ISOSPOROSIS IN CATS AND DOGS: ETIO-EPIDEMIIOLOGICAL AND CLINICAL FEATURES

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Abstract: The etio-epidemiological and clinical aspects of isosporosis in carnivorous (dogs and cats) had in view. The cases were suspected by clinical symptomatology and the diagnoses was confirmed by coproparasitological exams. To determine the prevalence of infections with Cystoisospora spp. faecal samples from cats and dogs were examined, using a flotation-technique.

21 cases were confirmed as isosporosis, with a bigger incidence in dogs (61.9% - 13 cases) than in cats (38.1% - 8 cases). The highest prevalence of infection was seen in younger animals than 1 year. The most of infected animals (61.9%) with clinical signs and confirmed by coproparasitological exams was 4-7 weeks old, 19.04% was between 8 and 11 weeks old, and 14.28% was 4-8 months old. Clinical signs were not registered and the disease was not confirmed in adult animals.

The most cases (76.29%) had an acute and subacute evolution and they were registered in animals being 5-10 weeks old; all of these animals came from a shelter.

INTRODUCTION

Isosporosis is a protozoosis determined by coccidians from Cystoisospora (Isospora) genera, included in subfamily Isosporinae, family Isosporidae, order Eucocidiida /Eucoccidiorida, subclass Coccidia (Coccidiasina), class Apicom-lexa (Sporozoa) (Euzeby J., 1987).

There are 4 species of Cystoisospora (C. canis, C. oholiensis, C. burrowsi și C. neorivolta) that are pathogen for dogs. But is difficult to make differences between C. oholiensis, C. burrowsi and C. neorivolta species by microscope examination, using morphology and size of oocysts as criteria; for this reason, sometimes these are regrouped as a single entity, C. oholiensis complex. In cat, Cystoisospora felis is very often identified in domestic cats' feces, but also Cystoisospora rivolta (Dulceanu N., 1980; Șuteu I., 1982, 1983; Euzeby J., 1987).

Though, there are some of the most spread parasitic diseases in companion animals, coccidiosis, including isosporosis, are not currently diagnosed, being often neglected or even ignored, because of their insidious evolution or confusion with other disease expressed by predominant digestive signs. However, isosporosis is a serious threatening for domestic animal health, causing important losses, especially in young puppies, kittens, in running dry period. Critical evolutions can be encountered/occur in animals maintained in inadequate hygienic conditions (Șuteu I. și Cozma V., 1998; Bowman D., 2003).

The present study was emphasized on the diagnosing elements, clinical signs and epidemiology of isosporosis in domestic carnivorous (dogs and cats).
MATERIAL AND METHODS

The study was performed in Clinic of Parasitic Disease of Faculty of Veterinary Medicine of Bucharest, during Oct. 2005 - May 2006. Suspected cases based on clinical signs, confirmed by laboratory exam, were included in the study.

Isosporosis suspicion was based on clinical signs and epidemiological data, such as:
- clinical data: no characteristic diarrhoea, eventually with blood and mucosa, generally with an acute evolution, without fever, but sometimes affecting general condition;
- epidemiological data: appearance of clinical signs usually in animal with age less than 6 month, recently acquired, proceeding from communities.

Isosporosis can be, also suspected in colonies in case of enzootic enteritis, sometimes hemorrhagic, often in running dry period or in few days after a stress factor (transport, change the place/house); in these situation, it is occurring lateness growing, easy to observe at all the puppies of a female.

Laboratory diagnosis was realised by coproparasitological exams (macroscopic and microscopic by direct smear and concentration methods – Willis method).

At the macroscopic exam of the feces samples, the consistence, smell, blood or mucus presence were pursuit. The microscopic exam emphasized the parasitic elements, respectively oocysts in feces.

RESULTS AND DISCUSSION

Consecutive the registered observations and results of laboratory exams performed in carnivores (dogs and cats) with isosporosis suspicion, 21 cases were diagnosed as positively. Those animals eliminated Cystoisospora (Isospora) oocysts in feces;

at the coproparasitological exam were found both unsporulated and sporulated oocysts: Cystoisospora felis (fig. 1) – in cat, C. ohioensis and C. canis (fig. 2, 3) - in dog.

Analysis of the disease’s prevalence in these two species (fig. 4) showed an increase isosporosis incidence in dog (13 cases – 61,9%) than cat (8 cases – 38,1%).

