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A STUDY ON CANINE BABESIOSIS

*¹Vipan Kumar, ²Parveen Kumar, ³Heigo Pal, ⁴Harprit Singh and ⁵Hanish Sharma

^{*1}Junior Epidemiologist, RDDDL (North Zone), Jalandhar-144001, India

²Pathologist, Veterinary Polyclinic, Jalandhar-144001, India

³Gynecologist, RDDDL (North Zone), Jalandhar-144001, India

⁴Surgeon, Veterinary Polyclinic, Jalandhar-144001, India

⁵Senior Research Fellow, RDDDL (North Zone), Jalandhar-144001, India

*Corresponding Author

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Abstract

Babesiosis caused by *B. gibsoni* and *Babesia canis* is a tick borne protozoal parasite prevalent in the canines worldwide. In the current study, a total of 432 blood samples, were collected and examined at Veterinary Polyclinic, Jalandhar (Punjab) during April to December. Examination of Giemsa stained peripheral blood smears revealed that 6.01% (26/432) of canines were positive for canine babesiosis comprising of *B. gibsoni* (5.78%) and *B. canis* infections (0.23%).

Keywords: Canine, *Babesia canis*, *Babesia gibsoni*, Jalandhar, Punjab.

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INTRODUCTION

Canine babesiosis is very common and clinically significant disease caused by intraerythrocytic apicomplexan protozoa belonging to genus *Babesia*. *Babesia* species often referred to as piroplasms comprise two main species, *B. canis* and *B. gibsoni*, based on their size. *Babesia canis* (large 3.0–5.0 μm) and *B. gibsoni* (small 1.5–2.5 μm) are recognized as the two species that cause canine babesiosis worldwide and are transmitted by *Dermacentor reticulatus* in Europe, *Rhipicephalus sanguineus* in tropical and subtropical regions and *Haemaphysalis leachi* in South Africa (Uilenberg, 2006). Cases of canine babesiosis may present with a wide variation of severity of clinical signs. Lethargy is the most common symptom, followed by anorexia, pale mucous membranes, vomiting, amber to brown urine, splenomegaly, jaundice, weight loss, tachycardia and tachypnea. Canine babesiosis is considered as one of the most widespread canine vector-borne disease (CVBD). Though large surveys on canine babesiosis are scanty, a number of reports suggest that the parasite infects dogs worldwide. In India, a variable prevalence of canine babesiosis has been reported viz. 0.66% to 8.9% in referral canines in Uttar Pradesh (Chaudhuri, 2006); 21.7% in Assam (Chandhuri and Varshney, 2007), 5.4% in Hissar, Haryana (Bansal et al., 1985), 3.17% of *B. gibsoni* and 1.26% *B. canis* (Eljadar, 2010) and Singh et al., 2012 reported the prevalence *B. gibsoni* and *B. canis* infections (5.45% and 0.37% respectively) in Punjab. As far as the diagnosis of canine babesiosis is concerned, direct microscopic examination of the

stained blood smear is the most commonly used method as it is conclusive, feasible, and cost effective diagnostic method (Caccio et al., 2002). Regarding Indian scenario, the true status of canine babesiosis is still not clear. (Baneth et al 2001; Pawar and Gatne 2005). canine babesiosis has not yet been explored from Punjab, north state of India, The present study was undertaken to determine the prevalence of canine babesiosis by microscopy in and around Jalandhar (Punjab).

MATERIALS AND METHODS

A total of 432 blood samples, were collected and examined from canines presented at Veterinary Polyclinic Jalandhar, (Punjab) during April to December. Blood samples, 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

Blood smears examination revealed that 6.01% (26/432) of canines were positive for canine babesiosis (Table 1). Eljadar (2010) and Singh et al., 2012 reported the comparable prevalence of canine babesiosis from the same region. Lower prevalence of babesiosis in dogs was due to improvement in the managerial practices involved in canine keeping. This has decreased the exposure probability of canines to the vector

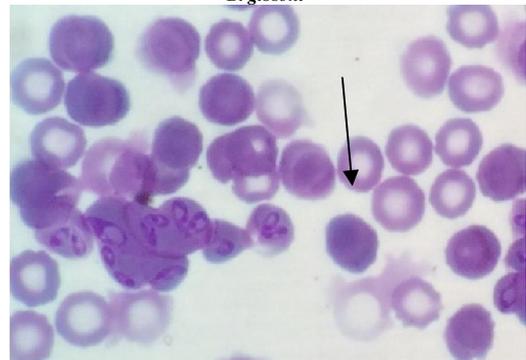
Table. Prevalence of canine babesiosis in and around Jalandhar

Parameter		No. examined	Positive for <i>B. gibsoni</i> (%)	Positive for <i>B. canis</i> (%)	Total (%)
Sex	Male	323	18(5.57)	0	18(5.57)
	female	109	7(6.42)	1(0.91)	7(6.42)
Age	< 1 year	98	6 (6.12)	0	6(6.12)
	> 1 year	334	19 (5.68)	1(0.29)	20(5.98)
Total		432	25(5.78)	1(0.23)	26(6.01)

tick thus leading to a decrease in the cases of canine babesiosis in the region. Further, a much higher prevalence of *B. gibsoni* (5.45%) was recorded as compared to *B. canis* infection (0.23%) from the region and the results are similar with previous reports (Eljadar 2010; Singh et al. 2011a; Singh et al., 2012). Although it is known that infection with either of these pathogens can result in severe and fatal disease, they can remain clinically undetectable in chronically infected dogs due to very low parasitaemias. Infection may not be apparent or diagnosed until such animals are immuno-compromised by unrelated disease or following splenectomy (Homer et al., 2000). Sundar et al. (2004) conducted a study in Chennai and reported that the prevalence *B. gibsoni* was 0.1% in client-owned dogs using bloods smear evaluation. Other studies report 8.9% and 221.7% of dogs in Uttar Pradesh (Chaudhuri, 2006) and Assam (Chaudhuri and Varshney, 2007), respectively, infected with Babesia, but the species of piroplasm infecting these dogs was not reported. The pathogenicity of Babesia is believed to vary in different regions of India and this is likely due to host factors and/or differences in the species present. With reference to the age of the host, the results of the current study indicated a comparable prevalence of *B. gibsoni* in all age groups but, *B. canis* was recorded only from the dogs above 1 year of age and the results are similar to earlier reports (Singh et al., 2012). The prevalence of the babesiosis was comparatively higher in females (6.42%) than male dogs (5.57%) which may be correlated to a smaller sample size collected during one year period.



B. gibsoni



B.canis

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