



Quantitative analytical technique applied to histopathology of birds infected experimentally by the virus of chicken anemia virus

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Abstract

Introduction: This research was conducted on ten glass slides selected from the histopathologic evaluation chickens.

Methods: Five slides of control's chickens healthy and five slides of chickens infected experimentally with chicken anemia virus (CAV slide) between one and twenty one days post infection (PI), they were analyzed in magnifications of 200X and 400X. Histopathology showed severe bone marrow hypoplasia to complete aplasia, fully depletion of the erythrocytic and granulocytic series, both accompanied by space occupying adipocytic replacement. Foci of erythropoietic hyperplasia with intense mielopoietic activity, some hemocytoblast increased of size, with large nucleus. A quantitative analytical technique by Positive Pixel Count Algorithm was applied.

Results: It demonstrated that measures area stained of control slides were higher than CAV slides (Average: 61% vs. 25%, respectively). So, the control slides showed strong positivity, due to the presence of bigger quantity of cells of erythrocytic and granulocytic series. The CAV slides of seven days PI had high positivity (average: 94%), it was explained because the chicken anemia virus takes place severe lesions between ten to seventeen days PI, after 21 days PI the cellular regeneration is observed that is evidenced by means of focuses of erythroblastoid cells hyperplasia. This technique demonstrates in a quantitative way the severe decrease of the cellular components of the bone marrow in presence of the infection for CAV, supporting with numeric data the histology image evaluated by the pathologist.

Conclusion: Therefore, it can be used as support to the histopathology of field samples to evaluate the presence of lesions taken place by CAV and this way to improve the quality and efficiency of the veterinary pathology services.

Keywords: chicken anemia virus, quantitative analytical technique, histopathology, chickens.