



Tikrit University
College of Veterinary Medicine

COCCIDIOSIS

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Lecturers link

COCCIDIOSIS

Definition:

Is one of the most important protozoan parasitic diseases that infected avian species , like chickens, turkeys , pheasants and quails. Also its one of the important problems which cause economic losses in poultry industry.

Emirian:

A single, mature oocyte (egg) contains four sporocysts, and each sporocyst contains two sporozoites (eight sporozoites in each oocyte).

Etiology:

Coccidiosis is caused by protozoa, unicellular parasites. In chickens there are 9 different species of coccidian of which the main 5 are *Eimeria acervulina*, *Eimeria necatrix*, *Eimeria tenella*, *Eimeria maxima* and *Eimeria brunette* .another types of coccidian : *E. mitis*, *E. praecox*, *E. hagani*, *E. mivati*.

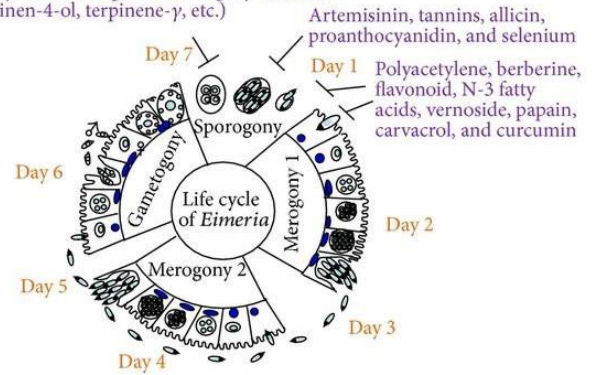
Susceptibility:

Chickens, Turkeys ,Pheasants' and Quails are Susceptible for infection.

Life cycle:

1. The life-cycle is short and starts with the bird ingesting sporulated oocysts
2. The mechanical and acidic factors lead to release of the sporocysts and sporozoites into the gut.
3. The sporozoites invade the duodenal mucosa epithelial cells and multiplication for release of merozoites.
4. Merozoites develop within the duodenal cells as gametes, which develop to two form both macro- and microgametocytes.
5. These merozoites develop into a zygote and then an oocyst which is shed in the feces
6. These oocysts require moist and oxygen to become sporulated infective oocysts, this process requires takes about 24 hours .

Artemisinin and essential oils (β -thujone, 1,8-cineol, p-cymene, cineol, α -pinene, bornyl acetate, eugenol and eugenyl acetate, terpinen-4-ol, terpinene- γ , etc.)



Transmission:

An Oocysts can be transmitted mechanically by clothing, contaminated equipment and litter.

Factors contributing to outbreaks of clinical Coccidiosis include:-

1. Litter moisture up 30% due to ingress of rain or leaking waterier.
2. Immunosuppression (Marek's disease, IBD, mycotoxins, CAV and Reo)
3. Poor mixing of the anticoccidials in feed.
4. Bad ventilation.

The sporozoites released by:

1. Bile salt.
2. Trypsin.
3. Action of the gizzard.

We can be classified the Emirian depending on the pathogenicity from most to lose pathogenic :

1. *E. necatrix*. \Rightarrow most pathogenic
2. *E. maxima*.
3. *E. tenella*.
4. *E. brunette*.
5. *E. acervulina* \Rightarrow lose pathogenic

Clinical Signs:

1. Bloody diarrhea.
2. Pale combs and wattles because blood loss in gut.
3. Ruffled feathers and depression.
4. Mortality rate may increase, particularly in caged pullets.
5. Decreased egg production.

P.M. lesions:

Lesions vary depending on what species of Emirian are involved:

1. ***Eimeria acervulina***: white “tiger-striping” of upper small intestine (duodenum)
2. ***Eimeria necatrix***: Jejunum and ileum: White spots (large schizonts) in mucosa with mucus and blood in lumen.
3. ***Eimeria tenella***: Hemorrhage in colon and cecum progressing to cores of coagulated blood in lumen of the cecum.
4. ***Eimeria maxima***: the jejunum may look thickened and ballooned with Orange, mucoïd material in the lumen.
5. ***Eimeria brunetti***: Mucus and blood in ileum, cecum, and colon.

Diagnosis:

1. Gross lesions of ***Eimeria acervulina***, ***E. tenella***, ***E. necatrix***, ***Eimeria maxima*** and ***E. brunette*** are diagnostic.
2. Intestinal scrapings should be examined for oocysts. The site and degree of lesions and size and shape of oocysts and schizonts are all used to differentiate between *Eimeria* species.

Treatment:

1. Administration of Amprolium solution, 125 mg/ Litre of drinking water for 3 - 5 days.
2. Sulpha based antibiotics can be used to treat chicken coccidiosis.
3. The cage should be cleaned thoroughly daily and then disinfected.
4. Administration of water dispersible vitamin A and K supplements.

Control and Prevention of Coccidiosis in Poultry:-

- 1-Use the nipple drinkers to reduce spillage of water onto litter instead of plastic drinking bowls.
- 2-Add anticoccidials into chick's diets very important for the first month of the life since her immune system hasn't fully developed.