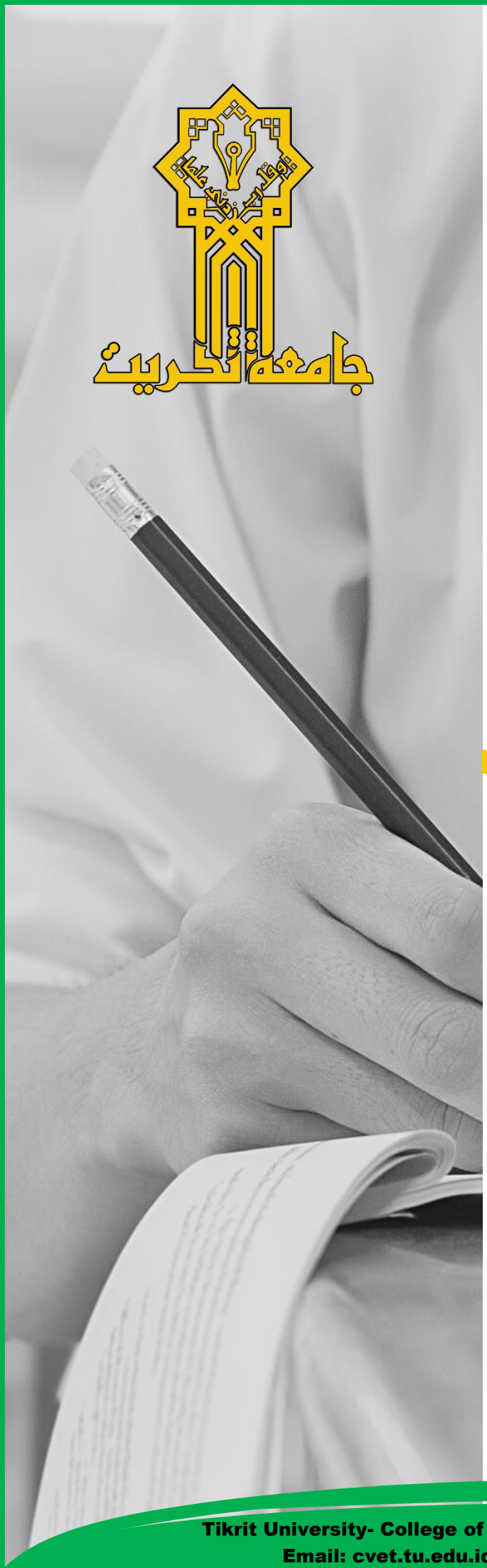

Tikrit University
College of Veterinary Medicine

Atadenovirus (EDS Related)

Subject name: Poultry Diseases

Subject year:2024-2025

Lecturer name: Ismael I. Hasan

Academic

Email:ismailhasan@tu.edu.iq

Lecturers link

Atadenovirus

Egg Drop Syndrome of Chickens and Related Infections

Summary

Egg drop syndrome-76 (EDS) virus was originally designated as the sole member of the subgroup III avian adenoviruses. In 2005 it was reclassified as a member of the genus Atadenovirus of the Adenoviridae family Egg drop syndrome affecting the oviduct of laying chickens. The virus, which originated in ducks, is transmitted vertically and laterally and causes production of pale, thin-shelled, and shell-less eggs.

Public Health Significance:

The virus affects only avian species and, therefore, has no public health significance.

Replication

In cell culture, EDSV replicates in the nucleus, producing intranuclear inclusions in a similar fashion to aviadenoviruses (1–3). In vivo, EDSV replicates in epithelial cells of the infundibulum, tubular shell gland ,pouch shell gland, isthmus, and in nasal mucosa and spleen of experimentally infected hens.

Susceptibility to Chemical and Physical Agents

Resistant to chloroform and variations in pH between 3 and 10. The virus was inactivated by heating for 30 minutes at 60 °C, survived for 3 hours at 56°C, and was stable in the presence of monovalent but not divalent cations. Infectivity was not demonstrated after treating with 0.5% formaldehyde or 0.5% glutaraldehyde.

