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## Influenza in domestic ducks

Ducks which have been infected by LPAI viruses of varying subtypes rarely show clinical signs. If they do, the clinical signs are mild respiratory ones or weight depression.

In the field co-infections with bacteria are common. These are usually associated with a more severe clinical disease with lesions in the air sacs, lungs and sinuses. In uncomplicated LPAI virus infections the most common microscopic lesions are those of tracheitis, laryngitis and bronchitis. No lesions have been seen in the digestive tract or bursa of Fabricius. Cells containing AI virus antigen (infected by the virus) are commonly found in the trachea, larynx and bronchi.

Ducks infected by HPAI virus were rarely seen before H5N1 came to Asia. Deaths have been seen in experimental infections with H7N1 in ducks and neurological signs have been seen in Muscovy ducks.

## Pathobiology of H5N1 HPAI in ducks

The Gs/Gd-lineage H5N1 HPAI viruses develop the unique capacity among HPAI viruses to infect and cause disease in domestic ducks and wild birds in a variety of manifestations – ranging from asymptomatic infection to respiratory and digestive tract disease. Infection of ducks with three Thai isolates of H5N1 HPAI virus from 2004 caused mortalities of 50-75% and showed neurological signs.

Continued circulation of HPAI H5N1 in countries where H5N1 virus is endemic has created changes in H5N1 viruses making them more pathogenic. For example, in Egypt HA clade 2.2 h5N1 HPAI viruses have evolved so that some have become virulent to ducks. This phenomenon has also been seen in Vietnam but not in Indonesia where HA clade 2.1 viruses have circulated for many years and remained of low virulence to ducks.

## Clinical signs

The manifestation of clinical signs and lesions depends on the virulence of the H5N1 HPAI strain involved. With the less virulent strains clinical signs are very mild or absent. With the more virulent strains the clinical signs include listlessness, anorexia, weight loss, green diarrhoea, conjunctivitis, corneal opacity and neurological signs, including tremor, uncontrollable shaking, tilted head, loss of balance and paralysis.

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