

CHOLECYSTECTOMY ASSOCIATED TO DUODENAL ENTEROTOMY IN THE INFESTATION BY *PLATYNOSOMUM* SP. IN A DOMESTIC CAT

Fernanda Vieira Henrique¹
Fernando Nonato Ferreira Lordão²
Melquisedeque Andrade Pessoa²
Rosileide dos Santos Carneiro³
Olívia Maria Moreira Borges¹

ABSTRACT

Platynosomum sp. is the major hepatobiliary parasite of felids, causing an extra-hepatic obstructive lesion which may be treated by surgery. A two-year old cross-bred feline, semi-domiciled, was attended with a clinical picture of apathy, jaundice, dehydration and increase in hepatic enzymes. In the abdominal ultrasonography the liver was observed enlarged, hepatic and portal veins with increased diameter, gall bladder filled by anechoic content, with sediment, thickening and hyperechogenicity of the wall and a dilated main bile duct with a thickened wall. The cholecystectomy with a duodenal enterotomy was performed. The inspection of the gall bladder's content revealed parasites with a flattened aspect and the microscopic evaluation was compatible with *Platynosomum* sp. A treatment with niclosamide and oxbendazole was efficient. Cholecystectomy associated to a duodenal enterotomy is efficient in these cases.

Keywords: feline, parasite, surgery, liver, gall bladder.

COLECISTECTOMIA ASSOCIADA À ENTEROTOMIA DUODENAL NA INFESTAÇÃO POR *PLATYNOSOMUM* SP. EM UM GATO DOMÉSTICO

RESUMO

Platynosomum sp. é o maior parasito hepatobiliar de felídeos, causando uma lesão obstrutiva extra-hepática a qual pode ser tratada por cirurgia. Um felino, de dois anos de idade, sem raça definida, semidomiciliado, foi atendido apresentando um quadro clínico de apatia, icterícia, desidratação e aumento de enzimas hepáticas. Na ultrassonografia abdominal o fígado estava aumentado, vasos hepáticos e veia porta com aumento de diâmetro, vesícula biliar preenchida por conteúdo anecoico, com sedimentação, espessamento e hiperecogenicidade da parede e ducto biliar principal dilatado com parede espessada. Realizou-se a colecistectomia com enterotomia duodenal. A inspeção do conteúdo da vesicular biliar revelou parasitos com um aspecto achatado e a avaliação microscópica foi compatível com *Platynosomum* sp. O tratamento com niclosamida e oxbendazole foi eficiente. Colecistectomia associada à enterotomia duodenal é eficiente nesses casos.

Palavras-chave: cirurgia, felino, fígado, parasito, vesícula biliar.

¹ Doutoranda em Anestesiologia Veterinária pelo Programa de Pós Graduação em Medicina Veterinária da Universidade Federal de Campina Grande, Centro de Saúde e Tecnologia Rural, Campus de Patos, Paraíba. Correspondência.

² Médico Veterinário Autônomo. Clínica Veterinária Pet Saúde, João Pessoa, Paraíba.

³ Médica Veterinária, Mestre, Técnica Administrativa responsável pela Clínica Médica de Pequenos Animais do Hospital Veterinária da Universidade Federal de Campina Grande, Campus de Patos, Paraíba.

COLECISTECTOMÍA ASOCIADA A ENTEROTOMIA DUODENAL EN UNA INFESTACIÓN POR *PLATYNOSOMUM* SP. EN UN GATO DOMÉSTICO

RESUMEN

Platynosomum sp. es el más grande parásito hepatobiliar de la familia *Felidae*, causador de una lesión obstructiva extrahepática que puede ser tratada por cirugía. Un felino, sin raza definida, dos años de edad, semidomiciliado, fue atendido con un cuadro clínico de apatía, ictericia, deshidratación y elevación de enzimas hepáticas. En la ecografía abdominal se observó el hígado aumentado, vasos hepáticos y la vena porta con un mayor diámetro, la vesícula llena de contenido anecoico, sedimentación, espesamiento y hiperrefringencia de la pared de el conducto biliar principal dilatado con pared gruesa. Fue realizada colecistectomía con enterotomía duodenal. La inspección de los contenidos de la vesícula biliar reveló parásitos con una apariencia aplanada y la evaluación microscópica fue consistente con *Platynosomum* sp. El tratamiento con niclosamida y oxibendazol fue efectivo. Colecistectomía asociada con enterotomía duodenal es eficaz en tales casos.

