



# International Journal of Veterinary Sciences and Animal Husbandry

ISSN: 2456-2912

VET 2023; 8(4): 364-366

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Received: 03-05-2023

Accepted: 05-06-2023

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## Diagnosis and clinico-therapeutic management of *Toxocara canis* infection in a dog: A case report

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Ithrineni Karthik, Salil Kumar Pathak and Srashty Singh**

### Abstract

A 3-month-old male Labrador retriever pup was presented to the Veterinary Clinical Complex, C.V.Sc. & A.H., and Jabalpur with a history of inappetence, vomiting, foul-smelling bloody diarrhea with white-colored worms expelled in the faeces. Faecal sample examination confirmed the presence of brownish, spherical unembryonated eggs of *Toxocara* spp. The pup was effectively managed with Pyrantel pamoate @ 5 mg/kg body weight orally once daily for three consecutive days coupled with supportive therapy. An uneventful recovery occurred following 5 days of treatment.

**Keywords:** *Toxocara canis*, dog, labrador, bloody diarrhea, Pyrantel pamoate

### Introduction

Gastrointestinal nematodiasis is one of the most commonly encountered diseases in dogs. Toxocariasis is a parasitic zoonosis caused by the ascarid of the dog, *Toxocara canis*. Dogs often get afflicted with these ascarid nematodes and their infection depends on multiple factors like age, geographical area, deworming history, etc. (Mandarino-Pereira *et al.*, 2010) [1]. The major route of infection in adult animals is through ingestion of embryonated eggs or paratenic hosts. Young dogs are more likely to suffer from infection through the transplacental and trans-mammary routes. Toxocariasis is highly prevalent in younger dogs below 6 months of age, adult dogs serve as a source of infection for young ones. Clinical manifestation in toxocariasis depends on the adult worm load and the host's immune status (Sivajothi and Reddy, 2018) [2]. It is characterized clinically by inappetence, diarrhoea, weight loss, poor hair coat, and potbelly appearance (Ettinger *et al.*, 2017) [3]. The present article reports the diagnosis and successful management of *Toxocara canis* infection in a pup.

### Case history and signalment

A 3-month-old male Labrador retriever pup was presented to the Veterinary Clinical Complex, C.V.Sc. & A.H., and Jabalpur with a history of inappetence, vomiting, foul-smelling bloody diarrhoea with white-coloured worms expelled in the faeces (Fig. 01) for the past 2 days. Deworming and vaccination were not done. Clinical examination revealed normal rectal temperature (101.8 °F), respiration rate (38 breaths/min), and heart rate (112 beats/min). Visible mucus membranes were slightly pale and the animal was moderately dehydrated. Hematochezia was also noticed with worms swarming from the rectum (Fig. 02).

### Diagnosis

For confirmatory diagnosis, faecal samples and worms were collected and processed for examination and identification. The faecal samples were processed by direct smear examination and flotation technique for parasitic ova as per the procedure described by Soulsby, 1982 [4]. Faecal sample examination confirmed the presence of brownish, spherical unembryonated eggs of *Toxocara* spp. (Fig. 04). The presence of cephalic alae at the anterior end of the worm confirmed it as *Toxocara canis*.

Based on the history, age, clinical findings, faecal sample analysis, and worm identification, the case was diagnosed as toxocariasis.



**Fig 1:** Bloody diarrhoea along with adult worms



**Fig 2:** Haematochezia with worms swarming from the rectum



**Fig 3:** Adult *Toxocara canis* worms recovered from faeces



**Fig 4:** *Toxocara canis* ova in faeces (x100)

#### Haematological examination

About 1 ml of blood sample was collected aseptically from the cephalic on day '0' pre-treatment and day '14' post-

treatment, and transferred into clean, dry EDTA glass vials for routine haematology. Haematological parameters were estimated using Abacus automatic haematology analyzer (Diatron GmbH).

#### Treatment

The treatment was instituted with Pyrantel pamoate @ 5 mg/kg body weight orally once daily for three consecutive days to overcome the parasitic load and alleviate signs of diarrhoea. Supportive therapy included parenteral fluid therapy with Dextrose Normal Saline @ 20 ml/kg body weight and Ringers Lactate @ 15 ml/kg body weight intravenously to correct the dehydration and electrolyte imbalances coupled with antiemetic (Ondansetron @ 0.5 mg/kg b.wt I/V), antacid (Pantoprazole @ 0.7 mg/kg b.wt I/V) and vitamin B-complex therapy OD for 3 days to alleviate the signs of gastritis. The oral haematinic syrup was advised twice daily for 14 days to improve the anaemic status.

#### Result and Discussion

An uneventful recovery occurred after 5 days of treatment and no ova were detected in the faeces on coprological

examination. Toxocariasis is highly prevalent in younger dogs below 6 months of age, possibly due to prenatal and Trans mammary transmission of *Toxocara canis* (Hendrix *et al.*, 1996; Swai *et al.*, 2010 and Sahu *et al.*, 2012) [5, 6, 7]. These findings were in accordance with the present study. Haematological abnormalities observed were presented in Table No. 01. CBC analysis revealed hemoconcentration and mild anaemia. This corresponds to the observations made by Sivakumar *et al.* (2017) [8] who reported anaemia with low levels of haemoglobin and total erythrocyte count. Anaemia might be due to intense parasite-induced blood spoliation and blood loss via the gastrointestinal tract as bloody diarrhoea/Malena was the disease's main symptom. Haematological values returned to normalcy following 15 days of therapy. Successful recovery in the present study confirmed that toxocariasis could be effectively managed with Pyrantel pamoate. By opening nonselective cation channels and inducing persistent activation of nicotinic acetylcholine receptors, Pyrantel pamoate eventually causes spastic paralysis and expulsion of the worms. The present findings were in close agreement with Sivakumar *et al.* (2017) [8] and Varun *et al.* (2021) [9].

**Table 1:** Haematological parameters of a dog affected with *Toxocara canis*

Parameters	Before treatment (Day 0)	After treatment (Day 14)
Haemoglobin (g/dl)	10.2	11.6
Packed cell Volume (%)	38	36
Total Erythrocyte Count (10 <sup>6</sup> /μl)	4.97	5.4
Mean corpuscular volume (fl)	31.4	63.5
Mean corpuscular haemoglobin concentration (g/dl)	32.2	36.3
Total leucocyte Count (10 <sup>3</sup> /μL)	6.56	8.61
Neutrophils (%)	78	69
Lymphocytes (%)	17	27
Monocytes (%)	03	03
Eosinophil (%)	02	01

## Conclusion

The current observation thus emphasizes that toxocariasis can be successfully treated with Pyrantel pamoate along with supportive therapy and timely deworming of dogs with suitable anthelmintic drugs is essential. As toxocariasis is a zoonotic disease prevention and control of toxocariasis is important not only for an animal but also for public health perspective.

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