Clinical Signs:

1- The first signs of disease after 7–9–17 days.
2- Loss of eggshell pigment.
3- Production of thin-shelled, soft- shelled, or shell-less eggs.
4- Thin-shelled eggs were often rough, with a sandpaper-like texture, or had a granular roughening of the shell at one end of the egg.
5- There was no effect on fertility or hatchability.
6- The fall in egg production was very rapid or extended over several weeks.
7- Outbreaks usually lasted 4–10 weeks, and egg production was reduced by up to 40%.

8-If disease was due to reactivation of latent virus, the fall usually occurred when production was between 50% and peak.

9-Watery albumen has been described

10-Birds infected at one day of age produced apparently normal eggs except for impaired albumen quality and smaller size. If birds were infected in the late stages of egg production and force molted, egg production was normal on resumption of laying.

11-Different clinical syndrome is seen if some birds have acquired antibody before latent virus is reactivated.

12-The transient diarrhea described.

13-Egg drop syndrome virus does not cause clinical disease in growing chickens in the field.

14-Oral infection of susceptible day-old chicks resulted in increased mortality in the first week of life.

Gross (P.M.) lesions:

1-Mucosal edema and exudate within the pouch shell gland (PSG) commonly occurred within 9– 14 days PI.

2-Mild splenomegaly, flaccid ovules, and eggs in various stages of formation in the abdominal cavity.

3-In naturally occurring outbreaks of EDS, inactive ovaries and atrophied oviducts were sometimes present.

4-Uterine edema

Histologic changes (Microscopic Lesions):

1-The major pathologic changes occurred in the PSG.

2-Virus replication occurs in the nuclei of surface epithelial cells, and intranuclear inclusion bodies were detectable from seven days.

3-Many affected cells were sloughed into the lumen, and there was a rapid and severe inflammatory response with mucosal edema and heterophilic infiltration of the epithelium and lamina propria, together with macrophages, plasma cells, and lymphocytes, in the lamina propria. 4-Inclusion bodies were not seen after the third day of abnormal egg production, but viral antigen persisted for up to one week.

5-As lesions progressed, heterophils were less common and the mononuclear cells dominated

6-The sloughed surface epithelium was replaced initially by squamous to cuboidal epithelium. with rapid return to the normal pseudostratified, ciliated, columnar epithelium.

7-In some recovering and recovered birds which were producing normal eggs, a few areas of surface cuboidal epithelium and a few lymphoid aggregates or minimal loose infiltrates of lymphocytes and plasma cells persisted.

8-Most descriptions of the pathology of birds from naturally occurring disease outbreaks do not include the finding of inclusion bodies or the acute inflammatory and necrotizing phase of the disease.

9-Due to the transient nature of these lesions and the difficulty in finding acutely affected birds among the thousands of birds which may be present in an affected flock, where not all birds will have been infected simultaneously.

Diagnosis:

1-Clinical signs and gross and histologic lesions. 2-virus isolation

3- PCR.

4-Serology

Differential Diagnosis

1-ND,IB,Reo

2-Metabolic diseases

3-Marek's disease

Treatment

1-Antibiotics:
2-Anti-inflammatory:
3-Supplements:

Prevention and Control (Intervention Strategies):

1- Management Procedures: (….)

2-**Vaccination:**

- Oil-adjuvant inactivated vaccines are widely used and give good protection against EDS.
- Birds are usually vaccinated between 14 and 16 weeks of age.
- If uninfected birds are vaccinated, HI titers of 8–9log2 can be expected.
- If the flock has been exposed previously to EDSV, HI titers of 12–14 log2 may be found.
- A HI antibody response can be detected by the seventh day after vaccination, with peak titers achieved between the second and fifth weeks.
- Vaccinal immunity lasts at least one year.