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Original Article

STUDY ON INCIDENCE OF NEONATAL CALF BABESIOSIS IN PUDUCHERRY REGION AND ITS THERAPEUTIC MANAGEMENT

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***Abstract:** Crossbred Jersey calves of age less than one month of age brought to the Department of Veterinary Medicine of TVCC, RIVER, Puducherry during the period of December, 2018 to March, 2019 with the history of coffee colour urine, high rise in temperature and tick infestation were selected for the study. Heamatological examination revealed severe anemia and leucopenia. DLC examination showed increased lymphocyte and monocyte count. Microscopic examination of the blood smear revealed the characteristic intra-erythrocyticpear shaped Babesiabigemina organism. The condition was diagnosed as Babesiosis and the calves were treated with a single dose of Inj. Diminazine aceturate and supportive treatment including fluid therapy.*

Keywords: Babesiosis, Neonatal calf

INTRODUCTION

Bovine babesiosis is a tick borne disease caused by intra erythrocytic protozoan parasites of the genus Babesia and is prevalent all over the world. Two major and important species affecting cattle are *Babesiabovis* and *B. bigemina*causing major economic impact on the cattle farming [1]. Maharana et al. [2] reported that the infection has long been recognized as an economically important disease of cattle, horses and dogs and is emerging as zoonotic disease. Clinical signs of the disease are characteristic of increased body temperature, increased pulse rate, anorexia, and in acute infection haemoglobinuria and haemolyticanaemia but the symptoms vary according to the species of parasites and host risk factors (i.e. age, immune status). *B. bigemina* and *B. bovis* are mainly transmitted by one host tick *Boophilusspp*, in which transovarian transmission occurs.

Young calves are generally resistant to Babesia

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infection due to inverse age resistance (Bal et al. [3]. Zintl et al. [4] stated that the infected calves do not develop severe clinical disease, instead they display low parasitaemia without any apparent illness. Infected animals can develop a lifelong immunity against re infection with the same species. The present study reports the incidence of Babesiosis in cross bred Jersey calves in Puducherry region and its therapeutic management.

MATERIALS AND METHOD

Ten Crossbred Jersey calves of age less than one month brought to the Department of Veterinary Medicine of TVCC, RIVER, Puducherry with the history of coffee colour urine, fever and tick infestation are selected for the study during the period of December, 2018 to March, 2019. Clinical examination was carried out for all the animals with the following parameters such as colour of the conjunctival mucous membrane, respiratory rate, heart rate and rectal temperature (°F). The calves were suspected for haemoprotozoan infection and subsequently thin blood smears were prepared from the tip of the ear and whole blood collected from jugular vein in EDTA vacutainers from all the animals. The animals were thoroughly checked for the presence of ticks and recorded.

Peripheral blood smears were subjected to Leishman's staining method.The smear covered with Leishman's stain for 45 seconds and double diluted with distilled water and mixed. The smear is kept undisturbed for 8 minutes and washed in running water.The stained blood smears were examined under oil immersion lens of high power microscope (100×) for the detection of haemoprotozoan parasites and DLC. The whole blood was subjected to routine hematological examination.

RESULTS AND DISCUSSION

The clinical signs observed in all calves with Babesiosis were inability to suckling, high fever, coffee colour urine, jaundice, deep shallow respiration with increased heart rate. These findings were in agreement with those reported by Karunakaran et al. [3,5-7]. Clinical signs such as tachycardia, recumbency, and blanched mucous membrane were also recorded in the present study.

Table 1: Haematological parameters in Babesia infected calves (n=10)

Haematological parameters	Results	Normal range
Haemoglobin (g/dl)	6.7 ±1.4	8.5-12.2
Packed Cell Volume(%)	22.75 ±5.85	22-33
Total Leukocyte Count (10^3Cells/Cmm)	3.95 ±1.01	4.9-12
Differential Leukocyte Count		
Lymphocytes (%)	74.16 ±9.45	45-75
Neutrophils (%)	24.33 ±8.64	15-45
Eosinophils (%)	0	0-2
Basophils (%)	0	0-2
Monocytes (%)	1.5 ±1.37	2-6

Microscopic examination of the stained blood smears from all the animals revealed intra erythrocyte piroplasm stages of *B. bigemina*. Based on the morphological features - elongated, rounded dividing forms and multiple organisms and also the characteristic pear shape with an acute angle in the erythrocytes confirmed that *B.bigemina* [8]. Haematalogical investigation (Table 1) revealed decrease in mean haemoglobin, mean PCV and mean TLC indicatinganemia and leucopenia respectively.

All new born calves will become infected with Babesiosis at high levels of tick infestation and majority of the cases with are reported with severe anemia. The reduced value of haemoglobin is due to the intravascular haemolysis of the erythrocytes. The Calves usually have high degree of immunity related both to colostralderived antibodies and to age, that persists at least for about 6 months. There was no significant change in the eosinophil, monocyte, basophil suggests that there might be no effect on these parameters due to babesia infection.

The treatment was done using single dose of Diminazineaceturate (BERENIL) @ 5 mg/kg body weight intramuscularly. Followed by Inj. Meloxicam @ 0.3mg/Kg and Inj.Anistamin @ 0.5mg/Kg and Inj. Neuroxin 3ml I/M and Ferritas bolus ½ orally for next 15 days. Babesia infected animals can be successfully treated with diminazeneaceturate, hematinics and antipyretics [3]. Ukwueze and Orajaka [9] stated that Imidocarbdipropionate is the drug of choice to treat bovine babesiosis followed by Dimenazeneaceturate with 100% and 90% efficacy respectively. Bovine babesiosis is disease of adult animals but due to the changing pattern of

livestock rearing, the disease has been reported in calves. Hence, strategic measures has to be taken for tick control in cattle.

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