Palabras clave: cirugía, felino, hígado, parásito, vesícula biliar.

INTRODUCTION

Platynosomum sp. is the most found genus in the felid's hepatic and biliary (1,2). The parasite's life cycle needs three intermediary hosts containing the metacercariae which emigrate from the choledocal ducts to the gall bladder and biliary ducts (3,4,5).

The clinical signs include jaundice, anorexia, depression, lethargy, weight loss, diarrhea, vomiting, hepatomegaly, abdominal distention, ascites and distention of the gall bladder and biliary ducts (2,6). Eosinophilia, high levels of alanine aminotransferase (ALT) and aspartate aminotransferase (AST) are found. Infestation by *Platynosomum* sp. must be included as one of the disorders associated with the biliary obstruction and cholangitis or cholangiohepatitis in felines (1,3,4,5). The diagnosis is performed by the detection of operculated eggs in feces, associated to radiographic and ultra-sonographic examinations.

The treatment is based on praziquantel in the dosage of 20mg/kg, by parenteral route, once a day, for three days (4). In case of biliary duct obstruction, the recommended procedure is a surgery of cholecystectomy associated to a duodenal enterotomy (4).

Is reported a case of platinosomiasis in a domestic feline, which culminated in the obstruction of the biliary tract, emphasizing the treatment by means of a cholecystectomy associated to a duodenal enterotomy.

CASE REPORT

A two-year old, semi domiciled, cross-bred female feline, was attended with a history of anorexia, apathy and weight loss.

RESULTS AND DISCUSSION

Dehydration, bad body condition, apathy and icteric mucosa was observed. In the serum biochemistry was observed an increase in alkaline phosphatase (AP) (537 UI/L), AST (2012 UI/L), ALT (266 UI/L) and Gamma-glutamyl transferase (GGT) (33 UI/L).

Ultrasonography revealed: liver with an increased dimension and hyperechogenicity of the parenchyma; hepatic and portal veins with increased diameter; gall bladder filled with

anechoic content, with sediment, thickening and hyperechogenicity of the wall; and main choledochal duct was dilated with thickened and hyperechogenic wall (Figure 1).



Figure 1. Hepatic area with repletion and dilation of the gall bladder and main choledochal duct and hyperechogenicity of the wall.

Cholecystectomy with duodenal enterotomy was indicated. During the surgery, was observed an icteric liver and with a nutmeg aspect. The distended gall bladder was exposed and had its content drained and sent for laboratorial analysis, after that it was filled with a solution of NaCl 0.9% (Solução Fisiológica de Cloreto de Sódio a 0.9%®) for a better visualization during the dissection process. The cholecystectomy associated to duodenal enterotomy technique was performed proceeding as described in literature (4) (Figure 2).

