

INFORMATION SHEET

Lymphoma in cats

Lymphoma, previously known as lymphosarcoma, is a cancer of lymphocytes (a type of white blood cell) and lymphoid tissue. It is one of the most common cancers diagnosed in cats. This cancer usually occurs in lymphatic tissues, such as lymph nodes, spleen and bone marrow; however, it can arise in any tissue including the intestines, brain, spinal cord, kidney, heart or skin. The exact cause of lymphoma is unknown. It has, however, been associated with the feline leukaemia virus (FeLV) and the feline immunodeficiency virus (FIV). Cats of any age, breed or sex can be affected.

Clinical signs and types of lymphoma

Lymphoma in cats can be divided into several different forms, depending on the main location of the tumour. The clinical signs will vary depending on this location. Common presenting signs include lethargy, loss of appetite, weight loss, vomiting, difficulty breathing and masses palpable in the abdomen or the area of the lymph nodes. Many of these signs are non-specific and further testing is necessary to determine the cause. Some cats have more than one site of involvement of lymphoma and do not fit well into just one category.

Digestive tract: This is the most common form of feline lymphoma and is most often seen in middle-aged to older cats. Common clinical signs include loss of appetite, weight loss, lethargy, vomiting and diarrhoea. The digestive tract includes the stomach, intestines, liver and the lymph nodes surrounding the intestines.

Mediastinal: This involves a group of lymph nodes found in the front of the chest. Clinical signs are usually seen when the nodes become large or there is an accumulation of fluid around the lungs. Signs include difficulty in breathing as well as non-specific signs as described above (weight loss, lethargy, loss of appetite).

Kidney: This is also a relatively common form and may involve one or both kidneys. Clinical signs of kidney failure may be seen (i.e. increased thirst and urination, vomiting, loss of appetite) especially if both kidneys are involved. The kidney(s) may also feel enlarged.

Nasal: Lymphoma in the nasal cavity is reasonably common and may cause sneezing, nasal discharge and loss of appetite.

External lymph nodes: In a few cats the only site of involvement is the external lymph nodes. Clinical signs may include an enlargement of the lymph nodes under the neck, behind the knees, in front of the shoulders or within the abdomen. Other organs, such as liver, spleen and bone marrow may be involved.

Other sites: Lymphoma in cats occasionally involves other areas of the body including the central nervous system (brain, spinal cord, nerves), skin, and larynx (voicebox).

Diagnosis and staging

The diagnosis of lymphoma involves taking a fine needle aspirate or biopsy from the affected tissue. A fine needle aspirate is a simple test done with a small needle and syringe. The sample is usually sufficient to diagnose lymphoma but it does not give us any information on the grade (i.e. high versus low grade). A biopsy involves taking a larger sample and is often preferred over an aspirate as it can give us the grade of the lymphoma. In some cases we may need to perform surgery to obtain adequate tissue to confirm the diagnosis. The ease with which this can be done depends on the location of the tumour (i.e. internal versus external location). More specific tests may be required if lymphoma occurs in locations difficult to sample, for example spinal cord or brain lymphoma may involve sampling of the fluid around the cord (CSF tap) in order to make a diagnosis.

Once the diagnosis is confirmed staging can be performed to screen the body for cancer elsewhere. For lymphoma this involves performing a bone marrow aspirate, abdominal ultrasound and chest radiographs. A bone marrow aspirate screens for tumour cells in the bone marrow as well as evaluating the marrow's ability to produce normal blood cells (red blood cells, white blood cells and platelets). An abdominal ultrasound evaluates the liver, spleen, kidneys, internal lymph nodes and intestinal tract for possible involvement of lymphoma. Chest radiographs screen for involvement of internal lymph nodes, lung involvement or fluid around the lungs. We may also recommend testing for the feline viruses (FIV, FeLV), which may alter prognosis. Blood tests (a complete blood count and biochemistry) and urinalysis are performed to screen for cancer circulating in the bloodstream and are also important to establish the general health of the patient prior to treatment.

Treatment and prognosis

Lymphoma is considered a cancer of the whole body, as the cancerous lymphocytes circulate the body in the blood and lymphatic system. Therefore, it is important that we give a therapy that treats the whole body. **Chemotherapy** is the mainstay of treatment for lymphoma and up to 75% of cats treated will go into complete remission. Complete remission is the complete disappearance of all signs of the cancer leading to a normal quality of life, but it is not a cure. That is why it is important to continue chemotherapy for the entire protocol even after complete remission is obtained. The most commonly used chemotherapy drugs for lymphoma in cats (high and intermediate grades) are vincristine, cyclophosphamide and doxorubicin, and we typically use a combination of these. These drugs are alternated to reduce the chance of the tumour cells becoming resistant and to reduce the risk of side effects. Some cats with a

low grade lymphoma (in particular of the digestive tract) may benefit from a more simple chemotherapy protocol, involving the oral administration of tablets at home. This involves a combination of prednisolone and chlorambucil. Chemotherapy is generally well tolerated in animals (please see the 'Chemotherapy in animals' information sheet).

There may be some situations when **surgery** may also be indicated (i.e. to get a biopsy or to remove an intestinal lymphoma that is blocking the passage of food) and this is usually in addition to chemotherapy. **Radiation** is also indicated in some cases, in particular for nasal lymphoma. Radiation is a local treatment only and does not treat disease elsewhere in the body. If staging tests confirm disease elsewhere in the body, it must be combined with chemotherapy, or chemotherapy is used alone. Unfortunately, access to radiation in Victoria is limited and currently requires travel to Queensland. For the intermediate or high grade lymphomas in cats the average survival times are approximately 6–8 months; however, this will vary depending on the location of the lymphoma. Approximately one third may do well for a considerably longer period of time (longer than two years) and a small percentage may be cured. For low grade lymphomas (particularly of the digestive tract) the average survival times are around 18 months. These are averages only and some may live for much shorter or longer periods of time.

It is difficult to predict how each patient will respond. One of the most important prognostic factors for lymphoma is whether or not the patient is well or sick at the initial diagnosis. If the patient is well, the prognosis is improved and chemotherapy is generally tolerated better. Other factors that appear important in prognosis are: infection with FeLV (decreased if positive); location of tumour (decreased for kidney and central nervous system lymphoma and increased for nasal lymphoma); response to treatment (better if the patient has a complete remission); and the stage of the disease (improved when bone marrow, liver and spleen are not involved).

Without chemotherapy patients can be treated with corticosteroids, which may improve their quality of life. The average survival time for patients treated with corticosteroids alone is 4–8 weeks and with no treatment at all it may be less than four weeks.

Follow up

Once the patient finishes chemotherapy and remains in complete remission we recommend a recheck in one month, and then every three months to screen for recurrence of lymphoma. As the signs of lymphoma are often non-specific and can be different at relapse, any illness might indicate recurrence. Early investigation is often beneficial.

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