# Duck plague virus

Dr. Savita Kumari
Department of Veterinary Microbiology
Bihar Veterinary College, BASU, Patna

# Anatid herpesvirus 1
# (Duck viral enteritis virus/ Duck plague virus)

- Belongs to genus *Mardivirus*, subfamily *Alphaherpesvirinae* and family *Herpesviridae*
- Field strains of this virus display differences in virulence
- DVE virus may undergo latency like other herpesviruses, and the trigeminal ganglion seems to be a latency site for the virus
- Recovered birds may carry the virus in its latent form, and viral reactivation may be the cause of outbreaks in susceptible wild and domestic ducks
- Causes Duck viral enteritis, also called duck plague

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- Occurs worldwide among domestic and wild ducks, geese, swans and other waterfowl
- The infection has not been reported in other avian species, mammals or humans
- In domestic ducks and ducklings, DVE has been reported in birds ranging from 7 days of age to mature breeders
- In ducklings 2–7 weeks of age, losses may be lower than in older birds

- Migratory waterfowl contribute to spread within and between continents
- Ingestion of contaminated water is believed to be the major mode of transmission
- The virus may also be transmitted by contact
- Viral replication begins in the digestive track and moves to bursa of Fabricius, thymus, spleen and liver
- Incubation period is 3-7 days

## Huge economic losses

Due to:

– acute nature of the disease

– increased morbidity and mortality (5%-100%)

– condemnations of carcasses

– decreased egg production and hatchability

# Clinical symptoms

- Sudden and persistent increases in flock mortality is often the first observation
- Anorexia, listlessness, nasal discharge, ruffled dull feathers, adherent eyelids, photophobia, extreme thirst
- Ataxia leading to recumbency without stretched wings and with head extended forward, tremors, watery diarrhea, and soiled vents
- Sick wild ducks often conceal themselves and die in vegetation at the water's edge

# Clinical symptoms

Depression_and_mild_dyspnea

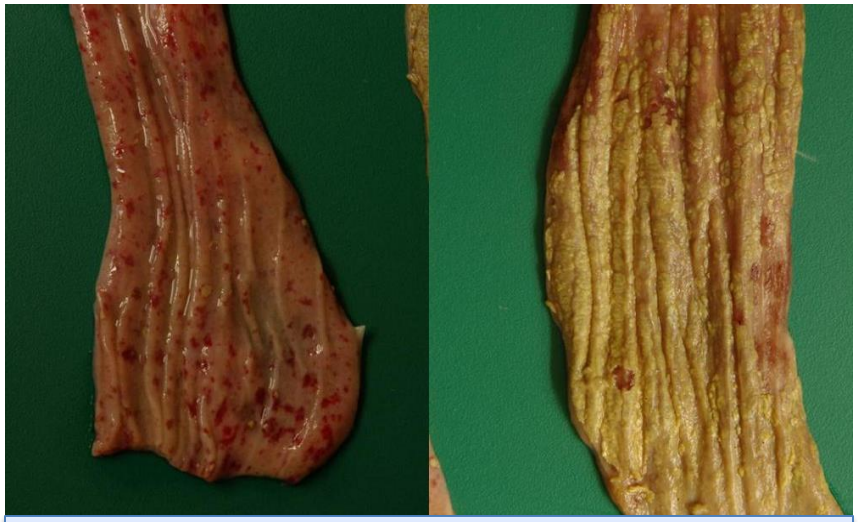
Bird dying from duck plague


Ocular discharge

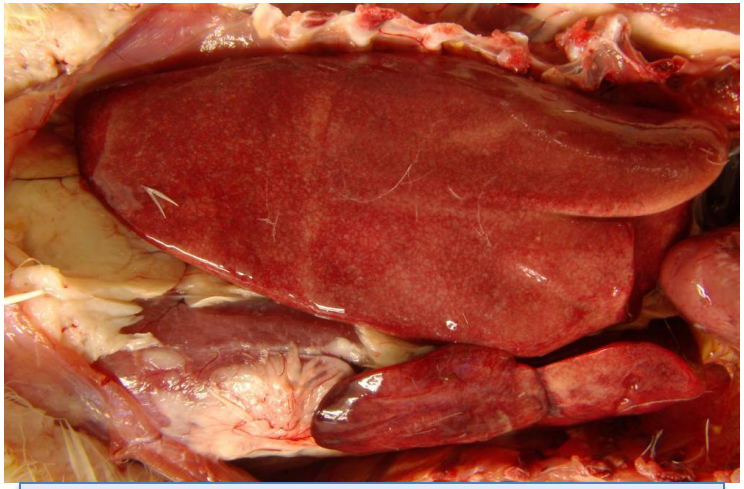
## Lesions

- The virus induces vascular damage:
  - This results in development of generalized hemorrhages
  - Progressive degenerative changes of parenchymatous organs
- Commonly there is multifocal ulceration of mucosa of gastrointestinal tract
- Multiple pale foci of necrosis in spleen and liver
- Lesions in lymphoid organs

# Lesions

Hemorrhages(Lt.), diphtheritic membrane of esophagus (Rt.)



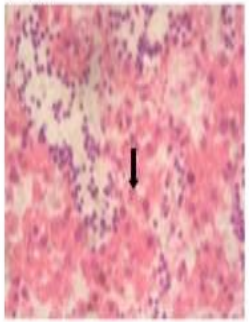
Petechiation on liver

Mottled thymus (petechiae and necrotic)

# Diagnosis

- Clinical findings- suggestive of duck viral enteritis
- Finding of herpesvirus inclusion bodies in tissues of affected birds with immuno-histochemical staining of viral antigen
- Virus may be isolated from specimen of liver, spleen kidneys and intestines
- Viral DNA detection by PCR
- Virus isolation in 1-day-old Muscovy or white Peking ducks or by inoculation of chorioallantoic membranes of 9-14 day-old embryonating duck eggs

I/C, I/N inclusion bodies in DE liver



Haemorrhagic CAM of duck embryo

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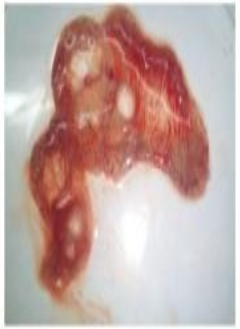

Haemorrhagic reddish duck embryo

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- Duck viral enteritis must be differentiated from
  - Hepatitis caused by picornavirus or astrovirus infections -- Newcastle disease and avian influenza

**Control-**

- By use of live-attenuated virus vaccines in affected commercial operations
- Strict isolation of infected flocks
- Preventing exposure to wild waterfowl and contaminated water
- Screening of new stock should be performed to prevent disease