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Cecal Coccidiosis In Kadaknath Breed Of Poultry And Its Management

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ABSTRACT

Coccidiosis is the most important protozoan disease of poultry which is caused by the intracellular parasite of genus *Emeria* resulting in significant worldwide economic losses. This disease is endemic in most of the tropical and subtropical regions of the world and transmitted through feco-oral route. As Kadaknath breed of poultry is very resistance against many disease but we here received a case of coccidiosis . It commonly affects young chicks and chickens managed under intensive rearing system. In present case the kadaknath breed was infected with coccidiosis that characterized by bloody diarrohea, off feed, depressed with low mortality. Postmortem finding includes thickening of intestine, hemorrhage particulary in ceca and catarrhal- necrotic enteritis. The ingested content of ceca was severely blood tinged. Present case was diagnosed based on history, clinical signs, post mortem finding and cecal mucosa scapping examination. On microscopic examination of cecal mucosa scrapping Coccidial oocyst was clearly visible in bunch. Though the kadaknath breed has high immunity compared to other commercial poultry the case of coccidiosis was reported. It can be prevented and controlled by prophylaxis and immunization of chickens, selection of genetically resistant chickens and use of natural feed additives and good managemental practices including good hygiene and bio security measures should be applied for the control and prevention of the disease.

Keywords: *Emeria*, coccidiosis, poultry, diarrhea, clinical signs, post mortem

1. INTRODUCTION

Over a decade, the world has been experiencing a continuous growth in human population. To meet their basic food demand, poultry sector is required. These food carries basic human needs as its availability determines the existence of human population (Erb et al., 2012). In view of this, much demand has been on the agricultural and its allied sector of each nation to increase food production that is safe for human consumption that will meet the ever-growing human population. Poultry industry is one of the fastest growing sector that contributes to global nutrition (Mottet and Tempio, 2017) and thus a major driving force of the economy. Chicken, a major poultry bird contributes greatly to agricultural production through the supply of meat and eggs (Hald, 2010).

Rural poultry farming using native breeds is being practiced in many developing and underdeveloped countries throughout the world (Vali, 2008; Magothe et al., 2012 and Haunshi et al., 2013). Importance of native birds for rural economy is immense in different countries (Besbes, 2009; Ekka et al., 2018). Kadaknath breed, also known asKalamashi/Kali Masi ("fowl having black flesh")is very famous for its black-colored meat. It is being reared in different region including the state of Madhya Pradesh. The meat of the Kadaknath breed contains high percentage of protein (Mohan et al., 2008) and are well known for their tropical adaptability and disease resistance Unemployed youth and women can also earn an income through kadaknath farming (Sahu et al., 2019).

However, chickens are also host to many deadly diseases which hampers productivity and compromise welfare resulting in high mortality in some cases. Coccidiosis and NE are 2 major enteric disease concerns in broilers because of their association with decreased performance, increased mortality, reduced welfare, and a higher risk of poultry product contamination. Among many other diseases that affect commercial poultry sector globally, coccidiosis is associated with high level of mortality (Blake and Tomley, 2014). Chicken coccidiosis is an enteric disease that impairs growth and suppresses the immune system resulting in high mortality. The disease is caused by a protozoan parasite of genus *Eimeria* which consist of over 1000 species (Blake, 2015). Identification specific coccidian inducting agent (*Eimeria)* is important as it provides the bedrock for effective control measure. Morphological approach based on microscopic examination of oocyst and some parasitological parameters were used in the identification of *Eimeria* species (Long and Joyner, 1984). The control measure against this protozoan parasite has been through the use anticoccidial drugs, vaccines and strict management practice (Godwin and Morgan, 2015). However, the emergence of

resistant strains has threatened the effectiveness of these anticoccidials necessitating a modification in the present control method. Thus, the present case report describes the macroscopic pathology of coccidiosis in Kadaknath breed of chicken to facilitate its early diagnosis that leads in controlling mortality further.

2. MATERIALS AND METHODS

Case History

Poultry farm's owner residing at Rewa district of Madhya Pradesh, India was reported with a history of bloody diarrhea in Kadaknath breed of chicken along with high mortality of birds from the different flock. According to the farmer, most of birds were more than 20 weeks old and were reared in deep litter system with sawdust as litter materials. The owner complaint that there was a history of bloody diarrhea in kadaknath bird reared in adjacent to other Narmadanidhy poultry farm. The birds showed the acute clinical signs as presence of diarrhea with blood tint in faeces, decreased feed intake, emaciated, dehydrated, ruffled feathers, closed eyes, in-appetence, dullness and depression.

3. RESULTS

In the necropsy findings, the dead birds showed the thickening of the intestines, duodenum appeared congested with catarrhal inflammation (Fig1), enlargement of ceca with bloody content (Fig 2) and hemorrrhagae in ceca and blood tinged ingeta filled in that (Fig 3). Based on the history, clinical signs, post-mortem examination and scrapping of cecal mucosa was examined, it showed large number of oocyst of *Emeriasps* with clotted blood cells (Fig 4) the disease was diagnosed with confirmation as caecal coccidiosis.

