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Performance of liquid based cytology for the diagnosis of canine lymphoma

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Liquid-based Cytology (LBC) consists of immediate fixation of cells in suspension with automated slide preparation. In this study, LBC with cell block (CB) immunocytochemistry was used to evaluate lymph node aspirates and results were compared with conventional cytology. The inter-rater reliability, unsatisfactory rate and accuracy between conventional cytology and LBC were assessed. Samples of enlarged lymphnodes were collected from 54 dogs through fine needle aspiration and fixed in preservative for LBC, CB and immuno phenotyping. Two CB techniques were tested: fixed Sediment Method (FSM) with Bouin's solution and agar method (AM). The morphology of the cells was blindly evaluated by 2 pathologists. Immunocytochemistry was performed with: Anti-CD79a, anti-Pax5, anti-CD3 and anti-Ki67. For inter-rater reliability, two veterinary pathologists classified the samples as positive, negative or unsatisfactory for canine lymphoma in a double-blind experiment. Of the 30 dogs, 80% had B cell lymphoma and 20%, T cell lymphoma; considering conventional cytology, LBC smears showed better nuclear and nucleolar definitions but smaller cell size and worse cytoplasmic definitions. FSM showed consistent cellular groups and were employed for immunocytochemistry, whereas AM presented sparse groups of lymphocytes that had been difficult to analyze. Anti-Pax-5 allowed identification of B cells. LBC inter-rater reliability was good ($k=0.762$). LBC with CB immunocytochemistry presented an accuracy of 89.47% compared to 68.42% from conventional cytology. Moreover, the unsatisfactory rate was reduced from 11.76% (conventional) to 3.71% (LBC+CB Immunocytochemistry). LBC and FSM together may be promising tools to improve canine lymphoma diagnosis through fine-needle aspiration.

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Thyroid cytology: Is it a dead end or the promising beginning of a journey?

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Clinical cytology is one of the most important methods for assessing nodular thyroid lesions. Nowadays, that a lot of scientific works has been done to access the sensitivity, specificity, predictive value etc we still cannot predict some situations in management of thyroid lesions for a specific patient. Notwithstanding to accepted standards such as Bethesda system etc, we cannot make a definite prognosis for all patients, sometimes we are not able to be absolutely sure whether the situation for that very patient is a standard one or unusual. Thus in some cases we can be more or less near the final decision but not quite certain. And in "omic" era, when a lot of prognostic factors can be calculated, the possibility to obtain living cells, cell groups and structures from thyroid before or instead of surgery to access their appearance, groups or structures, microenvironment together with clinical, biochemical, immunological, genetic or other features seemsto be very important. Liquid based cytology is the technology for more rigorous analysis of cellular composition both for Papanicolaou staining and molecular studies, although dried fixed MGG slides are of a great importance for thyroid samples because of the opportunity to access some details different from those in wet-fixed slides. Data of literature and personal experience on thyroid cytology will be discussed.

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