



ONCOLOGY: LYMPHOMA PART II

Lymphoma recap

This “Animal Matters” continues last week’s tip. As a recap of Lymphoma:

Lymphoma is one of the most common neoplasms in the dog, accounting for approximately 7%-24% of all canine neoplasia and 83% of hematopoietic neoplasia.^{1,2} The most common anatomic forms of lymphoma in decreasing prevalence are multicentric, craniomediastinal, gastrointestinal and cutaneous forms.⁸ Simple fine needle aspiration is typically enough to confirm a diagnosis, however, in order to classify the lymphoma as low, intermediate or high grade, histopathology is typically required.

Treatment and prognosis

Lymphoma is overwhelmingly considered a systemic disease that responds best to combination chemotherapy protocols. Many protocols exist, with CHOP-based protocols providing the best results. CHOP stands for a combination of cyclophosphamide (C), doxorubicin (H –hydroxydaunorubicin), vincristine (O – Oncovin) and prednisone (P). Complete remissions can be achieved in 60% - 90% of dogs, with median survival times of about 6-12 months depending on the protocol used.⁸ Approximately 20% -25% of dogs live 2 years or longer with a CHOP-based protocol.⁸ Dogs tolerate chemotherapy extremely well. Mild and self-limiting gastrointestinal upset is possible about 3-5 days post therapy and myelosuppression is possible about 7-10 days post therapy. It is rare that side effects are severe enough to require hospitalization for supportive care.

PARR and Flow Cytometry

Multiple molecular techniques are now available to further characterize (i.e. B-cell vs. T-cell) or actually diagnose lymphoma. Two very interesting techniques are PCR for antigen receptor gene rearrangement (PARR) and flow cytometry.

- Clonality is the hallmark of malignancy; theoretically, a malignant population should have derived from a single malignant clone.
- In T-cell lymphoma, all cells should have the same DNA sequence for the variable region of the T-cell receptor (TCR) gene.
- In B-cell lymphoma, all cells should have the same DNA sequence in the variable region of the immunoglobulin receptor gene.⁸
- PCR is used to amplify the variable regions and determine from which clonal population the cells originated.⁹⁻¹²
- Flow cytometry is a technique where a single line of a liquid medium of cells is passed through a laser, after being treated with various fluorochromes and antibodies. The laser analyzes and “sorts” the cells based on size, DNA content and antibody reactions

Sample Submission

Colorado State University’s laboratory offers both tests and is who MVS uses for these tests. For PARR, highly cellular cytologic samples (stained or unstained) can be submitted or a lymph node FNA sample can be squirted into the bottom of an EDTA tube with no additional additives. For flow cytometry; place 0.5 to 1 ml of saline into a plain red-top tube, squirt the sample from the lymph node into

the saline and rinse the syringe with the saline to increase yield. It is essential to add protein to the sample which can be accomplished by adding a few drops of serum from a patient of the same species to the tube, such that the serum comprises about 10% of the volume. Contact CSU for the ideal way to ship the samples from your area.

Questions?

Our oncologists are available for questions and consultations on medical conditions. They are also on-call for consultation on cases seen through the emergency service 24/7.

Oncology Clinicians:

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MVS offers full-time oncology service at BOTH HOSPITALS; we hope our oncology staff serves as an extension of your practice. Our clinicians have years of specialized training and experience. Please let us know how we can help you and your clients.

LOCATIONS

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