

## 8-Avian Adenovirus Infections (AADV)

Family: Adenoviridae

Genus: Aviadenovirus Group 1 → HHS (Serotype 4).  
→ IBH (Serotype 11).

Genus: Siadenovirus Group 2 → Hemorrhagic enteritis (turkey).

Genus: Atadenovirus Group 3 → EDS76 (Egg drop syndrome virus).

## 1-Hydropericardium Hepatitis Syndrome (H.H.S) (Angara disease)

\* **Definition:** it is acute infectious disease of chickens characterized by **high morbidity and mortality rate, excess pericardial fluid**, multifocal hepatic necrosis and present **basophilic intranuclear inclusion bodies** in hepatocytes.

\* **Etiology:** Pathogenic Group I Adenovirus Serotype 4.

\* The economic important difficulties to determine because the condition occur with other disease such as Velogenic ND, Mycoplasmosis, MD, Salmonellosis, IBD, CAV.

\* **Incubation period:** - is short (**24-48 hr.**).

\* **Synonyms:**

1-Angara disease.

2-Inclusion body hepatitis-hydropericardium.

**\* Host Susceptibility:**

**Immature** chickens are the natural host and most commonly in **3-5 weeks** of age of broiler.

**\* Transmission:**

1-Vertical.

2-Horizontal transmission by carrier.

3-Commercial transmission.

Viral replication in the **intestine tract** and the contamination occur by **feces** in clothes, foot wear, equipment, vehicles.

4-**Contaminated vaccine** prepare in embryo derived from infected flock may also source of infections.

5-There is evidence that needle or plate use in vaccination and bleeding of viremic birds if not sterile can transmit infection.

**\* Morbidity and Mortality rate:-**

Duration of infection usually ranged from **9-14 days** with morbidity rate (**10-30%**) and **mortality 30-70%** depending on the preparing and titer of virus and route of administration, the **daily mortality 3-5%**.

**\* Clinical Signs:**

Flocks with HHS show no specific clinical signs.

1-**sudden death**.

2-Ruffled feather.

3-**yellow muroid** drooping are characteristic.

4- Severe **anemia** (because bone marrow affected) in affected birds.

**\* Gross lesion:**

1-The most **characteristic lesion** is presence of up to **10ml of clear transudate** in the **pericardial sac**.

2-Liver and kidney are usually **enlarge**, pale, friable, hepatic necrosis.

3-**Petechial hemorrhage** may be present on the pericardium and under the capsule of liver.

4-Congestion and pulmonary edema.

**\*Microscopic lesions:-**

- 1-The lesion in heart consist of **myocardial edema**, degeneration and necrosis with mild mononuclear cells infiltration.
- 2-Multifocal **coagulative necrosis** with mononuclear cells infiltration and **basophilic intranuclear inclusion bodies in hepatocyte** in liver.
- 3-May be extensive areas of necrosis in renal epithelium.

**\*Diagnosis:**

- 1- Case history.
- 2-clinical signs.
- 3-Gross lesion.
- 4-laboratory test.
- 5-Can be done by histological demonstration of **basophilic intranuclear bodies in hepatocytes**, it consider highly suggestive of HHS.
- 6-To confirm the diagnosis by isolated by infected embryonic chick liver in egg of chicken.

**\*Treatment:-**

- 1-There is no specific treatment of HHS.
- 2-Using **Iodophore(0.07-1)% of 2.5%** in drinking water of affected flock to reduce mortality and severity of disease.

**\*Prevention andControl:-**

- 1-Management procedure.
- 2-**Vaccination (killed vaccine).**