and show behavior changes, seizures, or difficulty walking.

### WHAT DIAGNOSTICS ARE PERFORMED?

Complete blood count (CBC), chemistry panel, FeLV/FIV testing, and urinalysis are recommended for all feline lymphoma patients. Abdominal ultrasound provides evaluation of the gastrointestinal tract, liver, spleen, and internal lymph nodes. Thoracic radiographs (x-rays) examine for lymph node and/or lung involvement or the presence of fluid around the lungs. This evaluation provides prognostic information, a baseline for monitoring, and information regarding organ function and involvement. Results can influence treatment recommendations or help anticipate potential complications.

## **TREATMENT OPTIONS AVAILABLE AND PROGNOSIS:**

Lymphoma can be treated with chemotherapy, surgery, radiation therapy, or combinations of these modalities. Prognosis is influenced by lymphoma subtype and anatomical location.

Between 50%-75% of cats with gastrointestinal large cell lymphoma receiving CHOP chemotherapy respond to treatment and their prognosis is between 6-9 months. Cats that achieve a complete remission live longer than those achieving a partial remission and a small percentage can live more than 2 years. Prognosis includes 6 months of treatment with a combination of injectable and oral chemotherapy drugs. Large cell lymphoma can also be treated with an oral drug called CCNU; median survival time for responding cats is approximately 8 months.

Cats with gastrointestinal small cell lymphoma have a longer prognosis (2-3 years or more), but require chronic treatment with oral medications at home.

Some cats with gastrointestinal lymphoma benefit from surgery or radiation therapy in addition to chemotherapy.

Cats with nasal lymphoma have a prognosis of approximately 1 year with treatment (radiation and/or chemotherapy).

Treatment protocols can be tailored for each cat.

Untreated large cell lymphoma can be surprisingly rapidly fatal for cats. For more aggressive subtypes of feline lymphoma, palliative treatment with oral prednisolone may help extend quality of life for a few weeks to months.

## **WHAT ARE THE SIDE EFFECTS?**

Side effects depend on treatment selected and the extent of disease and clinical signs. Surgery carries risk of anesthesia, though this is minimal. Other risks include bleeding and complications from healing or infection. Side effects of chemotherapy are infrequent and most commonly include temporary gastrointestinal upset such as vomiting or diarrhea. Decreased appetite and lethargy may also occur. The side effects of radiation therapy depend on the area being treated. Radiation therapy includes the use of anesthesia, which can cause temporary gastrointestinal upset (vomiting, diarrhea).

Your pet will be prescribed supportive medications for nausea (manifested by decreased appetite, or increased salivation, or drooling occur) and diarrhea for you to have on hand at home to use if necessary. It is best to be proactive with these medications and provide these as soon as signs are noted. Hair loss is rare with chemotherapy, but cats tend to lose their whiskers. Should you have any questions, your oncology team is available to assist.

## **CONCERNS OF CHEMOTHERAPY FOR MY PET:**

Chemotherapy often carries a negative impression, especially with our understanding of chemotherapy in human medicine. Our approach to chemotherapy in veterinary medicine is focused on limiting severe side effects and providing increased quality of life. Chemotherapy in human medicine is provided with intent to cure by using very high doses and increased side effects. As quality of life is imperative for our pets, doses are adjusted, and your pet is monitored to limit severe side effects. Though there is a slight risk of hospitalization in our pet population and mild gastrointestinal upset, the majority of pets tolerate therapy well. Should you have concerns during therapy, speak with your oncologist in order to develop a tailored plan for your pet.

## HOW DO I PREPARE?

We understand this is a difficult time and we are here to support you and your pet by providing the necessary options and care. Selecting a therapy is not binding and can be adjusted to you and your pet's needs. During treatment sessions, you will be provided with updates and any recommendations depending on your pet's response. Should any concerns arise, your oncology team will provide answers and help to guide you.

## NAVIGATING THROUGH MY OPTIONS:

Treatment	Indication	Treatment schedule	Cost
Chemotherapy (most common options; others are available):			
CHOP: includes vincristine, cyclophosphamide, doxorubicin, prednisolone, +/- Lasparaginase	Large cell lymphoma (+/- surgery), nasal lymphoma (+/- radiation therapy)	Alternating 3 chemotherapy drugs (2 injectable, one oral) on a weekly/bi-weekly basis for a total of 29 weeks. Oral chemotherapy can be given at home.	\$5,500-\$6,500 over the course of six months
CCNU	Large cell lymphoma (+/- surgery)	Oral chemotherapy given every 3 weeks. Some cats need more time between treatments.	\$300-\$400/ treatment for at least 5 treatments
Oral chlorambucil and prednisolone	Small cell lymphoma	Oral chemotherapy given every other day at home.	Cost varies depending on pharmacy
Radiation Therapy			
Definitive	Localized disease (e.g. nasal cavity)	CT scan, radiation treatments recommended, follow-up	\$4,500 - \$6,000
Stereotactic	Varies	Varies	\$5,000 - \$7,000
Palliative	Varies	Varies	\$1,000 - \$2,000

*\* Cost estimates are based on individual appointments and overall cost is dependent on patient response and does not include additional supportive care or hospitalization, if required.*

## **GETTING STARTED**

Once you have determined the best therapeutic option for your pet, you will work with our oncology team to develop an appointment plan.

Scheduling: Patients undergoing treatments must have a scheduled appointment prior to arrival.

- > Schedule your appointments at reception upon check out.
- > Drop offs are requested between 7:30-8:30 am.
- > Pick ups are requested by 4:30 pm.
- > No discharges are done between 3:30 pm- 4:30 pm as our oncology team is in rounds.