

Prevalence of Haemoprotozoan/Rickettsial infections in Ailing Canines of Mumbai Region

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ABSTRACT

Aim of the study was to investigate the prevalence of Haemoprotozoan/Rickettsial infections in canine patients of Mumbai region. For this study, blood samples of 127 ailing dogs were collected from the Out-Patient Department (OPD), Mumbai Veterinary College, Mumbai from August, 2015 to July, 2016 for hematological examination and diagnosis of hemoprotozoan/rickettsial parasites. The hematology showed that 44.88% dogs suffered from anaemia with varying severity, whereas, 3.94% dogs were found positive for hemoprotozoan/rickettsial parasites by the peripheral blood examination. Out of 5 positive cases, Hepatozoon spp., Trypanosoma spp. Babesia gibsoni and Babesia canis in one dog each and mixed infection of Hepatozoon spp. and Trypanosoma spp. was found in two dogs. The low prevalence of hemoprotozoan/rickettsial infections in the current study might be due to less sensitivity of microscopic methods.

Keywords: Haemoprotozoan, Rickettsial, Anaemia, Trypanosoma spp., Babesia spp., Hepatozoon spp.

INTRODUCTION

The warm and tropical climate of India are favourable breeding ground for many ectoparasitic species which act as vectors for various hemoprotozoan/rickettsial diseases in dogs. In India, prevalence of *Babesia gibsoni*, *Babesia canis*, *Ehrlichia canis*, *Hepatozoon canis* and *Trypanosoma evansi* infections in dogs has been reported with varying prevalence rate as reported by previous authors (Kumar *et al.*, 2009; Sahu *et al.*, 2013; Das *et al.*, 2015; Sahu *et al.*, 2016; Prasad *et al.*, 2015). However, no such study is reported from Mumbai region of Maharashtra. Therefore, the present study was conducted to ascertain the hospital based prevalence rate of haemoprotozoan infection in ailing dogs of Mumbai region during a period of one year.

MATERIALS AND METHODS

Blood samples from 127 suspected dogs from the Out Patients Department (OPD) of Mumbai Veterinary College, Mumbai were collected in lavender top vials containing K2 EDTA (Ethylene diamine tetra acetic acid), from August 2015 to July, 2016. Hematology of blood samples were performed using automatic hematology analyzer (Abacus Jr. Vet. 5 of Diatron Make, Hungary). Thin blood smears were also prepared immediately after collection of blood and stained with Romanowsky stains for

microscopic examination of hemoprotozoan/rickettsial diseases.

RESULTS AND DISCUSSION

Out of 127 dogs, 44.88% cases showed anaemia of varying severity. The mean Hb, PCV and TEC values in anaemic cases were 8.79 ± 0.35 g/dL, 26.75 ± 1.14 % and $4.22 \pm 0.17 \times 10^6$ cells/c.mm., respectively. In microscopic examination of blood smears, 5 (3.93%) dogs were found positive for haemoprotozoan infection after microscopic examination. Out of 5 positive cases, *Hepatozoon* spp., *Trypanosoma* spp. *Babesia gibsoni* and *Babesia canis* in one dog each and mixed infection of *Hepatozoon* spp. and *Trypanosoma* spp. was found in two dogs (Figs. 1, 2, 3 & 4). The present study revealed a low prevalence rate of haemoprotozoan infections (3.93%) as compared to earlier investigators who reported 63.12% positivity in Nagpur region of Maharashtra and 11.6 to 11.73% positivity in Chennai (Samradhni *et al.*, 2005; Kumar *et al.*, 2009; Selvaraj *et al.*, 2010). Rani *et al.* (2011) reported the overall incidence of haemoprotozoan parasite infections in dogs is 49.7% in four major cities of India. The low prevalence of haemoprotozoan/rickettsial parasites in the present study could be attributed to the less sensitivity of the microscopic method and indiscriminate use of anti-microbial and anti-rickettsial drugs without any

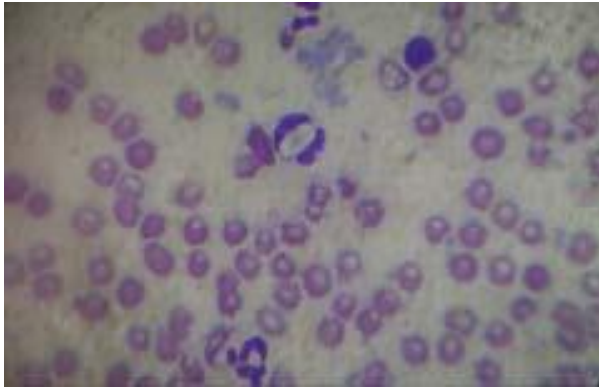


Fig. 1: Gamonts of *Hepatozoon* spp. in Neutrophils (x 1000)

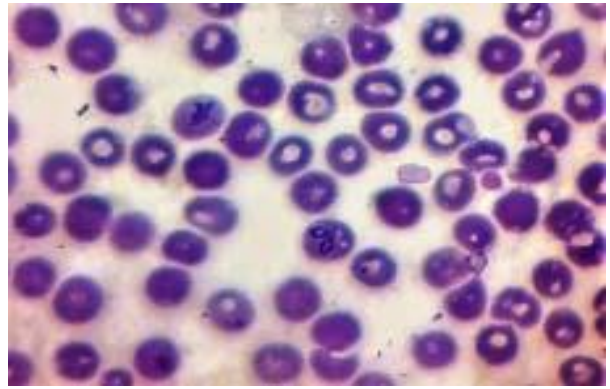


Fig. 3: Concurrent infection of *Heptazon* spp. And *Trypanosoma* spp. (x 1000)

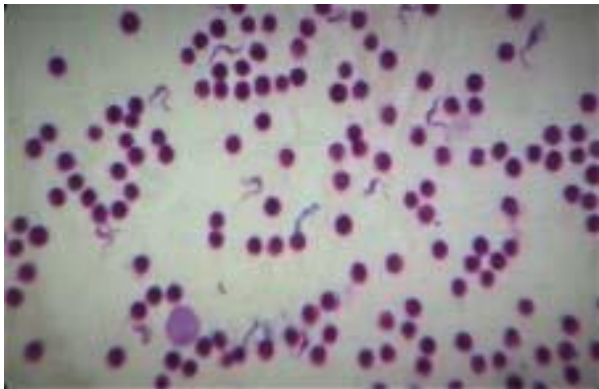


Fig. 2: *Trypanosoma* spp. in blood smear (x 1000)

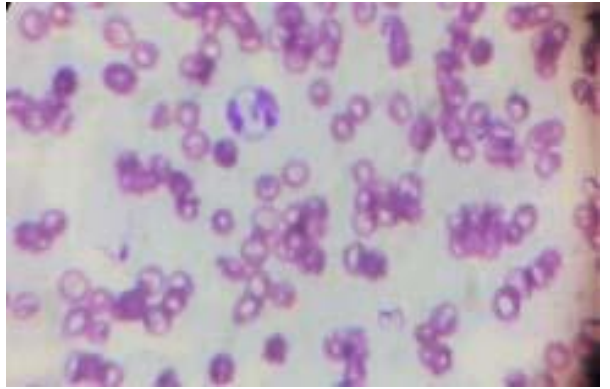


Fig. 4: *Babesia* spp. in Red blood corpuscles (x 1000)

confirmatory diagnosis. Therefore, adoption of advanced and sensitive molecular technique like PCR will be helpful for more accurate and rapid diagnosis and specific treatment of hemoprotozoan diseases in dogs.

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Conflict of interest: The Author(s) declare(s) that there is no conflict of interest.

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