
SUCCESSFUL TREATMENT OF JAUNDICE SECONDARY TO *EHRlichia CANIS* INFECTION IN A LABRADOR RETRIEVER PUPPY

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ABSTRACT

A three month old Labrador Retriever puppy was presented to Referral Veterinary Polyclinic (RVP), Indian Veterinary Research Institute (IVRI) with the history of anorexia, lethargy, difficulty in breathing, icteric mucus membrane, conjunctiva and skin. Haematological, serological and blood smear examination showed critically low haemoglobin, increased bilirubin level and morula of *Ehrlichia canis* (*E. canis*) respectively. The dog was treated with emergency blood transfusion and later on with antibiotics and supportive therapy.

Keywords: *E. canis*, Jaundice, Blood transfusion

INTRODUCTION

Ehrlichiosis is an arthropod borne disease transmitted by *Rhipicephalus sanguineus* in dogs (Johnson *et al.* 1998). In India, *E. canis* infection has been reported from different places with varied prevalence

rate (Harikrishnan *et al.*, 2009; Dhankar *et al.*, 2011; Lakshmanan *et al.*, 2011; Singla *et al.*, 2011; Das and Konar, 2013; Bhadesiya and Raval, 2015). Canine ehrlichiosis is characterized by fever, enlarged lymph nodes, coagulation abnormality and elevated liver and kidney markers. Immune mediated thrombocytopenia is the classical picture of canine ehrlichiosis. Diagnosis is mostly by light microscopic examination of peripheral blood smear stained with Giemsa's stain which reveals morula stage in the mononuclear lymphocytes. But, often dogs with classical signs of ehrlichiosis were found negative for inclusion bodies by blood smear examination. Hence, molecular techniques like PCR is needed for confirmatory diagnosis. Though, this rickettsial organism responds well with doxycycline, abnormality in the coagulation parameters pose a serious challenge to physicians to bring the animal to normalcy. Emergency blood transfusion along with specific and symptomatic therapy maybe a successful line of treatment

for canine ehrlichiosis with coagulation abnormalities.

CASE HISTORY AND OBSERVATIONS

A three month old Labrador Retriever puppy was presented to Referral Veterinary Polyclinic (RVP), Indian Veterinary Research Institute (IVRI), Izatnagar with history of anorexia, lethargy and difficult breathing. Deworming and vaccination details were not properly followed as per the standard protocol. The dog was treated for pyrexia previously, but there was no improvement.

Clinical Examination

Clinical examination of the animal showed rectal temperature of 101.8°F, polypnea, palpable lymph nodes and icteric mucous membrane and skin (Fig. 1). Colour of urine and feces were intense yellow. Ticks were noticed on the body surface. Tactile percussion and auscultation of abdomen revealed fluid thrill suggestive of ascites. Blood and serum samples were collected for necessary examination.

Clinical Pathology

Peripheral blood smear stained with Giemsa's stain revealed inclusion bodies of *Ehrlichia* spp. (Fig. 2). Complete blood count analysis (Table 1) revealed anaemia, thrombocytopenia and monocytosis. Serum

biochemistry evaluation revealed elevated bilirubin and liver enzymes. Based on the icteric condition, it was also suspected for leptospirosis, however, MAT (Microscopic Agglutination Test) was negative for leptospirosis.

TREATMENT AND DISCUSSION

Based on anamnesis, clinical signs and hematobiochemical examination, it was confirmed as a case of ehrlichiosis. Emergency blood transfusion was performed to manage critically low haemoglobin level (2.6 g%). Around 100 ml of blood was collected from an apparently healthy donor and transferred to autoclaved glass bottle preloaded with anticoagulant heparin @ 625 IU/50 ml of blood and transfused slowly over a period of 20 minutes.

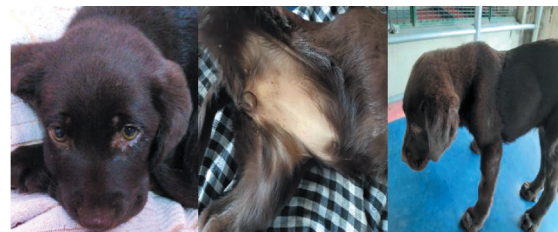


Fig. 1. Icteric colour of mucous membrane and skin

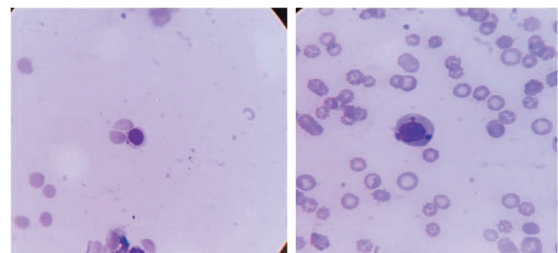


Fig. 2. Morula in the monocyte

Table 1. Changes in the blood and serum biochemistry

Sl. No.	Parameters	Observed Value	Reference range
1.	Total leukocyte count (TLC)	6500/mm ³	5000-14000/ mm ³
2.	Total erythrocyte count (TEC)	1.7m/ mm ³	4.95-7.87m/ mm ³
3.	Hb (g%)	2.6	12-14
4.	Packed cellular volume (PCV)	11	33-42
	DLC		
5.	Neutrophil (%)	53	58-85
6.	Lymphocyte (%)	19	8-21
7.	Monocyte (%)	28	2-10
8.	Eosinophil (%)	0	0-9
9.	Basophil (%)	0	0-1
10.	Bilirubin (mg/dl)	11.1	0-0.3
11.	Alanine amino transferase (ALT) (U/L)	103	10-109
12.	Platelet (lakh/ μ l)	0.8	1.5-3.5

The pup was treated with Inj. **Doxycycline @ 2.5 mg/Kg IV**, Inj. **Ferritas @ 5 mg/Kg IM** on alternate day basis for a week. It was also treated with Inj. **N-Acetylcystine @ 30 mg/Kg BW IV**, Inj. **Prednisolone @ 0.5 mg/Kg BW IM**, Inj. **Pantoprazole @ 0.5 mg/Kg BW IV**, Inj. **Furosemide @ 4 mg/kg BW IM** along with fluid therapy for a week. Animal showed improvement in condition just after blood transfusion and regained appetite by next day. On third day of treatment, the level of haemoglobin increased to 4.4 g% and on seventh day it was 7.3 g%. After a week of treatment, the colour of mucus membrane, urine and faeces returned to normal and was advised to give oral doxycycline tablet @ 5 mg/Kg PO BD for another 14 days.

Four weeks regimen of doxycycline was found to be most acceptable for canine ehrlichiosis globally, in spite of reports of persistent carrier status of dog (Iqbal and Rikihisa, 1994). It was used in low dose to minimize the stress on liver. Based on the review of experiments and clinical trials, doxycycline was found to be first line of treatment for canine ehrlichiosis (Mylonakis *et al.*, 2019). **Ferritas** which contains iron with folic acid was used in this case to combat anaemia. **N-Acetylcystine**, was used as an antioxidant that blocks the oxidative stress mediated by free radicals. In acute cases of canine ehrlichiosis, partial immune mediated pathogenesis has been established (Waner and Harrus, 2013). **Prednisolone**, as an immunosuppressant

prevents immune mediated aplastic anaemia which was quite evident in this case. **Pantoprazole** was prescribed to overcome the antibiotic induced gastritis and ulcer. **Furosemide** along with fluid therapy was used to manage ascites and electrolyte imbalance.

SUMMARY

A case of jaundice secondary to ehrlichiosis in a Labrador Retriever puppy was successfully treated with specific and symptomatic therapy.

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