

## Acute hepatozoonosis in dogs: a case report

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**Abstract** Two male dogs aged between 2 and 3 months belonging to German Shepherd and non-descript breed were brought to Outpatient unit of Department of Veterinary Medicine, Veterinary College, Bidar with history of anorexia, weakness and going down in body condition since 15 days. Clinical examination revealed fever, enlargement of popliteal and submandibular lymph nodes, pale mucous membranes and cachectic body condition in both the cases. Haemato-biochemical examination revealed anemia, leukocytosis, thrombocytopenia, hypoalbuminemia and elevated levels of blood urea nitrogen, creatinine and alanine amino transferase. On blood smear examination, gamonts of *Hepatozoon canis* organisms were noticed in neutrophils. Based on these observations a diagnosis of hepatozoonosis was made. Cases were treated with Doxycycline @ 10 mg/kg, PO and uneventful recovery was noticed after 21 days of treatment.

**Keywords** Acute · Canine · Doxycycline · Hepatozoonosis

### Introduction

Hepatozoonosis is a tick-borne haemoprotozoan disease of dogs caused by *Hepatozoon canis*. *Hepatozoon canis* is transmitted by ingestion of tick or parts of tick body

containing oocysts (Baneth et al. 2001). The definitive host of *H. canis* is *Rhipicephalus sanguineus* and the intermediate hosts are dogs and wild canids (Christophers 1907). *Hepatozoon canis* infection is widely prevalent throughout the world (O'Dwyer et al. 2001). Clinical form varies from asymptomatic to highly fatal hepatozoonosis (Baneth 2006). Subclinical form of the disease is noticed more commonly than acute form (Tsachev et al. 2008). Present paper describes about the acute hepatozoonosis and their therapeutic management in two dogs.

### Case history and clinical examination

Two male dogs belonging to German Shepherd and Non-descript breed aged between 2 and 3 months were presented to Outpatient unit of Department of Veterinary Medicine, Veterinary College, Bidar with history of anorexia, lethargy, weakness, going down in body condition and severe tick infestation (Fig. 1) since 15 days. Clinical examination revealed high rectal temperature (103.4 F in Case No. 1 and 104.2 F in Case No. 2), enlargement of popliteal and submandibular lymph nodes, pale mucous membrane and cachectic body condition in both the cases. On haemato-biochemical examination (Table 1) anemia, leukocytosis, thrombocytopenia, hypoalbuminemia and elevated levels of blood urea nitrogen, creatinine and alanine amino transferase were observed. Blood smear examination revealed presence of gamonts of *H. canis* organisms in neutrophils (Fig. 2). Ticks were processed as per method given by Soulsby 2006 and were identified as *Rhipicephalus Sanguineus* species (Fig. 3). Based on these observations a diagnosis of hepatozoonosis was made.

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**Fig. 1** A non-descript pup showing severe tick infestation and cachectic body condition

## Treatment and discussion

Both the cases were treated with Doxycycline @ 10 mg/kg BW, PO for 24 days in Case No. 1 and for 30 days in Case No. 2. Other supportive treatment like Meloxicam (@ 0.5 mg/kg BW, IM for 3 days) and haemetinics

(Dexorange<sup>®</sup> syrup, 5 ml, Po, BID) were given. Amitraz preparation was applied topically for tick control. Cases were monitored regularly. Blood smear was negative for *H. canis* on 21st day of post treatment and 28th day of post treatment in Case Nos. 1 and 2 respectively. Haemato-biochemical values were found within a normal range after 3 weeks of treatment in both the cases.

Canine hepatozoonosis caused by *H. canis* was first reported from India by James (1905). Since then many workers (Ezekolli et al. 1983; Rajamanickam et al. 1985; O'Dwyer et al. 2001) have reported its occurrence throughout the world. Generally hepatozoonosis occurs in sub-clinical form. Acute form noticed in present cases might be attributed to young age of the pups as reported by Ewing and Panciera (2003) and Cummings et al. (2005) who opined that the underdeveloped immune system in young animals flares up on the pathogenesis of *H. canis* infection resulting in acute fatal nature in puppies.

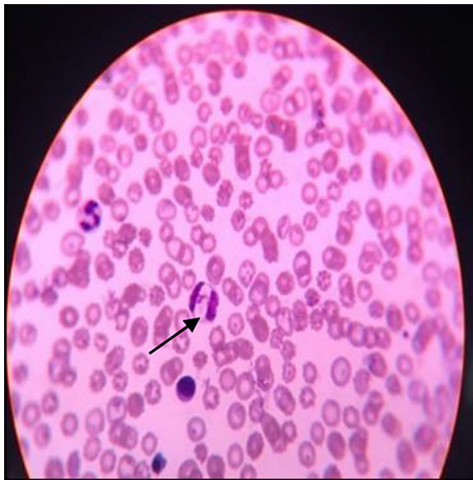
Weight loss, lymphadenopathy and anemia observed in the present case study are in agreement with earlier reports of Baneth (2006) and Pasa et al. (2009). Low values of hemoglobin and PCV, thrombocytopenia, leukocytosis and neutrophilia with elevated blood urea nitrogen, creatinine and liver enzymes were suggestive of acute inflammatory response to *H. canis* and are in agreement with Sarma et al.

**Table 1** Haemato-biochemical changes in hepatozoonosis affected cases before and after treatment

S. no.	Parameters	Normal reference range	Case I (GSD) Before treatment	Case I (GSD) 21 days after treatment	Case II (ND) Before treatment	CASE II (ND) 21 days after treatment
1.	Haemoglobin (g/dl)	12–16	7.20	11.20	6.80	12.20
2.	PCV (%)	35–50	22.80	33.40	21.20	36.60
3.	RBC ( $10^6/\mu\text{l}$ )	5–8	3.80	6.20	3.20	6.70
4.	WBC ( $10^3/\mu\text{l}$ )	6–16	22.00	15.00	18.00	12.00
5.	Neutrophils (%)	60–74	79	65	82	64
6.	Lymphocytes (%)	15–30	18	34	17	15
7.	Monocytes (%)	3–8	03	01	01	02
8.	Platelets (Lakhs/ $\mu\text{l}$ )	2.11–6.21	0.75	2.31	0.92	1.96
9.	BUN (mg/dl)	8–28	38.60	22.40	40.20	24.06
10.	Creatinine (mg/dl)	0.5–1.7	2.96	1.62	3.20	1.72
11.	ALT (U/l)	12–118	156	89	167	102
12.	Total protein (g/dl)	6–8	5.68	6.40	4.20	6.20
13.	Albumin (g/dl)	2.6–4.0	1.86	2.40	1.31	2.06
14.	Globulin (g/dl)	2.1–3.7	3.82	4.00	2.89	4.14



**Fig. 2** Tick was processed and identified as *Rhipicephalus Sanguineus* spp



**Fig. 3** *Hepatozoon canis* gamont in a neutrophil

(2012). Doxycycline is the first line of treatment of hepatozoonosis in canines (Baneth and Weigler 1997 and Kumar et al. 2012), and uneventful recovery with negative blood smear examination at 21st day after treatment was indicative of its efficacy in the present case.

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