The lesions of coccidiosis is generally confined to the intestinal tract. This include thickness of the intestinal wall, mucoid to blood-tinged exudates, petechial hemorrhages, necrosis, hemorrhagic enteritis and mucous profuse bleeding in the ceca (McDougald and Hu, 2001). *Eimeria*, the most common pathogenic species affects the poultry industry globally with 100% morbidity causing bloody caecal coccidiosis (Hadipour et al., 2011).There may belight colored spots on the surface of the gut with hemorrhages and streaks. The type and locations of lesions in the gut indicates the species of genus *Eimeria* (Fanatico, 2006). In the present case, the affected birds were 10 weeks old which were in close agreement earlier reports (Dakpogan and Salifou, 2013). There may be blood in the lumen of the gut indicating blood loss (hemorrhage), or merely retention of an excessive amount of blood in the tissue (hyperemia). There was also infiltration with various body reactions and the development of immune response (Marquardt et al., 2000).

Prevention of poultry coccidiosis can be achieved in a much easier way than treatment. It can be prevented by good managemental practices (Ashenafi et al., 2004). It can also be controlled mainly by drugs and also an effective vaccine is now available for breeders or layer replacements. Drugs have been very effective in controlling coccidiosis but the emergence of anticoccidial drug resistance has affected the usefulness of these drugs. Therefore, apart from the use of drugs, control is now based on hygiene, vaccine and genetics. But genetics is a theoretical strategy and not in practical use (Jordan et al., 2002).

A combination of good management and the use of anticoccidial compounds in the feed or water are the best way to prevent avian coccidiosis. Litter should always be kept dry and special attention should be given to litter near water fonts or feeding troughs (Taylor et al., 2007). Good ventilation, clean and dry litter, cleaning and decontamination of feeders and drinkers, and proper stocking density of poultry farms are the key managemental practices for prevention of the disease (Ashenafi et al., 2004). Special care is needed in rainy season when moisture is prevalent along with suitable temperature for sporulation of oocysts. In case of clinical outbreaks, it is essential to remove and isolate the clinically affected birds because they excrete oocysts every day, thus endangering the health of other birds (Roy, 2007).

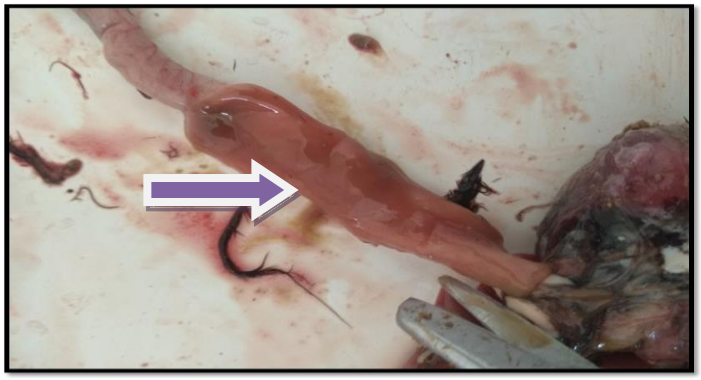

Fig 1: Duodenum appears congested with catarrhal inflammation

Fig 2: Enlarged ceca with bloody content and haemorrrhagae in cecal tonsil

Fig 3: Haemorahgic ceca with blood tinged ingeta

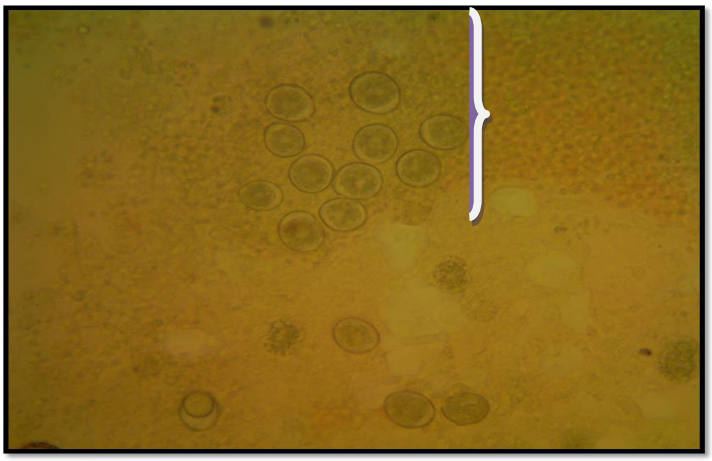

Fig 4: Scapping of cecal mucosa shows large number of oocyst of *Emeriasps*with clotted blood cells

4. CONCLUSIONS

As the world population continues to grow tremendously and the challenge to achieve quality animal protein food is increased, that's why improving understanding and control of economically significant pathogens of livestock remains essential.

Chicken coccidiosis is a persistent problem in India and the cost of coccidiosis is very high, that is due to losses during production by low feed conversion rates and costs for prevention and control. Most of the chickens were asymptomatic but showing. In addition, local chicken breed, kadaknath showed less prevalence and pathological lesions than commercial broiler and layer. This study also pointed out that very high resistant kadaknath birds also showed severe lesions once get infection but with low mortality rates.

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