



A Rare Case of Peritoneal Larval Cestodiosis by *Mesocestoides* from Aydın Region in Turkey

Osman Selçuk Aldemir^{1*}, Güneş Erdoğan²

^{1*} Adnan Menderes University, Faculty of Veterinary Medicine, Department of Parasitology, 09100 Aydın, Turkey

² Adnan Menderes University, Faculty of Veterinary, Department of Obstetrics and Gynecology, 09100 Aydın, Turkey

ARTICLE INFO

Article history:

Received 05 May 2014

Accepted 20 May 2014

Available online, ISSN: 2148-127X

Keywords:

Parasitological examination

Peritoneal tetrathyridiosis

Ultrasonographic diagnosis of

Mesocestoides spp,

Cestode larval infection

Cat

ABSTRACT

A case report was presented from the peritonea of a 3 year-old mixed breed stray cat weighing 3.2 kg was referred to the Adnan Menderes University, Faculty of Veterinary Medicine, Clinic of Obstetrics and Gynecology for spaying. On physical examination her body condition and warm were normal but mild diarrhoea was detected. After physical and ultrasonographic examination, white larvae-like structures were observed within the abdominal cavity. These structures were collected in saline solution for parasitological examination. On parasitological examination, one hundred eleven larvae were found in the peritonea. After examining macroscopically and microscopically these larvae were identified as L2 stage of *Mesocestoides* spp. This is the first report from Aydın in Turkey, based on morphological characteristics in this study.

*Corresponding Author:

E-mail: osaldemir@adu.edu.tr

Introduction

Mesocestoides are tapeworms in the order Cyclophyllidea; the adult stage of *Mesocestoides* sp. occurs mainly in foxes and only rarely in cats and dogs. Adult worms live in the small intestine of carnivores and rarely in birds and humans (Foronda et al., 2007; Gallas et al., 2011). Immature form (Tetrathyridia) of *Mesocestoides* sp., are found in the abdominal cavity of a great variety of intermediate hosts such as rodents, small reptiles and birds (Eberhard 1999; Padgett and Boyce 2005). The peritoneal larval cestodiosis has been diagnosed in dogs and cats in western Europe and western asia, but the majority of cases have been reported from western North America (Crosbie et al., 1998; Padgett et al., 2005).

Some cases of Feline peritoneal larval cestodiosis by *Mesocestoides* had been reported (Crosbie et al., 1998; Gallas et al., 2011). This is the first report from Aydın in Turkey.

Case History

A 3 year-old mixed breed stray cat weighing 3.2 kg, was referred to the Adnan Menderes University, Faculty of Veterinary Medicine, Clinic of Obstetrics and Gynecology, for spaying.

Clinical Examination

On physical examination, her body condition and warm were normal but mild diarrhoea was detected. During ultrasonographic examinations, there was no pathology at genital tract and ovaries, but some hyperechoic echoes in abdominal cavity (Fig. 1) were noticed. After physical and ultrasonographic examination, her situation was appropriated for ovariohysterectomy operation under general anaesthesia. While performing ventral midline experimental laparotomy, numerous small, white larvae-like structures were observed within the abdominal cavity. These structures were collected in saline solution for parasitological examination. Finding the as intensive larvae invasion, it was decided that ovariohysterectomy operation was not appropriated for this queen. After that, abdominal wall was closed with sutures without being ovariohysterectomized. However, a hour after surgery, the queen died from cardiac fibrillation.

Diagnosis

On parasitological examination, the larvae were characterized as unsegmented, with an unarmed scolex, four elongate oval suckers and no rostellum. These

features indicated them to be the second larval stage of a *Mesocestoides species* (Fig. 2).

A total of 111 alive larvae were collected from the cat. The remainders were non-motile and seen in the deep ventral region of the peritonea (Fig. 3).



Figure 1 Ultrasonographic appearance of abdominal cavity.



Figure 2 *Mesocestoides* spp. in the second-stage larvae. Magnification X 8



Figure 3 The presence of larvae in peritonea

Discussion

Tetrathyridium has been reported in various vertebrate hosts, including wild and domestic birds, snakes, frogs, rodents and dogs. Cat is also reported to harbour both the adult tapeworm and intermediate stage at the same time (Soulsby 1982).

Peritoneal tetrathyridiosis in cats has been recorded in classical textbooks (Soulsby 1982) and variously attributed to larval invasion by *Mesocestoides* sp. and *Taenia* sp. Larval cestode masses in cats and primates have been identified as spargana of *Spirometra* sp. However, in this case the proliferative characteristics of the parasite suggested *Mesocestoides* sp. or *Taenia* sp. The four basic forms of taeniid metacestodes were considered in differential diagnosis.

Tetrathyridium caused by genus *Mesocestoides* is likely to be underdiagnosed and has previously been recorded mainly in the USA (Williams et al., 1985) and rarely in Turkey in a peafowl (Toplu et al., 2006). Clinical signs of the tetrathyridia range from no symptoms to a severe clinical picture including abdominal enlargement, anorexia, vomiting, ascites and peritonitis (Eberhard 1999; Soulsby 1982). In the case described here, tetrathyridium were incidentally discovered during an exploratory laparotomy. The acute clinical condition of the cat in this report was most likely caused by cestode larval infection. The parasitic material found in this case consisted of fluid-filled cysts with no further morphological structures for specification. No larvae were found within the cysts which were thus considered sterile.

References

- Crosbie PR, Boyce WM, Platzer EG, Nadler SA. 1998. Diagnostic procedures and treatment of eleven dogs with peritoneal infections caused by *Mesocestoides* spp. J Am. Vet. Med. Assoc., 213, 1578-1583.
- Eberhard ML. 1999. Georgis' Parasitology for Veterinarians. In: Bowman DD, Lynn RC (Eds): Diagnostic Parasitology. 7th ed., pp. 361-367. WB Saunders Company, Philadelphia.
- Foronda P, Pérez Rivero A, María A, Morales S, Kabdur A, Ana C, González M, Ricalde AQ, Feliu C, Valladares B. 2007. First larval record of *Mesocestoides* in carnivora of Tenerife (Canary Islands). J. Parasitol., 93(1):138-142
- Gallas M, Silveira EF. 2011. *Mesocestoides* sp. (Eucestoda, Mesocestoididae) parasitizing four species of wild felines in Southern Brazil. Rev. Bras. Parasitol., Vet 20(2):168-170
- Padgett KA, Boyce WM. 2005. Ants as first intermediate hosts of *Mesocestoides* on San Miguel Islan, USA. J. Helminthol., 79: 67-73.
- Soulsby, E.J.L. Helminths, 1986. Artropods and Protozoa of Domesticated Animals. 7.th ed., 809 p., Baillier Tindall, London.
- Toplu N, Sarimehmetoglu O, Metin N, Eren H. 2006 Pleural and peritoneal tetrathyridiosis in a peafowl. Vet. Rec., 158: 102-103.
- Williams JF, Lindsay M, Engelkirk P. 1985. Peritoneal cestodiasis in a dog. J. Am. Vet. Med. Assoc., 186: 1103-1105.