شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

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قسم

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Studies on Adeno Viruses Infection Associated with Inclusion Body Hepatitis Hydropericardium Syndrome in Broiler Chickens

A thesis presented by

Mostafa Gamal Naguib

(B.V.Sc., Cairo University, 2017)

For The Master Degree of Veterinary Science
(Poultry diseases)

Under supervision of

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ABSTRACT

Avian adenoviruses are an extremely diversified group of pathogens that recently triggering a variety of problems for poultry production. In particular, Inclusion Body Hepatitis-Hydropericardium Syndrome (IBH-HPS) has been observed in broiler birds from 3 to 6 weeks of age and is associated with anemia, hemorrhagic disorders, hydropericardium, and high mortality. The disease has been reported worldwide, and recently it was reported in many Egyptian farms, causing severe economic losses. Therefore, the current study aimed to isolate, and genetically type the most common Adenovirus serotypes associated with this syndrome in Egyptian farms. A total of 50 broiler chicken farms (3-6 weeks old) located in different Egyptian governorates were examined. Macroscopically, the diseased flock revealed hydropericardium, enlarged friable livers with ecchymotic hemorrhages, and varying mortality rates (1 to 7.5%). Histopathologically, severe diffuse necrotizing enteritis, hepatitis, pericarditis, and diffuse lymphoid depletion of the spleen were the most prominent lesions. Liver tissues and cloacal swabs were collected from all examined flocks for FAdVs detection by conventional polymerase chain reaction (PCR) targeting the L1 loop in the hexon gene. The PCR products were sequenced for typing of the detected viruses. It was found that 10 out of 50 flocks examined were PCR positive for FAdVs (20%). Phylogenetic analysis of the sequenced genes revealed that the obtained viruses clustered with reference strains belonging to FAdV type D and E serotype 2, 11, and 8a respectively. The three isolates were cultured, titrated on CEL, and used to experimentally infect three commercial broiler groups at one day-old by oral inoculation. Grossly and microscopically the experimentally infected groups revealed the same picture appeared in field flocks with variable degree of total deaths percentage by 12, 16 and 6% in G1, G2 and G3 infected commercial broiler groups, respectively. It was concluded that both FAdV-D 2,11 and FAdV-E 8a are the primary causative agents, in addition to the possibility of these isolates to act as a neglectable immunosuppressive agents incriminated to share a role of vaccination failure in Egyptian chicken farms.

Keywords: Broiler chicken, Chicken embryo liver cell, Fowl adenovirus, Hexon gene, Histopathology, Inclusion body hepatitis–hydropericardium syndrome, PCR, Pathogenicity

Dedication

To

My Family

&

My beloved wife

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