

OCCURRENCE OF CANINE HEPATOZONOSIS IN AND AROUND LUDHIANA DISTRICT (PUNJAB)

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Hepatozoon canis is a tick borne protozoal parasite prevalent in the canines worldwide. In the current study, a total of 532 blood samples, were collected and examined from canines with a history of persistent high fever presented at Small Animal Clinics, GADVASU, Ludhiana, (Punjab) during a period of one year (January, 2011 to December, 2011). Examination of Giemsa stained peripheral blood smears revealed that 1.13% (6/532) of canines were infected with *Hepatozoon canis* with comparable prevalence in different age groups. The prevalence of the parasite was comparatively higher in females (1.91%) than male dogs (0.62%).

Key words: Canine, *Hepatozoon canis*, Punjab

Introduction

Hepatozoon canis is an apicomplexan protozoan parasite, reported for the first time from dogs in India (James, 1905). The definitive host of *H. canis* is the brown dog tick *Rhipicephalus sanguineus*, the most prevalent cosmopolitan tick species of canines and the intermediate hosts are dogs including wild canids. The life cycle encompasses gametogony and sporogony in the definitive host and schizogony followed by formation of gametes in the intermediate host. In contrast to other tick-borne protozoa, *H. canis* infects leukocytes and parenchymal tissues and is transmitted to dogs by the ingestion of ticks containing mature oocysts (Baneth *et al.*, 2001).

In majority of the cases, the protozoa usually cause a chronic infection with relatively mild or no clinical alterations to its host. The infection occurs in three major forms, being sub-clinical, the most common; acute form, developing about one week before the death and chronic form, with phases of clinical appearance and diminution (Barton *et al.*, 1985). The most frequently observed clinical signs are anaemia, emaciation, intermittent fever, cachexia, depression, muscle hyperaesthesia, purulent conjunctivitis and rhinitis. Less frequently, diarrhoea (often bloody), anorexia, paraparesis and paraparalysis are observed.

H. canis is considered to be amongst one of the most widespread canine vector-borne disease (CVBD) causing pathogens because of its close association with the tick *R. sanguineus* and the cosmopolitan distribution of this tick species. Though large surveys on canine hepatozoonosis

are scanty, a number of reports suggest that the parasite infects dogs worldwide being reported from four continents viz. South Europe, Africa, Asia and South America (reviewed by Ivanov and Tsachev, 2008). The present study was undertaken to determine the prevalence of canine hepatozoonosis in and around Ludhiana (Punjab).

Materials and methods

A total of 532 blood samples, were collected and examined from canines presented at Small Animal Clinics, GADVASU, Ludhiana, (Punjab) during a period of one year (January, 2011 to December, 2011). Blood samples from dogs presented with a history of persistent high fever and suspected for haemoprotozoan diseases, were collected aseptically from cephalic vein in vials containing anticoagulant (EDTA). To make a thin blood film, a drop of blood was placed on a clean glass slide, air-dried, fixed in methanol, stained with Giemsa (Coles, 1986) and examined under light microscope by using the oil immersion objective.

Results and discussion

Examination of Giemsa stained peripheral blood smears revealed that 1.13% (6/532) of canines were infected with *Hepatozoon canis* (Table 1). The diagnosis was based on the detection of the ellipsoidal-shaped gamonts of the parasite in neutrophils (Fig. 1). After the initial documentation of *H. canis* from Punjab state (Juyal *et al.*, 1992) similar studies in the past from the same region revealed a prevalence percentage of 0.38 (Singh

Table 1: Prevalence of canine hepatozoonosis in and around Ludhiana

Parameter		Samples examined	Samples positive	Prevalence (%)
Sex	Male	323	02	0.62
	Female	209	04	1.91
Age	<1 year	98	01	1.02
	>1 year	434	05	1.15
Total		532	06	1.13

et al., 2011a), 0.82 (Singh *et al.*, 2011b) and 1.08 (Singh *et al.*, 2012). Further, a varied rate of incidence, between 3-9%, of the diseases has

been reported from various parts of India (Sharma *et al.*, 1997).

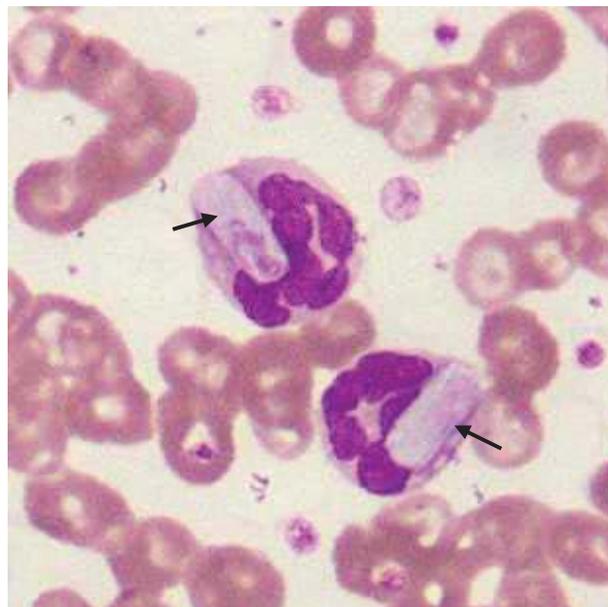


Fig 1: Gamonts (arrows) of *Hepatozoon canis* in neutrophils

With reference to the age of the host, the results of the current study indicated a comparable prevalence of canine hepatozoonosis in all age groups. However, a higher prevalence of *H. canis* was recorded in younger animals below 6 month age in earlier studies (Singh *et al.*, 2012) but in another study results similar to those of current investigation indicating no variation with regards to age of the host has been on records (Singh *et al.*, 2011b). The prevalence of the parasite was comparatively higher in females (1.91%) than male dogs (0.62%) which may be correlated to a smaller sample size collected during one year period.

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