Contents

List of tables

List of figures

6. Summary

In the current investigation, 62 stray cats collected from different districts in Beni-Suef province during the period from May 2015 to October 2016 were necropsied and transferred to the Laboratory of Parasitology, Faculty of Veterinary Medicine, Beni-Suef University for further parasitological investigations. The abdominal cavity was opened and the internal organs including stomach, intestine, kidneys, liver, heart and lungs were removed and thorough examined by naked eyes. The small intestine was longitudinally incised in 0.85% saline. The mucosa was scraped by a scalpel and the mucosal washings were passed through fine mesh wire sieves. The contents were washed with tap water and the helminths were collected. The contents of the gastrointestinal tract were then carefully assessed with the naked eyes as well as under a dissecting microscopy.

Both tapeworms and flatworms were fixed in formalin acetic acid alcohol, stained with dilute aceto-alum carmine and differentiated in acid alcohol. The stained specimens were dehydrated through passage in several ascending grades of alcohol (50, 70, 90, 95 and 100%). Clearing process was carried out in clove oil for period of time followed by xylene for few minutes to avoid excessive hardening of the specimens. Canada balsam was used to make permanent mounts. Roundworms were cleared in lactophenol and mounted in glycerol jell.

The overall prevalence of internal helminths was 87.0% (54/62).The recovered helminths were identified as trematode (8/62; 12.9%), cestodes (53/62; 85.4%) and nematodes (22/62; 35.4%). A total of 11trematodal species, 5 cestodal species and 2 nematodal species were recovered from the internal organs. The least common helminth group was trematodes. The identified trematodal species were *Heterophyes heterophyes*, *H. nocens*, *Pygidiopsis summa*, *Mesostephanus appendiculatus*, *Echinochasmus liliputanus*, *Euparadistomum herpestesi*, *Procerovum varium*, *Ascocotyle longicollis*, *Haplorchis pumilio* and *Prohemistomum vivax*.

To the authors' opinion, adult *Euparadistomum* spp. was first described from stray cats in Egypt.

The most common helminth group was cestodes in examined cats. The most prevalent species was *Dipylidium caninum* (39/62; 62.9%) followed by *Diplopylidium nolleri* (14/62; 22.5%) and *Jeuxiella pasqualei* (9/62; 14.5%). The least common cestodes were *Taenia taeniaeformis* (6/62; 9.6%) and *D. acanthotetra* (5/62; 8%).

The most prevalent nematodal species was *Toxascaris leonina* (21/62; 33.8%) followed by larvae of *Anisakis simplex* (2/62; 3.2%).

Concerning age, it has been found that the highest prevalence of infection with trematodes, cestodes, and nematodes was encountered in adult cats. The infection with trematodes was higher in females than in

males but infection with cestodes and nematode was higher in males than females. Approximately, 46.77% had a single infection rate followed by a double infection rate (35.48%) then triple infection rate (4.84%).

The current investigation indicated that the highest worm burden was found in summer and autumn (100%) followed by winter (92.8%). Meanwhile, the lowest infection rate was recorded in spring (86.6%)

Studying the effect of disinfectant on unembryonated *Toxascaris leonina* eggs, eggs were collected from the female gravid uteri recovered from the small intestine of naturally infected cats. Approximately 7000*T.leonina*eggs were homogenized and divided into five equal groups, each of 1400 eggs: Control, sodium hypochloride, 70% ethanol, Virkon®S, TH4+ group, Fenek, and Dettol.

In all groups, eggs were placed into Petri dishes containing 1% formol-saline to prevent bacterial and fungal contaminations, and incubated for 10 days at 28°C and 80% relative humidity. Plates were daily shaken to allow oxygenation. Culture samples were obtained every 3 successive days to assess the development of *T. leonina* eggs. The percentage of degenerated eggs and L2 viability was evaluated by analyzing the larval motility after light /heat exposure under microscopy.

It has been found that both sodium hypochlorite and phenol had non–significant effects on unembryonated toxascarid eggs compared to the control untreated eggs, resulting in 2.8% and 21.0% reductions in

larval development, respectively.TH4+ and ethanol had significant ($P \leq 0.05$) effects on unembryonated toxascarid eggs compared to the control untreated eggs, resulting in 58.8% and 85.8% reduction in larval development, respectively. Both Dettol® and Virkon®S treatment resulted in 100% reduction in larval development ($P \leq 0.05$).

Virkon® S induced early embryonic lysis in treated eggs after 24 hours. Concomitant with the effects of disinfectants on the unembryonated eggs, the tested disinfectants induced variable degrees of effects on the egg shell and/or larvae. Sodium hypochlorite elicited a marked decortication oftreated eggs. The eggs of phenol-treated group appeared more or less morphologically normal. TH4+ and 70% ethanol had no apparent effect on the larvae from treated eggs. Dettol®-treated eggs showed a deformity in the shell one week post exposure. Virkon®S-treated eggs showed a complete degeneration of most of the larvae, and loss of their features 24 hours post exposure.

Histopathologically, more or less non-specific intestinal lesions in the form of degenerative changes and necrosis of the lining mucosa, oedema and mild congestion in mucosa and submucosa and hemorrhages in the neighboring blood vessels were detected suggesting the mechanical action of tapeworms due to their suckers and hooks.