

Clinical Investigation on intestinal helminthes infestation in stray dogs in South Florida, USA

K. M. Ibrahim

Department of Veterinary Medicine, Faculty of Veterinary Medicine, Suez Canal University, Ismailia, Egypt

In this study a total of 200 stray dogs housed in Safe Harbor Animal Rescue and Clinic (SHARC), South Florida, USA were clinically and parasitologically examined for intestinal helminthes. In this investigation, dogs were clinically examined and monitored for intestinal parasites for 6 successive weeks, treated with specific drugs and investigated for the possibility of reinfestation with intestinal parasites within the closed quarters of the animal shelter environment. Fecal floatation technique revealed three types of parasitic eggs in fecal samples of 46 (23%) dogs, including *Ankylostoma* spp. 30 (15%), *Toxocara canis* 10 (3.5%), and *Dipylidium caninum* 6 (3%). Clinical examination of investigated dogs revealed bloody diarrhea associated with abdominal pain, anemia, poor hair coat and the presence of segments of tapeworms approximately in the size of grain of rice in the feces of some dogs. Some dogs showed frequent cough. Some dogs that were tested negative for *Ankylostoma* spp. and *Toxocara canis* tested positive later indicating definite contamination in the environment of the shelter. Some dogs developed tapeworm infestation during this study indicting the presence of infective flees in contact dogs. Control measures and therapy were discussed.

Canine intestinal parasitic infestation represents a serious important problem. These endoparasites live within the host and obtain their nutrients in order to survive and reproduce causing at least a debilitating disease and unthretness, MSD-AAGVET (1981).

The damage induced by intestinal canine worms may extend to loss of blood as some worms e.g. *Ankylostoma* spp. feed on blood causing bleeding from small blood vessels of intestinal tract resulting in anemia (Richard *et al.*, 1998).

Other worms may cause mechanical obstruction in the intestine with blocking the passage of ingesta.

Control of canine intestinal parasites depends mainly on the use of specific drugs to get ride of such helminthes. However effective sanitation seems to be an important practice for the control of canine endoparasites due to the availability of sources of infection in animal shelters. Moreover control of such parasites is sometimes so difficult especially in case of indirect life cycle e.g. *Dipylidium caninum* since its intermediated host are dogs and cats fleas.

The aim of the present work was directed to investigate. clinical aspect of infestation of dogs with intestinal parasites, effect of some anthelmintics on infested dogs and the

possibility of reinfestation after treatment in closed shelter.

Material and methods

Animals. A total of 200 stray dogs of 3-18 months old were clinically and parsitologically investigated for intestinal helminthes at Safe Harbor Animal Rescuer and Clinic, South Florida, USA. These animals were kept in the animal shelter of the clinic and investigated for 6 weeks.

Fecal floatation technique. It was carried out for detection of intestinal helminthes according to (Soulsby, 1965).

Animals were examined weekly for 6 successive weeks

Drugs used for treatment. Panacur granules (Fenbendazole, Pfizer company) was used for treatment of *Ankylostoma* spp. and *Toxocara canis*. It was given in the food of dogs once a day, 50 mg/kg for three successive days .

Droncit tablets (praziquantel, Pfizer company) was used for treatment of *Dipylidium caninum* and given as one time dose (5mg/kg).

Results

Clinical examination of investigated dogs showed some clinical abnormalities in 30 dogs including abdominal pain, anemia, poor hair coat, bloody tinged diarrhea and presence of segments of *Dipylidium caninum* approximately

Table (1): Results of fecal examination of dogs throughout the course of the study.

Time	Non infested dogs	Infested dogs	Ankylostoma spp.	<i>Toxocara canis</i>	<i>Dipylidium caninum</i>
BT	154 (77%)	46 (23%)	30 (15%)	10 (3.5%)	6 (3%)
2 WPT	192 (96%)	8 (4%)	3 (1.5%)	3 (15%)	2 (1%)
6 wpt	184 (92%)	16 (8%)	5 (2.5%)	2 (1%)	9 (4.9)

BT = before treatment.
 2 WPT = two weeks post treatment.
 6 WPT = four weeks post treatment.

in the size of grain rice in feces of some dogs. Frequent cough was also observed.

Discussion

In this study a total of 200 stray dogs were investigated for intestinal helminthes at (Safe Harbor Animals Rescues & Clinic, South Florida, USA) during their stay in the animal shelter of the clinic.

Clinical examination of investigated dogs showed clinical abnormalities in 30 dogs related to infestation with intestinal parasites. Clinical signs included abdominal pain, diarrhea which sometimes bloody tinged, poor hair coat, anemia, sometimes symptoms were associated with frequent cough. Segments of *Dipylidium caninum* were observed in the feces of some dogs.

Animals that showed the previously mentioned clinical abnormalities were proved to be infested with different types of helminthes where 46 (23%) dogs were found to be infested, 30 (15%) dogs were infested with *Ankylostoma* spp., 10 (3.5%) dogs were infested with *Toxocara canis* and 6 dogs (3%) were investigated with *Dipylidium caninum* (Table 1).

Bloody diarrhea was attributed to *Ankylostoma* spp. Infestation. These worms during their feeding destroy tissues and cause wound to suck blood. When the worms move to a new feeding site bleeding occurs. Continual loss of blood leads to decrease in body stores of iron resulting in iron-deficiency anemia. Similar findings have been reported by (Levine, 1980; Schad, 1994 and Darella *et al.*, 2005).

Abdominal pain, digestive disturbance and diarrhea could be attributed to heavy infestation with *Toxocara canis*. This parasite causes mechanical obstruction in the intestine and feeds on food that the host has ingested for its own use

leading to debility and decrease of growth. This agrees with that recorded in other studies, (Eguia Aguilar *et al.*, 2005 and Darella *et al.*, 2005).

Infestation with *Dipylidium caninum* also causes digestive disturbances and anemia as the parasite absorbs nutrients from the intestine. Similar findings were reported by (Davalos, 1985; Romero, 1999 and Eguia Aguilar *et al.*, 2005).

Dipylidium caninum and *Ankylostoma caninum* are potentially transmissible to man (Davalos, 1985). Fecal examination of investigated dogs two weeks after treatment revealed 8 (4%) dogs infested with intestinal parasites including 3 (1.5 %) infested with *Ankylostoma* spp. , 3 (1.5%) with *Toxocara canis* and 2 (1%) with *Dipylidium caninum* . However examination of these dogs 4 weeks after treatment revealed 16 (8%) infested with intestinal parasites including 5(2.5%) with *Ankylostoma* spp. , 2 (1%) with *Toxocara canis* and 9 (4.5) with *dipylidium caninum* (Table 1). These findings indicate that reinfestation of dogs did occur during their stay in the animal shelter as a result of definite contamination of the environment by eggs of the parasites which pass with feces. This matter which necessitates the importance of rapid picking up of feces after the dog when goes to bathroom and also from kennels and runs. Concerning *Dipylidium caninum*, it is reasonably for such parasite to reappear in treated dogs (reinfestation) as the infestation depends on eating dogs infested fleas that were prevalent among dogs in the shelter. Therefore attempts should be made to control these insects' populations when dogs are treated for *Dipylidium caninum*.

The present study indicated that the most important aspect of management practice during the control programs of canine intestinal

helminthes seems to be the effective sanitation combined with the effective use of suitable anthelmintics with periodical examination of dogs for intestinal parasites.

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