

Performances of cytology and flow cytometry to predict diagnosis of canine lymphoma and subtypes

S. Comazzi¹ (stefano.comazzi@unimi.it), V. Martini²

¹ Dept Veterinary Medicine, University of Milan, Lodi, IT, Italy; ² Dept of Veterinary Medicine, University of Milan, Lodi, IT, Italy

Cytology plays a central role in the diagnostic algorithm for canine lymphoma. Canine lymphoma is a great candidate to be sampled via fine needle aspirate biopsy since it is mainly a multicentric disease, involvement of superficial nodes is frequent and the architectural histological pattern is diffuse in most cases. Accuracy may be implemented by ancillary techniques such as flow cytometry (FC) and immunocytochemistry (ICC). However, the diagnostic performances of cytology alone with or without some ancillary techniques is not completely elucidated in veterinary medicine. In a recent metanalysis in humans, cytology alone showed a sensitivity of 87% and a specificity of 97% in the identification of lymphoma vs non-lymphoma. This values increased by adding FC or ICC. However, no data on the performances in identifying specific lymphoma subtypes via cytology were described. In dogs the current classifications used for canine lymphoma are the updated Kiel and the WHO classifications. The updated Kiel classification is mainly a cytological scheme based on morphological aspects and it demonstrated a fair agreement among readers in a previous study. In contrast, WHO is mainly based on histological criteria but previous papers suggest a possible correlation between these two diagnostic schemes. We recently evaluated the diagnostic performances and repeatability of cytology alone for 1) predicting lymphoma vs non-lymphoma; 2) predicting grade and subtype and 3) predicting WHO subtype.

Cytology showed good performances (sensitivity 92.6%, specificity 89.4%) and repeatabilities in predicting lymphoma vs non-lymphoma. As expected this values decrease for the evaluation of grade and phenotype, and for WHO subtype. The major diagnostic challenges were the identification of the grade of B cell lymphomas and the identification of the immunophenotype for high grade lymphomas with many B cell lymphoma cases misinterpreted as T cell.

Flow cytometry may easily help to definitely diagnose the immunophenotype thus solving this issue. On the other side it may also be useful to discriminate between high and low grade lymphomas by possibly evaluating the percentage of KI67 positive cells. Further studies on the diagnostic performance of cytology + FC for canine lymphoma are needed and currently in process.

Keywords: Canine lymphoma - Cytology - Flow cytometry.