

## A Retrospective Study in Dogs to Evaluate the Effect of Tetracyclines in Suspected Hemoprotozoan Infection

Deepika Kataria\*, Divya Agnihotri, Tarun Kumar and Nisha

Department of Veterinary Medicine, College of Veterinary Sciences, LUVAS, Hisar, 125004, Haryana, India

\*Corresponding Author E-mail: [deepikakataria257@gmail.com](mailto:deepikakataria257@gmail.com)

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### ABSTRACT

*This study included a total of sixty five affected dogs which were brought to VCC, LUVAS, Hisar from June, 2018 to November, 2018 and were suspected to be affected with haemoprotozoan infection. On the basis of severity of clinical signs, the dogs were categorized into severely and moderately affected categories. The blood picture showed anaemia, thrombocytopaenia, neutrophilia and eosinophilia with negative blood smears for any haemoprotozoan infection. Majority of the affected dogs were males and from the age group of two to five years. Maximum cases were observed in monsoon season i.e. from July to September. Severely affected cases were administered oxytetracycline for five days @ 10mg/kg i.v. b wt. twice daily along with supportive therapy followed by oral administration of doxycycline for further two weeks. In moderately affected cases, doxycycline was recommended orally for three weeks period. All the severely affected cases showed marked improvement within two days of treatment while moderately affected cases showed clinical improvement only after five days of oral doxycycline therapy.*

**Keywords:** Haemoprotozoan, Fever, Ticks, Tetracyclines

### INTRODUCTION

Endoparasitic infestations have always been a major health problem in animal species especially in canines. In tropical countries like India, haemoprotozoan infections are quite common in canines. Mostly haemoprotozoan parasites are tick-borne and cause great socio-economic and public health losses. These blood parasites affect the blood vascular system, which may be the intraerythrocytic parasite, the intraleukocytic parasite or those

living freely (Urquhart, 1987). The common diseases caused by blood parasite in dog are babesiosis, trypanosomiasis and ehrlichiosis (Urquhart, 1987). These blood parasites are mostly diagnosed and identified by blood smear examination. The present study was conducted to analyze the prevalence of haemoprotozoan in dogs as well as to evaluate the effects of tetracyclines on the affected dogs.

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## MATERIALS AND METHODS

This study included a six months period from June, 2018 to November, 2018 in which a total of sixty five cases were brought in small animal medicine section VCC, LUVAS, Hisar with a history of tick infestation, dullness, dehydration, high fever and anorexia. On the basis of history and clinical signs these cases were suspected to be affected with haemoprotozoan infection. Blood sample was collected from cephalic/saphanous vein aseptically. Microscopic examination of blood samples was done after staining the prepared thin blood smears with Giemsa stain and examined under oil immersion objective of the microscope to detect the piroplasms. On the basis of severity of clinical signs of fever, dullness and inappetance, the dogs were categorized into severely and moderately affected categories. Blood in EDTA was used for hematological examination using automated hematology cell counter (MS4s, Melet Schlosing Lab.) In severely affected cases the treatment was immediately initiated with i.v. administration of oxytetracycline for five days @ 10mg/kg b wt. twice daily followed by oral administration of doxycycline for further two weeks. The treatment was also supported with antipyretics, antihistamines, fluid therapy, vitamin C and B complex while in moderately affected cases, doxycycline was recommended orally for three weeks period.

## RESULTS AND DISCUSSION

The blood smear examination came negative for any haemoprotozoan infection. It might be because the blood was not collected from peripheral blood circulation and was collected from cephalic vein in majority of the cases. Major breeds reportedly affected were German Shepherd (26%), Labrador Retriever (24%) and Pug (15%) (Figure 1). Male dogs (62%) were found to be affected more than female dogs (38%) (Figure 2). These results are in agreement with Sahu et al. (2014), male dogs

were more affected than female dogs in their study. On the contrary Phuyal et al. (2017) observed that female dogs are more susceptible than male dogs for haemoprotozoan infections. No significant differences were recorded amongst sex in the similar studies of Kumar et al. (2009) and Sharma et al. (2011). The major haematological changes observed in the affected dogs were anaemia (52%), thrombocytopenia (38%), neutrophilia (68%) and eosinophilia (4%) (Figure 3). Similar haematological alterations are observed by Sharma et al. (2011). Changes in DLC profile might lead to immune suppression and render the affected dogs prone to opportunistic pathogenic infection which resulted in neutrophilia. On the basis of severity of clinical signs of fever, dullness and inappetance, the dogs were categorized into severely (61%) and moderately (39%) affected categories. Season wise distribution of cases showed that maximum cases were in monsoon season i.e. from July to September (60%) as the number of tick population and activity greatly increases in this particular season. These findings are in accordance with the studies of Kumar et al. (2009); Sharma et al. (2011) and Samradhni et al. (2005) where the maximum incidence of haemoprotozoan infection was also observed during monsoon season. On the other hand Sahu et al. (2013) observed highest percentage of incidence in summer (14.55%) followed by rainy (10.06%) and least in winter (5.92%). Maximum cases affected were from the age group of two to five years (67%). This might be due to greater attention paid by the pet owners to the dogs before 1 year to control vectors than to the dogs greater than 1 year (Jalali et al., 2013; Subedi, 2009). All the severely affected cases showed marked improvement within two days of treatment after while moderately affected cases showed clinical improvement only after five days of oral doxycycline therapy.

