CASE REPORT
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THEILERIOSIS IN CROSSBRED DAIRY CATTLE OF SOUTHERN HARYANA AND ITS SUCCESSFUL THERAPEUTIC MANAGEMENT

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ABSTRACT

Theileriosis in bovines leads to economical burden to livestock farmers due to mortality, treatment costs and diminished productivity of affected animals. This manuscript reports about diagnosis of theileriosis in crossbred dairy cattle of Southern Haryana and its successful therapeutic management. Blood samples were received at Disease Investigation Laboratory, Lala Lajpat Rai University of Veterinary and Animal Sciences, Mahendragarh, Haryana from crossbred dairy cattle of Southern Haryana having a clinical history of fever, anorexia, weakness, anaemia and lymphadenopathy. Out of 34 suspected blood samples of cattle received, 11 samples were found positive for theileriosis by the identification of piroplasms in erythrocytes. The positive animals were treated with buparvaquone along with supportive therapy. The affected animals were found as recovered from fever and become normal within a week of treatment. The timely diagnosis and early treatment for haemoprotozoan infections can reduce the mortality rate as well as morbidity rate among the valuable livestock.

Keywords: Cattle, Haemoprotozoans, Haryana, Piroplasm, Theileriosis

INTRODUCTION

Theileriosis, the tickborne haemoprotozoan disease of bovines is caused by *Theileria* species (OIE, 2008). The tropical theileriosis caused by *T. annulata* is a frequent fatal disease in bovines having significant economical impact in livestock sector of India (Bhatnagar *et al.,* 2015). It is transmitted by tick *Hyalomma anatolicum*. A mortality rate of 80% in susceptible animals due to tropical theileriosis is reported by Kumar *et al.* (2018). The mortality due to theileriosis is highest in summer and rainy season due

to higher exposure to infected and active ticks at this season (Singh *et al.,* 2017; Brahmbhatt *et al*., 2019). Though equal susceptibility for the disease is reported in all bovine breeds, high incidence rate is found in crossbred cattle and young calves (Radostits *et al.,* 2011). The crossbred cattle are beneficial in improved milk production, but poor in climatic adaptation and disease resistance when compared to indigenous animals (BAHS, 2019). Theileriosis in bovines leads to economical burden to livestock farmers due to mortality, treatment costs, diminished productivity in terms of reduced milk production and body weight, blood loss, damages to hides and skins, decreased immunity, stress and irritation (Radostits *et al*., 2011). The timely diagnosis and early treatment of theileriosis is required for successful management of this haemoprotozoan infection. This manuscript reports about theileriosis in crossbred cattle of Southern Haryana and its successful therapeutic management.

CASE HISTORY AND OBSERVATION

Blood samples from 34 crossbred cattle were received at Disease Investigation Laboratory (DIL), Lala Lajpat Rai University of Veterinary and Animal Sciences, Mahendragarh, Haryana for detecting the presence of haemoparasites during the period from June 2018 to May 2019. These samples were sent to the DIL by the field veterinarians from cattle showing clinical symptoms *viz*. fever, anorexia, weakness, anaemia and lymphadenopathy. From the history of cases, it was clear that the symptomatic treatment was going on since a week, but the body temperature of affected animals was not reducing. The history and the clinical symptoms were given an indication of bovine theileriosis infection. Thin blood smears were prepared on clean glass slides and stained with Giemsa stain by standard protocol (Soulsby, 1982). The stained blood smears were examined for the presence of haemoprotozoans based on morphological characters under oil immersion lens (100X).

TREATMENT AND DISCUSSION

The blood smear examination is the gold standard test for the diagnosis of theileriosis in live animals. The examination of blood smear revealed characteristic signet ring shaped piroplasms inside the red blood cells from 11 crossbred cattle of Southern Haryana. Presence of piroplasms inside the erythrocytes was considered positive for *Theileria* spp. infection (OIE, 2008). Piroplasms are very small, ovoid, annular, ring or rod shaped merozoites of *Theileria* which multiplies inside the erythrocytes. The piroplasm parasitizes the erythrocytes and causes destruction of these cells with a decrease

in the erythrocyte count and haemoglobin level (Kumar *et al*., 2018). Cattle become carriers for theileriosis and the carrier animals can act as constant source of infection to the susceptible animals (Sahoo *et al*., 2017). The piroplasms can often be found in the blood of carrier animals. The organism can hide in lymphoid tissues and macrophages, compromising the immune system of susceptible animals leading to secondary infections (Nagar *et al*., 2019). The identification of the carrier animal is important for the effective control of the disease.

The positive animals were treated with single dose of Buparvaquone @ 2.5 mg/kg body weight deep intramuscular along with IM injections of Meloxicam @ 30 ml/300 kg and multivitamins @ 10 ml/300 kg as supportive therapy for five days. After the treatment with Buparvaquone, the animals were found recovered from fever and gained normal appetite within a week. Several clinicians also reported that the use of Buparvaquone can cure the infection in case of theileriosis along with supportive therapy (Naik *et al*., 2010; Kumar *et al*., 2016; Sharma *et al*., 2017; Nagar *et al*., 2019).

SUMMARY

The haemprotozoan infections are distributed globally due to the worldwide presence of its vectors. The economic losses due to haemoprotozoan infections are a big challenge to livestock owners across the world. *Theileria annulata* parasites destroy red blood cells resulting in anaemia, weakness and sometimes haemoglobinuria. In this case, the treatment with buparvaquone is found effective against theileriosis along with supportive therapy. The early diagnosis and timely treatment for haemoprotozoan infections can reduce the mortality as well as morbidity rates.

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