Dead, Possibly Deadly, Ducks

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The case described is loosely based on a case submitted to UVDL. Details have been changed and added or omitted by the author.

In late spring, the owner of a small backyard flock of adult Muscovy ducks brought a dead duck to the Utah Veterinary Diagnostic Laboratory in Spanish Fork for necropsy. The duck was an adult female. The ducks were kept outside and had access to an irrigation pond which they shared with migrating birds. Nineteen of 20 of the ducks had died in a period of two weeks. The only clinical sign observed in some of the ducks was shaking of the head.

Gross lesions included an enlarged, friable, and pale liver with disseminated pin-point white foci, a dark red spleen, and an intestine distended with gray, foul-smelling fluid and multiple 1-2 mm white foci in the wall. No other gross lesions were detected.

Case Summary

Diagnosis: Duck viral enteritis (DVE)

Gallibacterium anatis and *Escherichia coli* were isolated from the liver. Histologic lesions included multifocal, necrotizing enteritis and hepatitis with intranuclear inclusion bodies in the liver. In addition, there was severe and multifocal lymphoid necrosis of the gut-associated lymphoid tissue, and multifocal fibrinous, necrotizing splenitis.

Based on the history and lesions, infection with duck viral enteritis (duck plague) was suspected. A liver sample from the duck was submitted to the National Veterinary Services Laboratories for confirmation and duck viral enteritis viral DNA was detected by real-time polymerase chain reaction.

Differential diagnoses that were considered included fowl cholera (*Pasteurella multocida*), necrotic enteritis (*Clostridium perfringens*), and coccidiosis.

Duck viral enteritis (DVE), also known as duck plague, is an alphaherpesvirus, and Muscovy ducks are highly susceptible to infection. Outbreaks in this species are often fatal in almost 100 percent of the birds in a flock. Secondary bacterial infections are common because of viral destruction of lymphoid tissue. *Gallibacterium anatis* is an opportunistic pathogen of poultry and other domestic birds and has recently been associated with heavy mortality and resistance to multiple drugs.

DVE has a worldwide distribution and is an acute, highly contagious disease. It causes significant mortality in ducks, swans, geese, and other waterfowl. Migratory waterfowl play an important role in transmission, and wild ducks are the suspected source of the virus in the case described here. (Mallard ducks are more resistant to infection and may be a reservoir of the virus.) The virus is transmitted horizontally by feco-oral transmission and sometimes vertically. The disease is characterized by sudden death, diarrhea, and internal hemorrhages. The head-shaking described in this case is one of the commonly described signs. Other signs described include depression, decreased appetite, increased thirst, weakness, ruffled feathers, nasal discharge, ocular discharge, and diarrhea.

Initially, the DVE virus replicates in the mucosa of the GI tract and then spreads to the bursa of Fabricius, thymes, spleen, and liver. After primary infection, virus becomes latent in the trigeminal ganglia, and reactivation may occur. Ducks that survive the initial infection may be carriers for months or even years. Duck viral enteritis can be enzootic in areas near major migratory flyways.

The first reported outbreak of duck plague in domestic ducks was in Netherlands in 1923. In commercial production, the disease causes significant economic losses (carcass condemned, decreased eggs, high mortality). The first U.S. outbreak was in a commercial facility in Long Island, New York in 1967. Estimated losses were $1 million. Another large outbreak occurred in South Dakota in 1973 in which 43,000 birds died or were euthanized. In the case described here, the ducks were pets, so the losses were emotional rather than economic.

There is no specific treatment for DVE. There are live attenuated and killed vaccines available for control of infection in commercial flocks. However, in this case, there was only one duck left alive in the flock, and it was humanely euthanized due to concern that the bird could be a carrier and spread the virus to other domestic flocks nearby and wild ducks. We do not have commercial duck production in Utah; however, there are many backyard flocks that may be at risk. Fomites such as feed vehicles, feeding dishes, and boots can spread the virus.

To our knowledge, this is the first reported case of DVE in Utah, and as of this writing, no other cases of DVE have been reported in the state.

References

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