

Clostridial Diseases

There are four clostridial diseases of Poultry:-

1-**Ulcerative Enteritis** (UE) caused by Clostridium Colinum.

2-**Necrotic Enteritis** (NE) caused by Clostridium perfringes.

3-**Gangrenous Dermatitis** (GD) caused by Clostridium perfringes or Clostridium septicum.

4-**Botulism** caused by Clostridium botulinum.

1-Ulcerative Enteritis (U.E) or Quail Disease

***Definition:** it is acute bacterial infection in young chickens, turkeys and characterized by sudden onset and rapidly increasing mortality.

*The disease was **first** seen in quail, therefore **called quail disease**.

***Etiology:** - caused by Clostridium Colinum, **gram positive**, large rod, nonmotile, **spore forming**, and aerobic bacteria.

***Epidemiology:-**

1-U.E is found in wide range of avian hosts but **quail** are the most susceptible species.

2-It is more frequently seen in **young birds**, it is occur in chickens and quail (4-12weeks), turkeys (3-8 weeks).

3-The outbreaks in chickens are often following **coccidiosis**, **chicken infectious anemia**, **Infectious bursal disease** (IBD) and **other stress condition**.

***Transmission:-**

The disease transmitted through **droppings**, birds infected by **ingestion** of **contaminated feed, water and litters**, because the organism produce **spores**, resulting in **permanent contamination of premises** after outbreak has occurred.

***Morbidity and Mortality rate:-**

- 1-The course of disease in flock generally **lasted about (3weeks)** with a peak of mortality occurring at **(5-14 days) postinfections (PI)**.
- 2-The mortality in **chicken** may range from **(2-10%)**, but in young quail high 100%.

***Clinical Signs:-**

- 1-The birds from acute disease dying (**sudden death**) usually **well muscles** and **fat** and have **feed in crop**.
- 2-They may exhibit watery white diarrhea as UE progress.
- 3-Infected bird become listlessness and the **eye partially closed**.
- 4-Ruffled feathers.
- 5-**Emaciation** with **atrophy of pectoral muscle** is seen in birds affected **1week** or longer.

***Gross lesion:-**

- 1-**Acute lesions** characterized by marked **hemorrhagic enteritis**, in duodenum, small **petechial hemorrhage** may be visible through serosa of intestinal wall.
- 2-The bird which **survive for several days** show **necrosis and ulceration** which may occur in any portion of **intestine and ceca**.
- 3-The early lesions characterized by **yellow small foci** with **hemorrhagic borders** on serosal and mucosal surfaces.
- 4-As ulcer increase in size, the hemorrhagic borders tends to disappear.
- 5-The **ulcer** maybe roughly circular in outline and it maybe **superficial with raised edges**.

6-**Ulcers in ceca** have a central depression filled with **dark staining** material that **cannot be rinsed off**.

7-**Perforation** of the ulcer frequently occurs, resulting in **peritonitis** and **intestinal adhesion**.

8-Liver lesions vary from **yellow mottling** to **large irregular yellow areas** along the edges of liver or **gray foci** or small yellow foci which sometime surrounded by pale yellow hallow.

9-The lesion of UE in chicken is similar to that produced by Eimeria brunette.

10-The characteristic lesions in turkey are **necrotic diphtheritic membrane** occupied the middle third of intestine.

***Diagnosis:-**

1-The presence of typical **intestinal ulceration** and **necrosis of the liver** and enlargement, hemorrhagic spleen.

2-As aid in diagnosis, necrotic liver tissue can be crushed between two slides, fixed by heat and stain by Gram's stain → **large G+ rods, subterminal spore** and **free spore** can be seen.

3-Fluorescent Abs technique.

4-Agar gel diffusion test.

5-Isolation of causative agent.

***Differential Diagnosis:-**

Similar diseases that must be differentiated from UE are:-

1-Coccidiosis.

2-Necrotic enteritis.

3-Histomoniasis.

1- Coccidiosis. The disease in chickens, turkeys occurs together with UE.

It is important that differentiate between coccidiosis and UE be made because medication for each disease is distinct.

2- Necrotic enteritis. Can be differentiating by gross and histopathologic lesions.

3- Histomoniasis. It produce caseous cores in ceca and necrotic areas of varying size in the liver, while in UE, cecal ulceration and liver necrosis can distinguished from histomoniasis.

*Enlarged hemorrhagic spleen and intestinal ulcerations are characteristic of UE.

*Histologic examination of liver or ceca will reveal histomonas.

***Treatment:-**

1-Sulfonamides (unsuccessful).

2-Streptomycin, at level of **60g/ton** of feed or **1g/gal of water**.

3-Chemotherapeutics drugs (Furazolidone, chlortetracycline) have efficacy for controlling UE in quail

4-Penicillin, ampicillin.

5-Ulcerative enteritis can be prevented and/or controlled through medication by either drinking water or feed.