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Short communication

Dioctophyma renale (Goeze, 1782) in the abdominal cavity of a capuchin monkey (*Cebus apella*), Brazil

Mirian Naomi Ishizaki[a], Aline Amaral Imbeloni[b], José Augusto Pereira Carneiro Muniz[b], Sarah Raphaella Rocha de Azevedo Scalercio[b], Raimundo Nonato Moraes Benigno[a], Washington Luiz Assunção Pereira[a], Antonio Carlos Cunha Lacreta Junior[a,*]

[a] *Universidade Federal Rural da Amazônia – UFRA, Belém, Pará, Brazil*
[b] *Centro Nacional de Primatas – CENP, Instituto Evandro Chagas – IEC, Secretaria de Vigilância Em Saúde – SVS, Ministério a Saúde – MS, Ananindeua, Pará, Brazil*

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ABSTRACT

This study reports a case of parasitism by *Dioctophyma renale* (Goeze, 1762) encysted in the abdominal cavity of a capuchin monkey (*Cebus apella*) coming from the Centro Nacional de Primatas, Brazil. The animal was sent to the Veterinary Clinic sector with an increase in abdominal volume and no occurrence of any other clinical signs. Upon palpation, a movable circular mass with a diameter of approximately 10 cm was found. Urinalysis, complete blood count and serum biochemistry were performed without revealing any alterations. The animal was then submitted to an abdominal ultrasound exam. The cyst was punctured and a surgical removal procedure was performed, revealing a brownish-colored cylindrical structure that was already deteriorated, making it impossible to perform morphological analysis and classification. In the sediment of the liquid found, eggs were encountered that had morphological characteristics compatible with *D. renale*. The objective of this paper is to report the first case of parasitism by *D. renale* in *C. apella* (Linnaeus, 1758).

1. Introduction

Dioctophyma renale (Goeze, 1782), is a nematode of the Dioctophymatidae family, also known as the giant kidney worm (Freitas, 1980). In its evolutionary cycle, the intermediary is an aquatic oligochaete annelid (*Lumbriculus variegatus*) that ingests eggs of the first stage containing larvae of the parasite and the primary host is infected by ingesting the infected annelid or paratenic host, which can be a fish or frog (Freitas, 1980; Anderson, 2000).

In Brazil the dog is the most common primary host among domestic species (Miranda et al., 1992; Mattos-Junior and Pinheiro, 1994; Kommers et al., 1999; Monteiro et al., 2002; Kano et al., 2003; Pereira et al., 2006; Nakagawa et al., 2007, Ferreira et al., 2010; Pedrassani et al., 2010), although the infection has also been observed in cats (Verocai et al., 2009).

Among wild animals, there are reports from Brazil involving the bush dog (*Speothos venaticus*) by Proença (1935); in coati (*Nasua nasua*), maned wolf (*Chrysocyon brachyurus*) and otter (*Lutra longicaudis*) by Giovannoni and Molfi (1960); in sloth (*Choloepus didactylus*) by Rocha et al. (1965); in lesser grison (*Galictis cuja*) by Barros et al. (1990) and in the crab-eating fox (*Cerdocyon thous*) by Ribeiro et al. (2009). The literature also mentions the occurrence of the parasite in seals (*Arctocephalus australis*), harbor seals (*Phoca vitulina*), coyotes (*Canis latrans*), wolves (*Canis lupus*), red foxes (*Canis vulpes*), jackals (*Canis mesomelas*),

* Corresponding author at: Universidade Federal Rural da Amazônia, Instituto de Saúde e Produção Animal, Av. Presidente Tancredo Neves, n° 2501, Bairro Montese, Caixa Postal 917, CEP 66077-530, Belém – PA, Brazil. Tel.: +55 9132345282.
E-mail address: lacreta072@yahoo.com.br (A.C. Cunha Lacreta Junior).

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Fig. 1. Note the increase in abdominal volume near the xiphoid region of the capuchin monkey.

American martens (*Martes americana*), weasels (*Mustela nivalis*), mink (*Mustela vison*), bears (*Ursus ursus*), muskrats (*Ondatra zibethica*) and raccoons (*Procyon lotor*) (Harkema and Miller, 1964; Jorde, 1980; Dyer, 1998; Hoffman et al., 2004).

The objective of this paper is to report the first case of parasitism by *D. renale* in *Cebus apella* (Linnaeus, 1758).

2. Materials and methods

In October 2009, and adult male capuchin monkey (*C. apella*), belonging to the band at the Centro Nacional de Primatas (CENP) and raised in a semi-captive system was sent to the Veterinary Clinic sector with an increase in abdominal volume (Fig. 1) without the presence of any other clinical symptoms. During the clinical examination the animal presented as well hydrated, with normal colored mucosa, with neither fever nor prostration. Upon palpation, a movable circular mass with a diameter of around 10 cm was found. Urinalysis, complete blood count and serum biochemistry were performed, with results within normal standards.

The animal was next submitted to an abdominal ultrasonographic examination, in which it was possible to visualize a cystic formation, with a smooth external surface, measuring 7.33 cm at its greatest diameter, filled with heterogeneous anacoegenic contents, presenting a hypocoegenic wall with a thickness of approximately 0.44 cm and an irregular internal surface (Fig. 2). In the cystic contents an irregular hypercoegenic filiform structure could be seen, partially adhering to the internal dorsal surface of the cyst (Fig. 3). The cyst was then punctioned, revealing a thick yellowish liquid (200 ml) that was sent for analysis (Fig. 4). The ultrasound findings suggested parasitism by *D. renale*. Analysis of the liquid sediment confirmed the diagnosis of presence of eggs having morphological characteristics compatible with *D. renale* (Fig. 5). No alterations were observed with ultrasound in the abdominal organs.

In light of the results of complementary examinations, it was decided to surgically remove the cyst using exploratory laparotomy. The cyst was loosely adherent to the omentum (Fig. 6) and was vascularized, measuring 7.4 cm × 6.45 cm × 5.75 cm, containing approximately 120 ml of liquid with the same appearance presented in the previous punction. An incision in the cyst revealed a brownish-colored cylindrical structure that was already

Fig. 2. Ultrasound image of the abdominal cyst of the capuchin monkey. Note hypoechogenic wall with smooth outer surface and inner surface uneven, filled with heterogeneous anecoic content.

Fig. 3. Abdominal cyst ultrasound image of the capuchin monkey. Note threadlike structure, irregular hypoechogenic mass attached to the inner surface of the pseudocyst.

Fig. 4. Puncture cyst of the capuchin monkey, revealing a fluid content.