

Definition

Avian encephalomyelitis is an infectious viral disease primarily affecting chicks and occasionally poults. Ataxia (loss of equilibrium), paralysis and tremors of the head, neck, or the whole body are observed. In adults, the virus causes a drop in egg production and embryo death in fertile eggs.

Synonyms

- Epidemic tremors
- AE

Cause

- A 20-30 nm diameter picornavirus that can survive for a considerable period in the poultry house.
- AE virus are enterotropic and are spread in feces.

Transmission

- Under natural conditions, infection occurs by fecal-oral transmission.
- In chicks, the virus replicates in Purkinje cells and the molecular layer of the cerebellum.
- The virus multiplies in the intestines and is shed in the droppings that contaminate the environment.
- Young chicks can shed the virus for more than 2 weeks.
- Since the virus is shed in droppings, the disease can be carried from infected flocks by both human traffic and contaminated equipment.
- Vertical transmission (egg transmission) is a prominent means of spreading the virus to young birds. When susceptible flocks are exposed after sexual maturity, the hens can shed the virus through the eggs, infecting the embryo.
- Infected breeder hens can shed the virus in eggs for 3-6 weeks. Affected birds usually come from breeders that had not been vaccinated.

Clinical Signs

- Clinical signs appear when chicks are 1-2 weeks of age.
- Affected chicks first show signs of dullness followed by ataxia. As the ataxia progresses, the chicks become uncoordinated; they tend to rest on their hocks and are reluctant to move.

Avian Encephalomyelitis (AE) of Poultry

- Fine tremors of the head and neck may be seen when the chicks are handled.
- Eventually, the chicks are incapable of moving and die from trampling, starvation and dehydration.
- There is a marked age resistance to clinical signs in birds exposed after they are 2-3 weeks of age; birds past the age of 8 weeks rarely show clinical signs. Mature birds may experience a temporary drop in egg production; humoral immunity is the reason for age resistance to AE.



Chicks with avian encephalomyelitis are ataxic and recumbent

Lesions

- Usually, no visible gross lesions are seen, but pale foci in the gizzard muscle can occasionally be observed.
- Birds that recover occasionally develop cataracts (opacity of the lens).



Bantam chick with AE exhibits head tremor

Diagnosis

- A tentative diagnosis can be made on the clinical signs, the flock history, and history of the breeder source.
- A positive diagnosis can be made based on serology tests, histopathology of the brain, or virus isolation and identification. The best tissues to collect in chicks for histopathology diagnosis are brain, pancreas and duodenum.

Treatment

- There is no effective treatment for acute outbreaks in chicks, but providing adequate feeding and watering facilities may reduce losses from starvation and dehydration.
- Cull severely affected chicks.

Prevention

- Vaccination of commercial breeder flocks is commonly practiced to **prevent egg production drops** and to **protect progeny through maternal antibody**.
- Breeder flocks should be vaccinated at least 4 weeks before onset of egg production.
- The AE vaccine can be administered (often in combination with poxvirus) by drinking water or by wing-web stick.