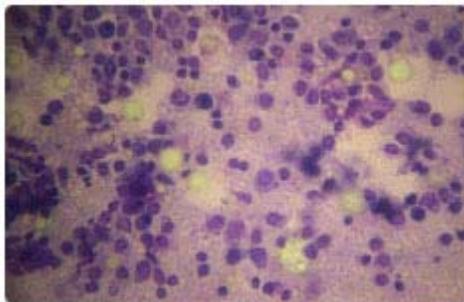


## A new option for the treatment of canine lymphoma

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Lymphoma is the most common malignant cancer treated in veterinary oncology. In dogs, the most common presentation for lymphoma is multiple non-painful enlargements of peripheral lymph nodes. It is most common that dogs with lymphoma present without any clinical signs of illness in spite of these enlarged lymph nodes. In most cases lymphoma is thought of as a disseminated disease, where the malignant lymphocytes exist in many tissues through the body. The diagnosis of lymphoma is made by microscopic examination of lymph nodes. Unlike many other cancers, a diagnosis of lymphoma can be made using a fine needle aspirate alone. Microscopic features that distinguish malignant lymphocytes from normal lymphocytes include their larger size, multiple and variably sized nucleoli, and more frequent mitotic figures.



Over time lymphoma will progress to involve both lymphoid and non-lymphoid organs. As the disease spreads and involves vital organs a progressive decline in quality of life is noted. The progression of this cancer often occurs quickly in dogs, but is quite variable. Lymphoma is one of the most chemo-responsive cancers in dogs. Dogs treated with chemotherapy can have a very high quality of life for many months to years. Dogs that feel well when therapy is initiated have the best chance of successful treatments. Dogs that respond well following the first one to two treatments often enjoy longer remission durations.

Options for the treatment of lymphoma include multi-agent chemotherapy, single agent chemotherapy, and prednisone alone. In addition, a new treatment is now available.

### **Multi-agent chemotherapy:**

The use of multi-agent chemotherapy is expected to result in an initial complete regression (remission) of lymphoma in over 80% of dogs. On average this first remission will last for approximately one year. The return of the enlarged lymph nodes often marks the end of the remission. The following is an example of a multiple agent chemotherapeutic protocol used to treat canine lymphoma.



## Canine Lymphoma Multi-Agent Chemotherapy Protocol (Khanna et al 1996 JAVMA).

Agent	Induction phase (week of treatment)											Maintenance phase		
	1	2	3	4	5	6	7	8	9	10	11	12	14	17
Prednisone (40 mg/m <sup>2</sup> , PO, q 24 h)	X	X	X	X	X	X	X	X	X	X	X	X		
Vincristine (0.65 mg/m <sup>2</sup> IV, day 1)		X		X	X			X		X	X	X		
Cyclophosphamide (50 mg/m <sup>2</sup> , PO, days 4-7)		X			X			X			X	X		
Doxorubicin (30 mg/m <sup>2</sup> , IV, day 1)				X		X			X				X	X
L-asparaginase (20,000 U/m <sup>2</sup> SQ, day 1)	X													
Chlorambucil (4 mg/m <sup>2</sup> PO, q 48 h)												X	X	X
Prednisone (40 mg/m <sup>2</sup> , PO, q 48 h)												X	X	X
Vincristine (0.65 mg/m <sup>2</sup> IV, q 21 d)												X	X	X

### Single agent chemotherapy for lymphoma

Single agent chemotherapy protocols have been developed for lymphoma. Single agent therapies include doxorubicin, mitoxantrone and lomustine. Single agent doxorubicin chemotherapy is expected to provide a first remission rate that is similar to multiagent protocols and a first remission duration of approximately 7 months. Doxorubicin is administered as a single agent every 21 days for a total of 3 - 5 treatments.

### Prednisone therapy for lymphoma

Prednisone alone may result in a regression of measurable lymph nodes in approximately 50% of cases. The duration of remission associated with prednisone has been reported to be 75 to 90 days. Prednisone doses for dogs with lymphoma are 40 mg/m<sup>2</sup> daily.

The advantage of multi-agent chemotherapy for lymphoma is longer remission durations that result from the combination of drugs with different mechanisms of action. Although combination protocols have been designed to maximize quality of life, they are associated with a greater risk for toxicity than single agent protocols. Clients who are concerned by the intensity of multi-agent protocols may be more comfortable with single agent therapies. Single agent therapies also have the advantage of being less expensive. Prednisone alone is often considered the best option for owners who are unable to consider chemotherapy due to financial restraints.

### Novel treatment with ABT751

ABT751 is an oral cytotoxic, anti-mitotic agent that is currently being used in human and animal clinical trials. Experimental studies suggest that ABT751 can kill cancer cells. The Animal Cancer Institute is now accepting patients into a funded clinical trial using ABT751 in the treatment of dogs with lymphoma. Patients enrolled in this study receive ABT751 free of charge. All biopsy and most laboratory and professional fees required for the study will be provided by the sponsor at no charge from time of enrollment through Day 56. Continued therapy will be available pending response to therapy. Lymph node biopsies are required during the study.