



Physiological and Histopathological Alterations in Broiler Chickens Naturally Infected with Fowl Adenovirus

Salma Saeed Abbas¹ , Sara Salim Mohammad² , Iqbal Abdaiaziz AlRufaei³ ,
Waleed Majeed Almayahi⁴ , Harith Abdullah Najem^{4,*} , Isam Azeez Khaleefah⁴ 

¹Department of Biology, Education College for Pure Science, University of Basrah, Basrah 61001, Iraq

²Department of Veterinary Public Health, College of Veterinary Medicine, University of Basrah, Basrah 61001, Iraq

³Department of Biology, College of Science, University of Basrah, Basrah 61001, Iraq

⁴Department of Pathology and Poultry Diseases, College of Veterinary Medicine, University of Basrah, Basrah 61001, Iraq

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*Correspondence: Harith Abdulla Najem
harith.najem@uobasrah.edu.iq

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Abstract Fowl adenovirus (FAdV), a pathogen that causes hydropericardium hepatitis syndrome (HHS) and inclusion body hepatitis (IBH), is causing severe financial losses in the poultry industry all over the world. The study evaluated the biochemical, histopathological, physiological, and clinical indicators of FAdV outbreaks in commercial broiler in the Basrah Governorate, Iraq, in the period of 2024-2025. Other than the discussed factors, the study aimed to diagnose HHS and IBH based on the lab and necropsy findings and clinical findings and therefore understand the pathophysiology and impact of the disease on the production. The death rates of the attacked flocks were between 10 percent and 40 percent with particular attention to the flocks that were three to five weeks old. After death, hepatic fragility, hepatic necrosis, and ecchymotic hemorrhages in the liver were found, as well as apparent spleen and kidney lesions. Eighty tissue specimens comprising heart and liver were collected from infected birds and subjected to Hematoxylin and Eosin (H&E) staining procedures. Hepatic histopathology demonstrated lymphocytic depletion, hemorrhage, subacute perivenular hepatitis, and coagulative necrosis. Biochemistry results obtained through diagnostic confirmation indicated that there was an increase in the levels of Troponin (Tn), alkaline phosphatase (ALP), aspartate aminotransferase (AST), and alanine aminotransferase (ALT). Also, the blood test showed that there was an increase in the number of leukocytes, Mean Corpuscular Hemoglobin (MCH), and Mean Corpuscular Volume (MCV), along with a decrease in erythrocytes. These results greatly support the description of the histopathology and pathophysiology of FAdV-4 in broilers of Basrah, thereby pointing out the virus as a major risk factor that adversely affects the livestock health and production.

Keywords disease outbreaks, hepatitis, Iraq, liver diseases, poultry diseases

