



## LYMPHOMA IN CATS

### What is Lymphoma?

Lymphoma is cancer (malignancy) of lymphocytes that usually involves lymph nodes or other lymphatic tissue of the body, but may involve other organs of the body (such as the liver or kidneys).

Lymphocytes are a type of white blood cell that are formed in lymphatic tissues throughout the body; lymphocytes normally are involved in the immune process

Lymphoma in cats is found in various anatomic locations in the body, including the mediastinum (known as the “mediastinal form of lymphoma”)—the mediastinum is the center portion of the chest that contains the heart and other organs (except for the lungs); the gastrointestinal tract (known as the “alimentary form of lymphoma”); the kidneys (known as the “kidney or renal form of lymphoma”); multiple organs/tissues throughout the body (known as the “multicentric form of lymphoma”); and the spinal cord (known as the “spinal form of lymphoma”)

### Mean Age Range

- Mean age of feline leukaemia virus (FeLV)-positive cats with lymphoma—3 years
- Mean age of FeLV-negative cats with lymphoma—7 years
- Median age of cats with localized lymphoma, outside of the lymph nodes—13 years
- Most cats with Hodgkin's-like lymphoma are older than 6 years of age

Also Siamese and other Oriental breeds may be more likely to have lymphoma than other cat breeds.



### Clinical Signs

- Depend on anatomic form
- Mediastinal form (located in the center of the chest)—open-mouthed breathing; coughing; regurgitation; lack of appetite (known as “anorexia”); weight loss; the front part of the chest is very firm and resistant to gentle compression during physical examination
- Alimentary form (located in the gastrointestinal tract)—lack of appetite (anorexia); weight loss; sluggishness (lethargy); vomiting; constipation; diarrhea; black, tarry stools, due to the presence of digested blood (known as “melena”); frank blood in the stool; thickened intestines or abdominal masses

- Kidney or renal form—consistent with kidney failure (such as vomiting; lack of appetite [anorexia]; increased thirst [known as “polydipsia”]; increased urination [known as “polyuria”]; and sluggishness [lethargy]); large, irregular kidneys
- Nasal form (located in the nose or nasal passages)—discharge from the nose (known as “nasal discharge”) or bleeding in the nose and nasal passages (known as “epistaxis” or a “nosebleed”); facial deformity; abnormalities of the eyes; excessive tearing (known as “epiphora”); abnormal breathing sounds; sneezing; lack of appetite (anorexia)
- Multicentric form (located in multiple organs/tissues throughout the body)—possibly none in early stages; lack of appetite (anorexia), weight loss, and depression with progression of disease; enlargement of lymph nodes throughout the body
- Spinal form—quickly progressing weakness to partial paralysis in rear legs (known as “posterior paresis”)
- Cutaneous (skin) lymphoma—itchiness (known as “pruritus”); bleeding (haemorrhage); or masses on the skin accompanied by hair loss (hair loss known as “alopecia”)
- All forms—fever; dehydration; depression; extreme weight loss with muscle wasting (known as “cachexia”) in some pets

### What causes Lymphoma?

Feline leukaemia virus infection—pets inconsistently test positive during illness (for example, 85% are positive with the mediastinal form, 45% with the kidney form, 20% with the multicentric form, and 15% with the alimentary (intestinal) forms of lymphoma test positive on FeLV test); older cats with lymphoma are usually FeLV negative, while younger cats are usually FeLV positive.

### Treatment

#### Health Care

- Outpatient, whenever possible
- Supportive medical care, if needed depending on clinical signs
- Fluid therapy, appetite stimulants, and other treatments based on clinical signs
- Radiation therapy—may be used for localized lymphoma; relapses outside the radiation field are not uncommon
- Consult a veterinary oncologist for chemotherapy doses, schedules, and to help assess best option for treatment

## Diet

- No change in most cases; may require dietary change if cat has kidney failure
- Can add omega-3 (n-3) fatty acids (fish oil origin) to the diet

## Surgery

- To relieve intestinal blockages or obstructions, repair “holes” in the intestinal tract (known as “perforations”) that develop secondarily to the presence of the tumour and to surgically remove individual tumours
- To obtain biopsy specimens for microscopic examination

## What Medications are available?

- Chemotherapy—used in a combination or sequential protocol; some protocols have induction and maintenance periods
- Many variations of similar combination chemotherapy exist; they all have similar effectiveness
- Low-grade intestinal lymphoma can respond to oral chlorambucil and prednisone

## Possible Complications

- Low white blood cell counts (known as “leukopenia”)
- Generalized bacterial infection (sepsis)
- Lack of appetite (anorexia)
- Avoid exposure to or breeding feline leukaemia virus-positive cats

## Follow Up Care

- Physical examination, complete blood count (CBC), and platelet count—before each weekly chemotherapy treatment and one week after each time a new drug is administered, or if concerned about low blood cell counts
- X-rays (radiographs) or advanced imaging—as necessary, depending on location of primary tumour

## Expected Prognosis

- Depends on initial response to chemotherapy, anatomic type, feline leukaemia virus status, and tumour burden; overall response rate is 50-70% to treatment
- Median survival with prednisone alone—1.5-2 months
- Median survival with combination chemotherapy (COP or CHOP)—6-9 months
- Mediastinal form (located in the center of the chest)—about 10% of affected pets with live more than 2 years
- Median survival with alimentary form (located in the gastrointestinal tract)—8 months

- Median survival with peripheral multicentric form (located in multiple organs/tissues: “peripheral” refers to tissues away from the center of the body)—23.5 months
- Median survival with kidney form—if FeLV-negative, 11.5 months; if FeLV-positive, 6.5 months
- Median survival with nasal form—1.5–2.5 years with radiation and chemotherapy; chemotherapy may not improve survival over radiation alone
- Cats with Hodgkin's-like lymphoma can do well for extended periods of time (months to years), even without treatment

## Overview

- A treatment protocol should be established that fits the pet and the owner's lifestyle
- Side effects of chemotherapy are treatable and should be addressed promptly
- Goal is to induce remission and achieve a good quality of life for pets for as long as possible
- More than 80% of pet owners are pleased with their cat's quality of life during chemotherapy