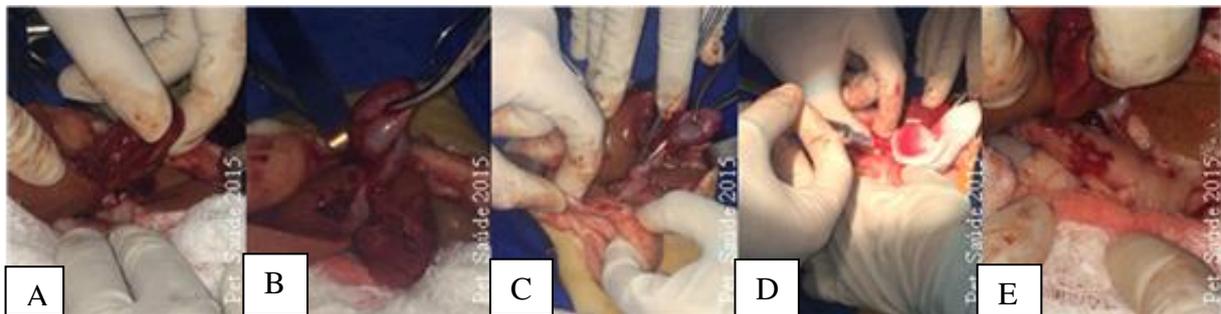


Figure 2. (A) Exposure of the gall bladder after emptying the content; (B) Dissection of the gall bladder after being filled with saline solution, note the dilation of the choledochal duct; (C) Duodenal enterotomy at the height of the choledochal papilla; (D) Puncture of the choledochal duct with the flexible portion of a 22G catheter and hydropropulsion with a 3ml syringe and saline solution of NaCl 0.9%; (E) Synthesis of the duodenum wall after the cystic duct ligation and removal of the gall bladder.

After its removal, the gall bladder was opened the remaining content was removed and added to the one obtained by the puncture performed during the surgical procedure. During the inspection of the content several flat, leaf-shaped parasitic forms were found, with morphological identification compatible with *Platynosomum* sp. (Figure 3). In the post-operative period, the treatment was based in 2mg/kg of tramadol (Cronidor®), orally, three times a day, for five days; 25mg/kg de metronidazole (Flagyl pediátrico®) orally, two times a day, for five days; 1ml/kg of niclosamide and oxibendazole based vermifuge (Vermigel®), once a day, for three days and repeated after 21 days; and cleaning of the surgical wound with saline solution and application of a chlorhexidine-based ointment (Furanil®) two times a day, for 12 days. The patient presented a good post-operative recovery and a good overall state.

The patient's clinical picture has already been reported in animals affected by infestation by *Platynosomum* sp. (3,5,7,8). The jaundice is due to the impediment of the bile flow to the duodenum due to the obstruction caused by the presence of the parasite (7). The presence of icteric organs has also been reported (9).



Figure 3. Macroscopic (high to the right) and microscopic aspect of *Platynosomum* sp. isolated in the bile (Obj. 40).

According to the owner the animal was semi-domiciled, what predisposes it to the infection by *Platynosomum* sp., once that, even when fed, cats which have access to the street continue with the habit of hunting, remaining in contact with the intermediate hosts (4,5,9).

The increase in the levels of the hepatic enzymes ALT and AST indicates a hepatocellular lesion (6). The increase of the AP may be related to cholestasis which promotes a hepatocystic lesion (7). The substantial increase in GGT is highly compatible with lesions of the biliary ducts observed in cholangiohepatitis and cholecystitis (5,6).

When there is obstruction of the biliary duct the oviposition is scarce and intermittent, so in this case, the ultra-sonographic examination helped in the establishment of the diagnosis, agreeing with the literature which reports that, by means of this complementary examination, the gall bladder and biliary tracts dilation and hepatomegaly may be observed in animals affected by this parasitosis (4,7,9). The thickening of the gall bladder's wall is due to the cholecystitis caused by the parasitism (10). The sedimentation is related to the presence of the parasite (11). The alterations of the biliary ducts probably are related to the presence of the worm in the interior of the biliary ducts, causing an extra-hepatic obstructive lesion (11). This way the ultra-sonographic findings of the present report suggest a great number of parasites in the gall bladder (5), confirmed by the examination of the bile.

Due to the clinical picture of the biliary tract obstruction, it was decided to perform a cholecystectomy associated to a duodenal enterotomy. In turn, the use of antibiotic therapy in the post-operative period is of extreme importance due to the possibility of ascension of bacterial infection caused by a complete biliary obstruction (4).

