Short communication

INCIDENCE OF *HEPATOZOON CANIS* IN A DOG FROM BAREILLY DISTRICT OF UTTAR PARADESH

Abstract

A thin peripheral blood smear collected from a four years of old dog (Labrador breed) was received from the Veterinary Clinical Complex, Indian Veterinary Research Institute, Izatnagar to the Division of Parasitology, Indian Veterinary Research Institute, Izatnagar for the diagnosis of haemoprotozoan disease during the month of October, 2023. Blood smear was screened for parasitological examination using Giemsa's stain showed positive for *Hepatozoon canis*. Incidence of *H. canis* was documented in a dog from Bareilly district of Uttar Paradesh.

Key words: Bareilly district of Uttar Pradesh, Conventional diagnosis, Dog and *Hepatozoon canis*

Introduction

Canine hepatozoonosis, caused by *Hepatozoon canis*, is considered to be one of the most prevalent canine vector-borne infections in the world including India (Otranto and Dantas-Torres, 2010; Singh et al., 2017a). This disease, caused by *H. canis* was first described in India in 1904 by Bentley (Dwyer 2011) and is transmitted by the tick *Rhipicephalus sanguineus* (Otranto et al. 2011). *R. sanguineus* is found in temperate and tropical regions worldwide, and cases of *H. canis* have been reported from different places like southern Europe, Asia, Africa, the Middle East and South America (Baneth and Vincent, 2005).

The infection with *H. canis* is caused primarily by the ingestion of infected ticks or tick parts containing mature oocysts with infective sporozoites through oral route (Aktas et al. 2013). It is an intracellular, malaria like parasite affecting leucocytes of dogs. Leucocytes containing gamonts of *H. canis* are usually seen in peripheral blood smear particularly in neutrophils (Hendrix et al. 2006).

The infection level can vary from subclinical, usually associated with low parasitemia, to severe and life-threatening disease in animals with high parasitemia, often in puppies or immunosuppressed animals and infected dogs may persistently show latent parasitism for long periods of time (Baneth et al., 1997). In this study, a dog infected with *H.canis* was conventionally diagnosed, and the prevalence and control strategies in India were described.

Materials and methods

A thin peripheral blood smear collected from a four-year-old Labrador dog was received from the Veterinary Clinical Complex, Indian Veterinary Research Institute, Izatnagar, at the Division of Parasitology, Indian Veterinary Research Institute, Izatnagar in October 2023 for the diagnosis of haemoprotozoan disease. The smear was fixed with methanol, stained using the standard Giemsa's staining method, and screened under oil immersion of a compound binocular light microscope.

Result

Microscopic examination of the blood smear, stained with Giemsa's method and screened for the presence of haemoprotozoan parasites, revealed rectangular bodies surrounded by a capsule. These bodies stained pale blue with a dark reddish-purple nucleus and exhibited numerous pink granules in the cytoplasm of the gamonts found inside neutrophils (Soulsby, 1982), as shown in Figure 1.

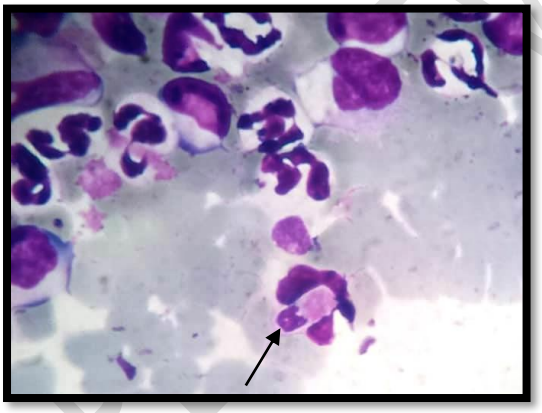

Figure 1. *H.canis* gamonts in neutrophils stained with Giemsa's stain (1000X)

Discussion

Murugesan, K., et al. (2017) reported the *H.canis* in dogs from Namakkal district of Tamil Nadu using conventional and polymerase chain reaction. Singh, M. D., et al. (2019) documented *H.canis* in dogs using loop-mediated isothermal amplification (LAMP) from Ludhiana, a district of Punjab state, India. Abd Rani, et. al. (2011) revealed that *H. canis* was the most common canine TBD pathogen found infecting dogs in India followed by *E. canis, M. haemocanis* and *A. platys.*The genus *Rhipicephalus* was found to be the most common tick present in this study followed by *Haemaphysalis*. Lakshmanan, et. al. (2018) documented the first report on molecular detection of *H. canis* in naturally infected dogs from Kerala. Roux and Raoult (1999) recommended that routine screening of the animals should be followed as the blood sucking vectors carry infected host blood and pathogens causing the disease in susceptible animals.

Conclusion

Tropical countries, such as India, have a high prevalence of *R. sanguineus*, which favors tick-borne parasitic infections in animals, particularly in dogs. Climate change could be one of the important factors that contribute to the high prevalence of ticks. In order to prevent tick-borne parasitic diseases in animals, we need to follow recent strategies to control infections, such as vaccination against ticks. Additionally, adopting early disease diagnostic techniques is crucial to treating them in an acute stage, preventing further losses.

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