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THE FIRST CASES OF INFESTATION WITH *AELUROSTRONGYLUS ABSTRUSUS* IN CATS FROM TIMIS COUNTY

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Abstract

Study was taken in five cats from Timis County. All cats were under 24 months of age, except one which had seven years. The five cats were clinically, radiographically and coprological examined. The most common symptoms were coughing, wheezing, sneezing, and nasal discharge. Were seen bronchopneumonia at the radiographically examination. At the coprological exam larvae were present in fresh fecal smears.

Key words: *Aelurostrongylus abstrusus, cats, bronchopneumonia.*

INTRODUCTION

Aelurostrongylus abstrusus (*Nematoda, Strongylida*), the most common lungworm of cats, is found in many parts of the world, including the USA, Europe, and Australia. It has an indirect life cycle. It lives in the alveoli, bronchioles, bronchi and trachea of cats (Traversa, 2010). They are small parasites (males 7 mm, females 10 mm), deeply embedded in the lung tissues. The eggs are forced into alveolar ducts and adjacent alveoli where they form small nodules and hatch. First-stage larvae (L1) are coughed up, swallowed, and passed in the feces (Lopéz et al., 2005). The larvae seen in the feces of infected animals are tightly coiled, have an undulating tail with a spine, and are < 400 μm long (Lopéz et al., 2005). Larvae may survive in faeces for about 2 weeks until they penetrate terrestrial gastropod molluscs, in which they continue their development to the third larval stage (L3), which is infective to the final host (Lopéz et al., 2005). When one of these transport hosts is eaten, the larvae migrate from the stomach to the lungs via the peritoneal and thoracic cavities. They reach the lungs within 24 hr and are seen in the feces in ~1 month (Lopéz et al., 2005). Although prevalence can be high, clinical and diagnostic signs are often lacking. Chronic wasting, cough, dyspnea, and pulmonary wheezes may be seen. The lungs usually have solidified, gray, raised nodules 1-10 mm in diameter; generalized alveolar disease has been seen in chronic cases (Traversa et al., 2009). Diagnosis can be made by recovering larvae from faeces, bronchoalveolar lavage or necropsy. Treatment still has to be defined, but ivermectin is the most recommended drug (Traversa et al., 2009). In the past few years, case reports of aelurostrongylosis have been reported from many European countries with prevalence values between 0,7% and 1% in Germany (Epe et al., 1993 and 2004) and 22% in Croatia (Grabarevic et al., 1999). The occurrence of *Aelurostrongylus abstrusus* in cats from central and southern Italy (Capuano et al., 1995; Pennisi et al., 1995; Traversa et al., 2008) as well as in northern Italy (Grandi et al., 2005) suggests that this parasitic infection is not occasional. However, due to the inherent limits of classic diagnostic approaches, it is likely that feline aelurostrongylosis is often underestimated (Payo-Puente et al., 2008; Traversa et al., 2008).

The aim of this study was to report and describe five cases of aelurostrongylosis diagnosed in Timis County.

MATERIALS AND METHODS

Study was conducted during March 2010 to September 2011. Five fecal samples were analyzed from five cats. The cats included in

this study were from Timis County and were examined in the Veterinary Clinics of the Faculty of Veterinary Medicine Timisoara. All cats were privately-owned and were brought to medical examination because of respiratory signs. Age of cats studied was two months, six months, two year and seven year. Breed of cats taken in study was the Burmese breed (one cat) and European one (four cats). Cats were examined clinically, radiographically and coprological. The samples were taken from each cat. Fresh stool specimens were collected in clean plastic containers and stored at $+4^0$C. The examination of the sample was accomplished using flotation method (Willis) and direct examination using Lügol solution (Cosoroaba, 2002). For the flotation procedure the standard technique described by Cosoroabă (2002) was respected. Lugol's staining method is to make a native preparation of stool was added a drop and mix Lugol's solution. It is necessary to remove coarse food particles with a syringe needle and cover with a cover slip (Cosoroaba, 2002). The prepared slides were examined under a microscope with 400× magnification.

RESULTS AND DISCUSSIONS

Clinical signs were respiratory symptoms and the most common were: cough, dispnea, sneezing, and nasal discharge (see Table 1.).

Table 1. The clinical signs, coprological exam and radiographic features of A. abstrusus infection in the five cats studied

Cats	**European breed, 2 month, F**	**European breed, 2 year, M,**	**European breed, 7 year, M,**	**European breed, 6 month, M**	Burmese **breed, 2 year, F**
Clinical signs	dispnea, cough, tachycardia, tachypnea, sneezing, normal temperature	dispnea, cough, sneezing, normal temperature	dispnea, cough, sneezing, diarrheal feces vomit, anorexia, normal temperature	dispnea, cough, sneezing, diarrheal feces, anorexia, normal temperature	dispnea, cough, sneezing, normal temperature
Radiographic signs	severe bronchopneumonia	severe bronchopneumonia	severe bronchopneumonia	severe bronchopneumonia	severe bronchopneumonia
Coprological exam	*Toxocara* spp., *Trichocephalus* spp., *A. abstrusus*	*A. abstrusus, Giardia* spp.,	*A. abstrusus*	*A. abstrusus*	*A. abstrusus*

Symptoms like cough and dispnea associated with radiographic evidence of lung inflammation should alert the veterinarian to include aelurostrongylosis in the differential diagnosis. In the picture below you can see *Aelurostrongylus abstrusus* highlighted by different diagnostic methods (Figure 1.).

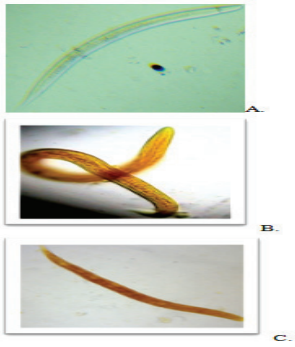

Figure 1. *Aelurostrongylus abstrusus* with Willis method (A) and with Lügol solution (B, C.) (original)

The evaluation of the radiographs showed abnormalities such as bronchial thickening, bronchial opacity, focal or generalized alveolar lung disease and increased vascular and focal parenchyma densities, in infected cats (Figure 2).

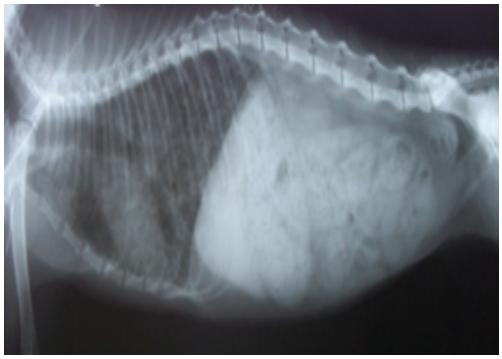

Figure 2. Thoracic radiographs in cat (original)

A. abstrusus infection is relatively rare. Recent surveys report prevalence's that range from 0.7% to 2.6% (Canestri Trotti et al., 1990; Epe et al., 2004; Miro´ et al., 2004; Robben et al., 2004). Feline infections have been described by several authors (Dubey and Crane, 1968; Scott, 1972; Pampiglione et al., 1990; Barrs et al., 1999; Sherding, 2004). In Romania Mircean et al., (2010) estimate at 5.6% the prevalence of infection with *A. abstrusus* in Transilvania.

CONCLUSIONS

The five fecal samples have been identified with *Aelurostrongylus abstrusus.* These results indicate that cat aelurostrongylosis is of clinical importance and, thus, needs to be included in differential diagnosis of feline respiratory diseases. Thoracic radiographs showed a bronchial pattern with thickening of the bronchial walls and infiltrates into the peribronchial regions.

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