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Ehrlichiosis in dog: A case report

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Abstract

A female labrador dog showed anorexia, high fever, lethargic, anemia, tick infestation, scanty feces, bloody urine, swollen lymphnodes, shrunken eye ball. The case was tentatively diagnosed as ehrlichiosis and advised for haematological and blood smear for infectious agent and found *E. canis* positive. Owner was advised for Tab Doxycycline @10mg/kg bwt bid for 30 days as doxycycline is drug of choice for ehrlichiosis.

Keywords: Ehrlichiosis, dog, owner

Introduction

Ehrlichiosis in canine's also known as canine canine hemorrhagic fever, rickettsiosis and tropical canine pancytopenia. It is caused by *Ehrlichia canis*, a rickettsial microorganism. The main vector which harbours Ehrlichia organism is *Rhipicephalus sanguineus* (brown dog tick) and transmits it to dogs (Melo *et al.*, 2011; Mylonakis *et al.*, 2004; Davoust *et al.*, 2005) [12, 13, 7]. Canine get ehrlichiosis from the tick as when tick bites passes an *Ehrlichia* organism into the bloodstream (Ettingen *et al.*, 1995) [8]. It is also possible for dogs to become infected through blood transfusion from an infected dog. *Ehrlichia canis* is spread worldwide in dog population and wild canids (Harrus *et al.*, 1996; Dagnone *et al.*, 2003) [6]. It is a multisystemic disorder which may produce hemorrhage tendency, lymphadenopathy, splenomegaly, hepatomegaly, along with cardiac/renal disorders and myelosuppression (Aysul *et al.*, 2012) [2]. Canine ehrlichiosis mainly seen in three forms i.e. Acute form, subclinical and chronic forms (Hernandez *et al.*, 2012) [11].

History

A female labrador dog was brought there. It was having history of anorexia, high fever, lethargic, anemia, tick infestation, scanty feces, bloody urine, swollen lymphnodes, shrunken eye ball. Dog was reluctant to walk which might be due to pain in the joints. When examined clinically, dog observed rise in body temperature (104.8°F).

Haematological studies

Owner was advised for haematological test. Report revealed that dog was suffering from anemia, neutropenia and lymphocytosis. When did blood smear examination for infectious agent *E. canis* was positive.

Treatment and Discussion

Owner was advised for Tab Doxycycline @10mg/kg bwt bid for one month. As patient was anaemic and anorectic also advised haematinics (haem up) and liver supplement (liv-52). Earlier, tetracycline was used as first-line antibiotics for the treatment of canine ehrlichiosis (Amyx *et al.*, 1971; Buhles *et al.*, 1974) [1, 4]. These were broad-spectrum antibacterial agents that act by inhibiting attachment of aminoacyl-tRNA to the bacterial ribosome during protein synthesis (Chopra and Roberts, 2001) [5]. However, only doxycycline, a semi-synthetic tetracycline, has been critically evaluated for *E. canis* infections (Harrus *et al.*, 2012; Sykes, 2014) [10, 14]. Various studies indicate that doxycycline is very active against the monocytotropic *Ehrlichia* species (i.e. *E. canis* and *E. chaffeensis*), required a very low MIC i.e. (0.03mg/ml) (Branger *et al.*, 2004) [3].

Table 1: Haematological Report

Parameter	Unit	Findings	Normal Value	Diagnostic Interpretation
Haemoglobin	g/dl	8	12-18	Anemia
TLC	Thou/mm ³	8	6-17	Normal
DLC -- Neutrophils	%	55	60-76	Neutropenia
DLC – Lymphocytes	%	40	12-30	Lymphocytosis
DLC – Eosinophils	%	3	2-10	Normal
DLC – Monocyte	%	2	3-10	
DLC -- Basophils	%	0	0-11	Normal
RBC	mill/mm ³	4.37	5.5-8.5	Anemia
PCV	%	22.1	37-55	Anemia
MCV	fL	50.8	60-77	Microcytic
MCH	Pg	18.3	19.5-24.5	Hypochromic
MCHC	g/dl	36.1	32-36	
Platelet count	Thou/mm ³	80	211-621	Thrombocytopenia
RDW-CV		0.129	0.115-0.159	Normal

Table 2: Blood Smear Examination for Infectious Agents

Types	Result
Mycoplasma	NOT SEEN
Others (Spirochetes, Microfilaria, bacteria, Viral)	NOT SEEN
Protozoa	NOT SEEN
Rickettsia	<i>E. canis</i> (+ve)

Conclusion

The dog showed improvement in condition, started taking food. Doxycycline is the drug of choice for canine ehrlichiosis. The clinical recovery may be seen within 2-3 day of therapy but treatment should be continued for 30 days for clearing up parasitemia.

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