Journal of Animal and Veterinary Advances 11 (21): 3943-3945, 2012
ISSN: 1680-5593

Capillaria plica Infection in a Mexican Cat

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Abstract: Capillaria parasites have been found in the urinary tract of several carnivorous species, Bladder infections caused by Capillaria (Pearsonema) in domestic cats have been reported in countries worldwide, though they appear to be uncommon. Cases of *Capillaria* species bladder worms in cats are rarely reported and most infected cats present no clinical signs, presumably because of a low parasite load. It is important that clinicians be alert for refractory cases of FLUTD that do not respond to conventional treatments and carry out urinalyses to detect the possible presence of *Capillaria* sp. eggs in urinary sediment.

Key words: Feline, urine, urinalysis, parasite, capillariosis, *Capillaria* sp.

INTRODUCTION

Bladder infections caused by Capillaria (Pearsonema) in domestic cats have been reported in countries worldwide, though they appear to be uncommon. *Capillaria plica* and *Capillaria feliscati* are the species responsible for feline urinary capillariosis. Capillaria parasites have been found in the urinary tract of several carnivorous species (Bedard, 2002). Its life cycle is unclear. It may be direct or involve a paratenic host such as the earthworm. Females lay eggs in the bladder and these are passed through the urine after which they become larvae in the environment and infect new animals through the oral route (Rossi, 2011).

The definitive host becomes infected after ingestion of earthworms that contain infective first-stage larvae. Larvae reside in the intestine for a short period until they migrate to the bladder where they moult into adults. The prepatent period after which Capillaria eggs may be isolated from the urine is of approximately 2 months after ingestion of infected earthworms (Rossi, 2011).

Cases of *Capillaria* species bladder worms in cats are rarely reported and most infected cats present no clinical signs, presumably because of a low parasite load. When heavily infested, they may exhibit signs of urinary tract disease such as polakiuria, dysuria and inappropriate urination (Bedard, 2002).

STUDY CASE

A 3 years old Mexican domestic male (Fig. 1) cat was taken to the clinic after presenting urinary tenesm. It was observed to urinate normally at times and in the form of a spray at other times. Pollakiuria was also recorded. The cat had received all its vaccines and treatments against parasites. Other cats lived at home and commercial food was freely available.

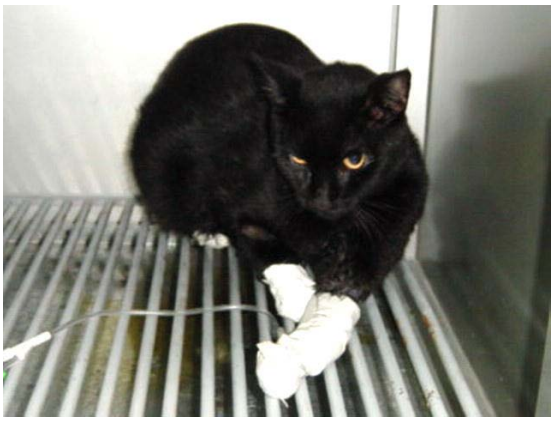

Fig. 1: Maxican cat

The owner went to the veterinary hospital after observing that his cat was not urinating and spent most of the day trying to urinate. He had also noted that the cat was eating and drinking water less.

A general physical examination indicated that the patient was depressed and responsive to external stimuli. An oval structure, approximately 10 cm in diameter, soft, movable and painless could be felt in the caudal region of the abdomen which could well correspond to a full bladder. The owner was advised of the need to observe

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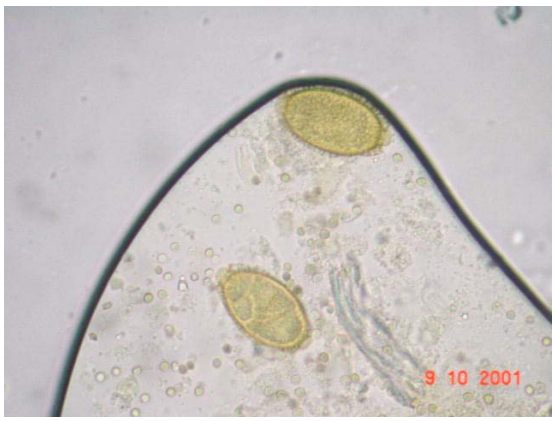

Fig. 2: Numerous *C. plica* eggs

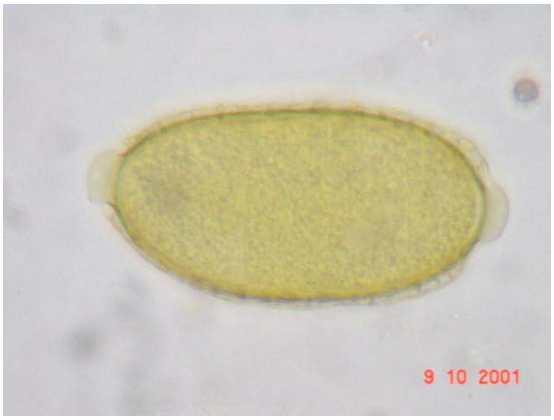

Fig. 3: *Capillaria plica*

the cat and to carry out some laboratory tests. A blood sample was collected for a hemogram and a blood chemistry analysis. In order to aid in the diagnosis, a cystosentesis was carried out to obtain a urinalysis. Well lubricated catheters were used to empty the bladder minime urethral trauma and to measure the production of urine. Intravenous fluid therapy was also provided and a latero-lateral pelvic X-ray was taken to observe the integrity of the urinary bladder. Numerous *C. plica* eggs (8-10×400) were incidentally observed during the microscopic examination of the urine (Fig. 2 and 3).

