

Duck Hepatitis A Virus Type 1

Arsalan Egbal*

Department of Zoology, University of Inuka, Jacmel, Haiti

INTRODUCTION

Duck Virus Hepatitis (DVH) caused by duck hepatitis A virus type 1 (DHAV-1) is an acute and lethal disease of young ducklings. However, there is still no effective drug to treat DVH. It has always been considered one of the threats endangering duck farming in Egypt since the 1960s. It causes a highly contagious infection of ducks. The disease is an acute, rapidly spreading, often fatal virus infection of young ducklings. It usually affects ducklings under 6 weeks of age and often much younger. The clinical disease is characterized by lethargy and ataxia followed by opisthotonos and death. Ducklings lose their balance, fall on their sides and kick spasmodically prior to death. Pathologically, the disease is characterized by enlargement of the liver and spleen and swelling of the kidneys with some congestion of renal blood vessels. This disease is on the list of diseases notified to the World Organization for Animal Health. The most common causative pathogen is a member of the newly proposed Picornavirus genus (Avihepatovirus) duck hepatitis A virus (DHAV). DHAV has been further divided into three serotypes or genotypes, including DHAV-1 (classical serotype 1), DHAV-2 (a serotype isolated in Taiwan) and DHAV-3 (a serotype isolated in South Korea and China) or DHAV genotypes A, B and C. Of these three DHAV types, the most virulent and widespread is DHAV-1, which can cause mortality of up to 95% in young ducklings within 1 week of age.

EPIDEMIOLOGY

DHBV is naturally transmitted in ova from an infected female duck to the egg, with virus replication occurring in the yolk sac and liver of the developing embryo, leading to immune tolerance and congenital DHBV infection. Congenital infection is likely further facilitated because DHBV infection is not cytopathic. DHBV infections are therefore maintained within flocks and it is not unusual in some commercial flocks to find the presence of DHBV infection in 100% of birds. DHBV infection can also be transmitted horizontally through parenteral exposure to infected blood and, since infection of adult ducks usually results in transient infection, duck flocks may contain a mixture of congenitally DHBV-infected and DHBV immune ducks.

Female ducks that are immune to DHBV will have anti-DHBs and anti-DHBc antibodies circulating in their bloodstream as well as in the egg yolk which they can pass to their ducklings providing the newly hatched ducks with temporary resistance to DHBV infection.

DIAGNOSIS

A presumptive diagnosis of duck viral hepatitis can be based on the history and lesions. Sudden onset, rapid spread, and short course, together with characteristic liver lesions, are highly suggestive of duck viral hepatitis. Confirmatory diagnosis of DVH requires detection of the viral etiological agent, usually from liver homogenate. Immunologic antibody detection tests have little value in the diagnosis of acute infection.

DHAV-1 may be isolated in duck embryos and duck-embryo liver cellcultures, or less easily in chicken embryos. The virus can also be identified by virus neutralization with specific antisera or by inoculation into both susceptible and immune day-old ducklings. DAsV-1 and DAsV-2 are not neutralized by classic DHAV-1 antiserum. DHAV, DAsV-1, and DAsV-2 can be identified by reverse transcriptase (RT) PCR. Several multiplex RT-PCR tests have been developed for differentiation of the DHAV genotypes.

VACCINATION AND BIOSECURITY

There is no specific treatment for duck viral hepatitis infection. Prevention and control is based on strict biosecurity and implementation of vaccination protocols. Strict isolation, particularly during the first 5 weeks of age, is recommended. Contact with wild waterfowl should be avoided. Rats have been reported as a reservoir host of the virus; therefore, pest control is indicated. Immunization of breeder ducks with modified-live virus vaccines, using DHAV, DAsV-1, and DAsV-2, provides parenteral immunity that effectively prevents high losses in young ducklings. The DHAV-1 vaccine is administered SC in the neck to breeder ducks at 16, 20, and 24 weeks of age and every 12 weeks thereafter throughout the laying period. Three immunizations are advisable for passive protection of ducklings.

Correspondence to: Arsalan Egbal, Department of Zoology, University of Inuka, Jacmel, Haiti, E-mail: Aegbal95@gmail.com

Received date: April 05, 2021, **Accepted:** April 19, 2021, **Published:** April 27, 2021

Citation: Egbal A (2021) Duck Hepatitis A Virus Type 1. *Poult Fish Wildl Sci*. 9:e115.

Copyright: © 2021 Egbal A. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.