The vermifuge used in the post-operative period is not the one of choice in cases of *Platynosomum* sp., however the presented a good recovery and reestablishment of the general clinical picture, suggesting that the surgical and clinical treatment was efficient in this case.

CONCLUSION

The infection by *Platynosomum* sp. must be considered as differential diagnosis in the hepatic and biliary diseases in cats. The treatment by means of a cholecystectomy associated to

a duodenal enterotomy is efficient in these cases. Preventive measure must be adopted in feline veterinary medicine for the control and prevention of this parasitosis, especially concerning the periodic deworming and restriction of the presence of intermediate hosts.

REFERENCES

1. Headley SA, Gillen MA, Sanches AW, Satti MZ. *Platynosomum fastosum*-induced chronic intrahepatic cholangitis and *Spirometra* spp. infections in feral cats from Grand Cayman. *J Helminthol.* 2012;86:209-14.
2. Rodriguez-Vivas RI, Williams JJ, Quijano-Novelo AG, Bolio GM, Torres-Acosta JFJ. Prevalence, abundance and risk factors of liverfluke (*Platynosomum concinnum*) infection in cats in Mexico. *Vet Rec.* 2004;154:693-4.
3. Daniel AGT, Diaz RF, Camignatto LO, Kage NK, Pellegrino A, Cogliati B. Polycystic liver diseases sociated with *Platynosomum fastosum* infection in a cat. *Braz J Vet Pathol.* 2012; 5:137-41.
4. Radlinsky MG. Surgery of the extrahepatic biliary system. In: Fossum TW, Dewey CW, Horn CV, Johnson AL, Macphail CM, Radlinsky MG, et al. *Small animal surgery.* Philadelphia: Mosby; 2013. p.618-30.
5. Salomão M, Souza-Dantas LM, Mendes-de-Almeida F, Branco AS, Bastos OPM, Sterman F, et al. Ultrasonography in hepatobiliary evaluation of domestic cats (*Felis catus*, L., 1758) infected by *Platynosomum* Loss, 1907. *Intern J Appl Res Vet Med.* 2005;3:271-9.
6. Montserin SAS, Munoz K, Seebaramsingh R, Basu AK. Clinical case: *Platynosomum fastosum* Kossack, 1910 infection in a cat: first reported case in Trinidad and Tobago. *Rev Med Vet.* 2013;164:9-12.
7. Sampaio MAS, Berlim CM, Angelim AJGL, Gondim LFP, Almeida MAO. Infecção natural pelo *Platynosomum* Loss 1907, em gato no município de Salvador, Bahia. *Rev Bras Saude Prod Anim.* 2006;7:1-6.
8. Michaelsen R, Silveira E, Marques SMT, Pimentel MC, Costa FVA. *Platynosomum concinnum* (*Trematoda: Dicrocoeliidae*) em gato doméstico da cidade de Porto Alegre, Rio Grande do Sul, Brasil. *Vet Foco.* 2012;10:53-60.
9. Andrade RLFS, Dantas AFM, Pimentel LA, Galiza GJN, Carvalho FKL, Costa VMM, et al. *Platynosomum fastosum*-induced cholangiocarcinomas in cats. *Vet Parasitol.* 2012;190:277-80.
10. Azevedo FD, Veiga CCP, Scott FB, Correia TR, Fernandes JI, Verocai GG. Avaliação radiográfica e ultrassonográfica do fígado e da vesícula biliar em gatos domésticos (*Felis catus domesticus*) parasitados por *Platynosomum illiciens* (BRAUN, 1901) KOSSAK, 1910*. *Rev Bras Med Vet.* 2013;35:283-8.
11. Soldan MH, Marques SMT. Platinosomose: abordagem na clínica felina. *Rev FZVA.* 2011;18:46-67.