The only relevant observation in the hemogram was a trombocytosis (600,000). The blood chemistry analysis showed increased values of glucose (hyperglycemia) (190 mg dL^{-1}), hypercalcemia (7 mg dL^{-1}) and increased total bilirubin (3 mg dL^{-1}), oxalacetic T.G. (51 U L^{-1}), pyruvic T.G. (65 U L^{-1}) and Creatinine Kinase (CK) (119 U L^{-1}). The treatment provided was Febendazol at 50 mg/kg/day for 10 days after which the patient improved notably.

DESCRIPTION AND INTERPRETATION

Oval structures observed in the urinary sediment were identified as *Capillaria* sp. eggs. They were oval and colourless with a thick capsule and typical bipolar plugs (Fig. 1). Egg size ranged from 22-32 micro in width and 50-68 micro in length (Medway and Skelley, 1961).

Adult female worms were 29-60 mm long and adult males were 13-30 mm long. The life-cycle of both these parasites is indirect and involves as an intermediate host an earthworm that ingests eggs released in cat urine.

The definitive host becomes infected after ingesting earthworms containing infective first-stage larvae. Larvae reside in the intestine for a short period until they migrate to the bladder where they moult into adults.

Adult *C. plica* become embedded in the bladder epithelium and occasionally within the ureter or the renal pelvis where they can cause a mild inflammatory reaction and submucosal edema (Medway and Skelley, 1961). *Capillaria feliscati* is essentially free living on the surface of the bladder mucosa (Medway and Skelley, 1961).

The prepatent period after which Capillaria eggs can be isolated from the urine is of approximately 2 months after ingestion of an infected earthworm. Urinalyses indicate that finding *Capillaria* species eggs is often incidental but this has rarely been associated with signs of Feline Lower Urinary Tract Disease (FLUTD). The 1,7 infections can be self-limiting with a reduction of egg excretion to the point of being undetectable after a few months (Medway and Skelley, 1961).

Cases of *Capillaria* sp. in the bladder of dogs and cats are rarely reported because in most cases, clinical signs are not observed due to a low parasite load. However, when clinical signs are present, pollakiuria, dysuria, cystitis and inappropriate urination may be observed. Treatment should be provided when clinical signs are present. In the present case, the animal only presented urinary incontinence and dysuria.

Diagnoses are carried out after observing Capillaria eggs in urinary sediment (Van Veen, 2002). Although, infections by different species of *Capillaria* are uncommon it is important that clinicians be alert for refractory cases of FLUTD that do not respond to conventional treatments and carry out urinalyses to detect the possible presence of *Capillaria* sp. eggs in urinary sediment.

The collection of a urine sample through cystosentesis is indicated when capillariosis is suspected to avoid contamination of the urine with feces and eggs of *Trichuris* sp. that may lead to a misdiagnosis.

Urinalyses may reveal a mild proteinuria, microscopic hematuria and the presence of an increased number of transitional epithelial cells (Bedard, 2002; Rossi, 2011; Medway and Skelley, 1961; Van Veen, 2002; Ettinger and Feldman, 2005).

Infestations are usually self-limiting but treatment may be necessary in the presence of clinical signs. One to several doses of 50 mg kg^{-1} of Fenbendazol per (PO) have been suggested for the treatment of capillariosis in dogs (6). However, the persistence of *C. plica* eggs in the urine of one dog treated with several doses of Fenbendazol has been reported. The dog was then treated successfully with a single dose of 0.2 mg kg^{-1} Ivermectin, injected Subcutaneously (SC) (Bedard, 2002; Rossi, 2011; Medway and Skelley, 1961; Van Veen, 2002; Ettinger and Feldman, 2005).

TREATMENT

Success in treating urinary capillariosis has been reported using Benzimidazol, Ivermectin and Levamisol. ne to several doses of 50 mg kg^{-1} of Fenbendazol per (PO) have been administered to cure *Capillaria* species infections in dogs. A treatment with 25 mg kg^{-1} of Fenbendazol q 12 h PO for 10 days was effective in this study as clinical urinary signs and bladder worms disappeared in the examined cat (Ettinger and Feldman, 2005).

REFERENCES

Bedard, C., 2002. Capillaria in the bladder of an adult cat. Can. Vet. J., 43: 973-974.

Ettinger, S.J. and E.C. Feldman, 2005. Textbook of Veterinary Internal Medicine: Diseases of the Dog and Cat. 6th Edn., Elsevier Saunders, St. Louis, MO, USA.

Medway, W. and J.F. Skelley, 1961. Capillaria plica infection in a dog. J. Am. Vet. Med. Assoc., 139: 907-908.

Rossi, M., 2011. Symptomatic capillaria plica infection in a young european cat. J. Feline Med. Surg., 13: 793-795.

Van Veen, L., 2002. Bladder infection with capillaria plica in a male dog. Tijdschr Diergeneeskd, 127: 393-394.