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Poultry Coccidiosis

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ABSTRACT

Coccidiosis is a protozoan parasitic disease of poultry. The causative agent is the genus Eimeria, which multiplies in the intestinal tract of poultry and damages the tissue, leading to hemorrhagic enteritis, bloody dropping, loss of blood, and death. This article aimed to describe briefly what is poultry coccidiosis how transmitted, main clinical signs, diagnosis, and control. Because coccidiosis causes economic losses in poultry farms mainly in broiler farms due to rapid morbidity and mortality.

1. Introduction:

Poultry coccidosis is the most serious protozoan illness affecting poultry, which is caused by intracellular protozoan parasites under the kingdom Protista and genus Emeria (1). Six pathogenic species of Eimeria infect poultry including *Emeria necatrix, Emeria tenella, Emeria arcevulina, Emeria maxima, Emeria mivati,* and *Emeria brunette,* and the first two species are considered the most pathogenic species (2). Eimeria species are host-specific and site-specific (3). Coccidiosis causes considerable economic losses around the globe and is characterized by bloody diarrhea. Most tropical and subtropical areas of the world are affected by this disease, which is spread via the fecal-oral route. Young chicks and birds are frequently more affected (4). Eimeria species are multiplying in the gastrointestinal tract (intestine) and damage the tissue, which interrupts eating and absorption of nutrients, loss of blood, decreases the immune system of birds, and increases the susceptibility to other pathogens (5).

2. Risk Factors:

The lack of disposal facilities and humidity are potential risk factors for the outbreak of coccidiosis. There are other factors such as litter moisture levels that are more than 30%, inhabitation of the immune system, inadequate inclusion of Anticoccidials in feed, stress from the environment, and management can also contribute to outbreaks of coccidiosis as shown in Figure 1 (6, 7).

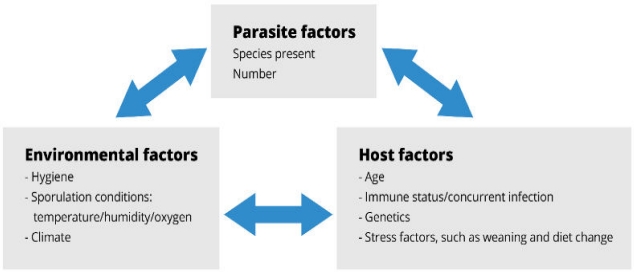

Figure 1: Risk factors associated with outbreaks of coccidiosis in poultry (7)

3. Transmission of Coccidiosis:

Poultry coccidiosis is transmitted by fecal-oral route. Coccidiosis is transmitted by direct and indirect contact with the droppings of infected birds. It can be also spread among poultry by the ingestion of contaminated food or drinking contaminated water with infective feces containing the infective stage (sporulated oocysts) (8).

4. Clinical Manifestations:

There are two forms of disease clinical and sub-clinical forms. The first form of disease is characterized by rapid mortality and morbidity, depression, bloody feces, dehydration, and a decrease in feed intake (1). The second form of the disease damages the intestinal epithelial cells without clinical signs. Subclinical coccidiosis decreases the absorption of food and results in a decrease in body weight, and a decrease in feed conversion (9). Approximately 80% of the economic losses from coccidiosis in poultry are related to subclinical form of coccidiosis.

5. Diagnosis:

The first step of the diagnosis of coccidiosis depends on the main clinical sign (Blood diarrhea) and microscopic examination of poultry's dropping for detection and identification of sporulated oocysts (10).

The second step of the diagnosis of coccidiosis depends on the gross lesions as in the case of *E. tenella* characterized by the accumulation of blood in the case and bloody droppings, and in case of *E. necatrix,* characterized by the presence of small white spots in intestine, in the case of *E. acervulina* and *E. mivati* presence of several whitish array in the upper part of the intestine, and case of *E. brunette,* there is thickening of the intestinal wall and catarrhal enteritis on entire intestine (4)

6. Differential Diagnosis:

Differential conditions of coccidiosis are (11):

- Necrotic enteritis
- Haemorrhagic enteritis
- Histomoniasis
- Salmonellosis

7. Treatment:

Treatment of coccidiosis depends on the following steps (12):

- Anticoccidial drugs such as Amprolium and Toltazuril with Vitamin K are used to control the outbreaks of coccidiosis for three days.
- Antibiotics it is necessary to give after the course of anticoccidial agents for 3-4 days to prevent secondary bacterial infections such as Amoxicillin or Tylosin
- Given vitamins and electrolytes with drinking water

8. Prevention: Control and Prevention:

Effective methods to prevent clinical coccidiosis include good farm management, litter hygiene, the use of anticoccidial agents before infection, and the use of vaccinations where necessary to minimize the spread of oocysts on farms (13).

Conclusion:

Coccidiosis is considered the one main cause of disease and economic losses in the chicken industry throughout the world. This article discussed the effect of management, the use of vaccines, and the control of Eimeria species causing poultry coccidiosis.

Recommendations: It has been demonstrated that effective litter management and ventilation reduce sporulation of oocysts and multiplication, while also maintaining the proper moisture level to prevent extremely dry litter.

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