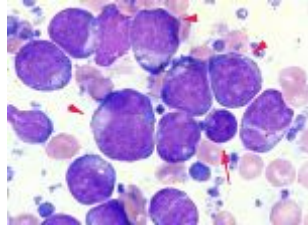


INTRODUCTION

Lymphoma is the most common malignant cancer in dogs.

- Lymphoma is a cancer of lymphocytes, which are white blood cells that are part of the immune system and reside most commonly in the lymph nodes, bone marrow, and spleen.
- There are many lymph nodes throughout the body (ones that we can palpate, and others that we need radiographs or ultrasound to view).
- The cause of lymphoma is unknown at this time. Most dogs initially present with multiple, enlarged, non-painful lymph nodes.
- There are 5 stages of lymphoma. The most common stages that dogs present with are stage 3 (most peripheral lymph nodes enlarged) or stage 4 (liver and/or splenic involvement with enlarged lymph nodes).



CLINICAL SIGNS

Owners most commonly notice “lumps” under the neck, which are a result of lymph node enlargement (noted in the picture below).



- Other signs that can occur with this disease are lethargy, increased water intake and urination, diarrhea, vomiting, decreased appetite, and possibly coughing/wheezing. Most dogs show no signs of illness when the disease is first diagnosed.

DIAGNOSIS/STAGING

A needle aspirate of the enlarged lymph nodes is usually sufficient to obtain a diagnosis.

- Dogs that do not feel sick have a better prognosis than dogs that show clinical signs at the time of diagnosis.
- Several staging tests are recommended, including routine bloodwork, urinalysis, chest radiographs, and abdominal radiographs or ultrasound, and special staining of the lymph node aspirates for B and T cell determination as well as multi-drug resistance protein (MDR) testing.

TREATMENT

Lymphoma is considered a systemic disease, so chemotherapy is the treatment of choice.

- About 80- 90% of dogs will go into complete remission (normal lymph nodes on palpation and resolution of clinical signs) during the first three to four weeks of chemotherapy.
- There are many different protocols for treatment, but the “gold standard” is multi-agent chemotherapy, consisting of a combination of five different chemotherapy agents including prednisone.
- There are alternative and less aggressive treatment protocols for lymphoma. These protocols are less expensive and less likely to cause side effects; however, they are not as effective (6-10 months may be a good outcome with these protocols).
- Prednisone therapy can be used alone or in conjunction with other chemotherapy agents. Prednisone is a corticosteroid that has some antitumor activity against lymphoma. It may allow your pet to feel better. It will also cause them to have increased drinking, urination, appetite, and panting, and may cause decreased muscle mass and hindlimb weakness after long-term usage. If used alone for the management of lymphoma, the median survival time is 2-3 months. The use of prednisone alone before chemotherapy may result in a decrease in the effectiveness of future conventional chemotherapy in your pet.

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CHEMOTHERAPY SIDE EFFECTS

The treatments for lymphoma are well tolerated by most dogs.

- Vomiting, diarrhea and anorexia can occur 24-72 hours after chemotherapy.
 - Most resolve within 24-48 hours.
 - Ten (10%) percent of dogs experience repeated vomiting that requires hospitalization.
- Bone marrow suppression typically occurs 5-10 days post chemotherapy.
 - A CBC is performed prior to chemotherapy, and again 7-10 days after chemotherapy to monitor the white blood cell, red blood cell, and platelet counts.
 - One (1%) percent of dogs will have life-threatening complications from treatment. Life threatening side effects are most often associated with marked bone marrow suppression resulting in infection.
- Some thinning of the hair coat may occur, but is not common. Dogs who have continuous hair growth are more susceptible to alopecia (hair loss) such as Poodles or Old English Sheepdogs.

PROGNOSIS

The median remission time with the most aggressive protocol is 12 months. This means that 50% of the population will live longer than 12 months.

- If your pet completely responds to treatment in the first 3-4 weeks, then the prognosis improves to a median remission of nearly 24 months.
- If your pet relapses during treatment, the chance of having subsequent remissions with different chemotherapeutic agents (rescue drugs) is 30-50% for a median remission time that is half the length of the first remission time. If your pet relapses after successful completion of the initial protocol, the chance of re-inducing a second remission is 70%. Again, the length of this remission time is typically half the length of the first remission time.
- Without any treatment, most dogs with lymphoma will succumb to the disease in 1-2 months.

CONCLUSION

While it is rare to cure your pet from this disease, canine lymphoma is one of the most responsive cancers to chemotherapy and we can usually achieve remission with a good quality of life for your pet.

- Our goal with chemotherapy is to get your pet into remission for as long as possible while maintaining an optimal quality of life.
- **The decision to pursue treatment for this disease is dependent on several factors that you must accept.** The first is the cost where the more aggressive the protocol is, the more expensive it will be. The second is the risk associated with treatment, as outlined in this handout. And the third is the goal for your pet based on the prognosis with the chosen treatment. With your acceptance of these factors, we will work with you and do our best to give you and your pet the best quality time together while providing the highest quality of veterinary medicine.

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