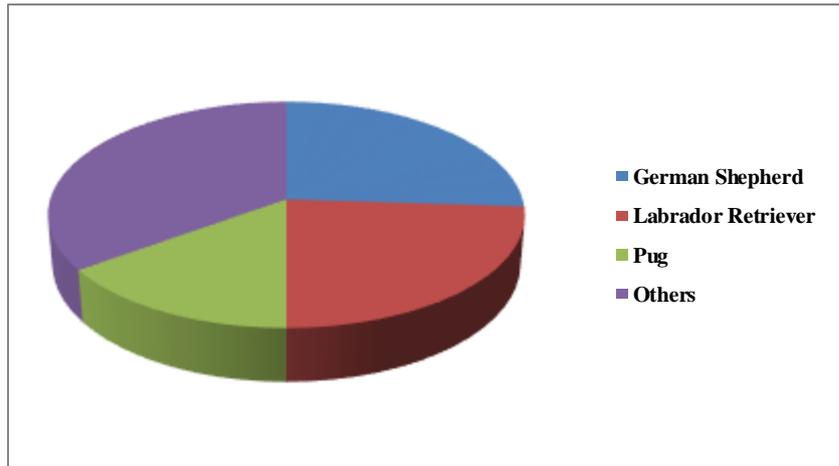


Fig. 1: Breed-wise distribution

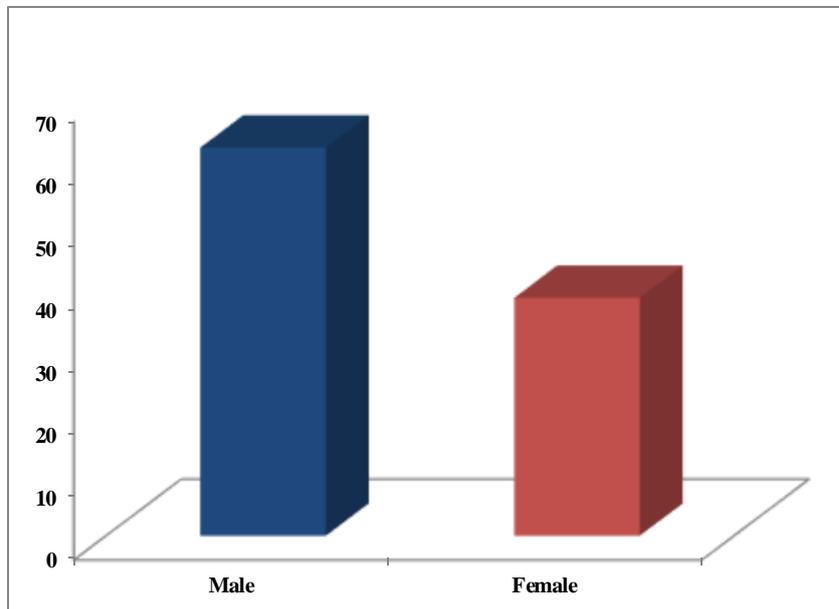


Fig. 2: Sex-wise distribution

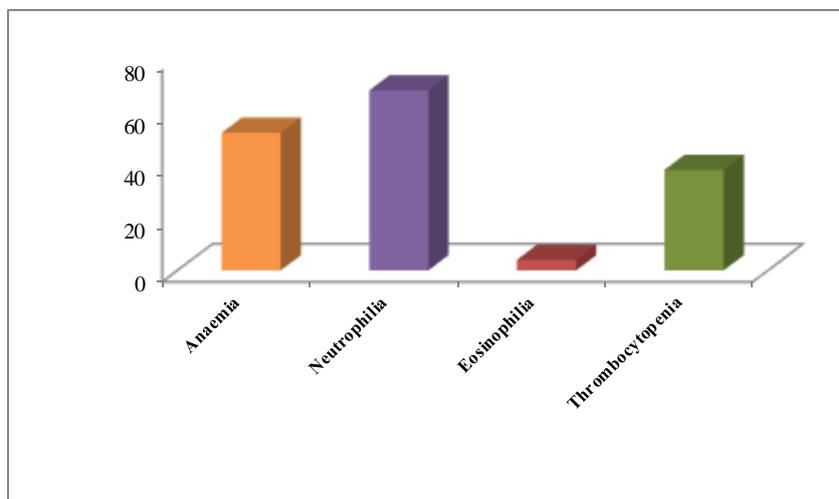


Fig. 3: Haematological parameters

### CONCLUSION

The blood smear examination came negative for haemoprotozoan infection but still all the affected dogs were recovered successfully after treatment with tetracyclines. Intravenous administration of oxytetracycline showed better and early improvement than the oral administration of doxycycline. The season wise distribution of cases showed that maximum cases were in monsoon season.

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