Fig. 1. Oocysts of Cystoisospora felis 400x
Fig. 2. Oocysts of Cystoisospora ohioensis and C. canis, near an egg of Toxocara canis 400x
Fig. 3. Oocyst of Cystoisospora canis 400x
Also, it had been ascertained differences depending on the animal’s age (fig. 5) both disease’s clinical expression and results of laboratory exam showing the predominant affecting of young animals (from 4 weeks to 7 months), and don’t adult animals. 61,9% (13 cases) from all diagnosed animals, had age between 4 and 7 weeks, 19,04% (4 cases) had age between 8 and 11 weeks, and 14,28% (3 cases) with age between 4 and 8 months.

Regarding clinical evolution of disease (fig. 6), most cases (11 cases, 52,39%) with clinical expression had an acute evolution, with: diarrhoea, mucus, occasionally watery, sanguinoient, and vomit, sometimes abdominal pain, no appetite or anorexia, weight reduction, dehydration and pica syndrom. Five from diagnosed cases (23,9%) had an subacute evolution, with diarrhoea, sometimes alternating with normal feces, but without affecting of general condition. There were registered 2 cases (9,25%) with chronic evolution, with periodically diarrhoeic episodes at variable periods, weakening, affected with anaemia, capricious appetite. Un single case with subclinical evolution was registered.

The constant encountered clinical sign was diarrhoea, feces with different consistence, from softening to watery diarrhoea.
Occasionally, diarrhoea was intermittently; in chronic or subclinical evolutions diarrhoea alternated with normal feces. Blood was present in feces in 5 from those 21 cases, but mucus was often observed. Another signs, inconstant observed: vomit, non appetite, dehydration, abdominal pain, apathy, weakening, anaemia pica syndrom.

The body temperature was normal.

The acute evolution of isosporosis was encountered in animals with age between 4 and 8 weeks, and subacute cases (23.9% - 5 cases) in animal with age between 5 and 10 weeks. There were not encountered isosporosis in adult animals.

The coprological exams emphasized also cases with poly parasitism, by associating of isosporosis with toxocarosis (fig. 2), trichurosis, and giardiosis. In these cases clinical expression was more grave. Most of these cases had an acute and subacute evolution.

Corroborating the laboratory exam’s results with epidemiological investigations and registered clinical signs, it can say that the disease clinical expression was found preponderant in young age, round about the weanling, at a little time after acquirement, most animal coming from collectivises.

We can consider that immunosuppression caused by transport, change of house and diet can favour development of schizogony, with multiplication of tissular elements, appearance of clinical signs and eliminating of oocysts.

CONCLUSIONS

- Emphasizing of some etio-epidemiological, and clinical aspects of isosporosis in carnivorous (dogs and cats) had in view in the present study. The cases were suspected by clinical symptomatology in domestic carnivorous from Bucharest, and the investigated cases, suspected by clinical signs, was confirmed by copro parasitological exams. As etiological agents were identified *Cystoisospora felis* – in kitten, *C. ohioensis* and *C. canis* – in puppies.
- 21 cases with isosporosis were confirmed after performing the laboratory exams, with
a bigger incidence in dogs (13 cases – 61.9%) than in cats (8 cases – 38.1%).

- 61.9% from all diagnosed animals had age between 4 and 7 weeks, 19.04% had age between 8-11 week, and 14.28% were 4-8 months old. Isosporosis wasn’t found in adult animals.

- The clinical expression of isosporosis was registered in young animals, at about the time of weanling, at a few days after acquirement, most animal coming from colonies. Most cases (52.32%) had an acute evolution, 23.9% had a subacute evolution, 9.52% - chronic evolution and one case (4.76%) with subclinical evolution.

- The acute evolution was found in animal with age between 4 and 8 weeks, and subacute evolution (23.9% - 5 cases) in animals with age between 5 and 10 weeks.

- The registered clinical signs was according to speciality literature: diarrhoea with mucus, occasionally blood, vomit, sometimes abdominal pain, non appetite or anorexia, dehydration, abdominal pain, weakening, anaemia pica syndrome.

- The coprological exams showed in some cases also poliparasitism, by association of isosporosis with toxocarosis, trichurosis and giardiosis; in these cases, the clinical expression was much more critical.

- The results of this study, about clinical and epidemiological aspects in isosporosis evolution, emphasized the diagnoses importance, compulsory to be made in animals with specific clinical signs, in order to establish a proper treatment.

**BIBLIOGRAPHY**

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