



## Research note

# Rediscovery of *Pachysentis gethi* (Acanthocephala: Oligacanthorhynchidae), a parasite of wild lesser grison *Galictis cuja* (Carnivora: Mustelidae) from Brazil

## *Redescubrimiento de Pachysentis gethi* (Acanthocephala: Oligacanthorhynchidae), parásito del grison menor silvestre *Galictis cuja* (Carnivora: Mustelidae) de Brasil

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### Abstract

We report the acanthocephalan *Pachysentis gethi* parasitizing lesser grison *Galictis cuja* from Brazil. This study is the first report of this acanthocephalan species since the original description from 1950. Therefore, this report constitutes the rediscovery of this parasite after 65 years of its unique record.

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**Keywords:** Acanthocephala; Neotropical region; Carnivore mammal; Parasite

### Resumen

Reportamos el acantocéfalo *Pachysentis gethi* parasitando a *Galictis cuja* en Brasil. Desde la descripción original hecha en 1950, este es el primer registro para la especie. Por ello, este informe representa el redescubrimiento de *P. gethi* desde su único registro hace 65 años.

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**Palabras clave:** Acantocéfala; Región neotropical; Mamífero carnívoro; Parásito

During a helminthological survey in a population of wild lesser grison *Galictis cuja* (Molina, 1872) (Carnivora, Mustelidae), 18 specimens of this host species were necropsied. The specimens examined were accidental ‘road kills’ on the Federal highway BR-040 between the cities of Três Rios, state of Rio de Janeiro (RJ), km 11 (22°02′49″ S, 43°12′02″ W), and Simão Pereira, state of Minas Gerais (MG), km 827 (22°00′08″ S, 43°16′36″ W), in the southeast region, Brazil, between 2009

and 2014. The Brazilian Institute of Environment and Natural Resources authorized the sampling – IBAMA/SISBIO (Request No. 30727-4).

The hosts were identified according to Yensen and Tarifa (2003) and Bornholdt et al. (2013) by the absence of a metaconoid in the inferior premolar tooth, characteristic of *G. cuja*. The hosts parasitized by acanthocephalans were deposited in the Mastozoology Collection of the National Museum of Rio de Janeiro of Universidade Federal do Rio de Janeiro (MNRJ/UFRJ) (MNRJ 79162, MNRJ 79190, MNRJ 79261, MNRJ 79294 and MNRJ 79407).

The acanthocephalans were fixed in AFA (70% ethanol, 93 parts; 37% formalin, 5 parts; glacial acetic acid, 2 parts)

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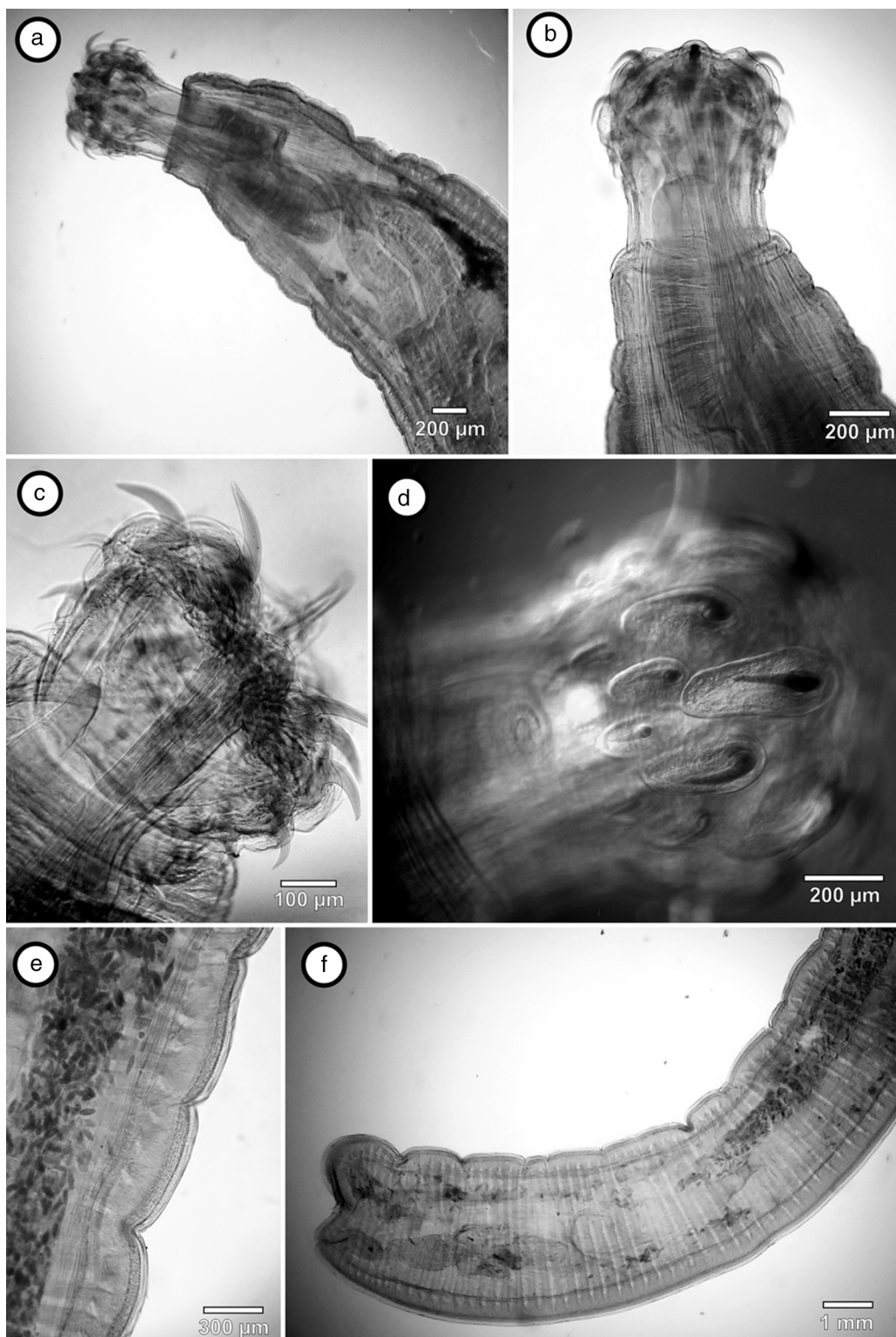


Figure 1. Female specimen of *Pachysentis gethi*. (a) Anterior region, lateral view; (b) anterior region, ventral view; (c) anterior end, detail of proboscis, lateral view; (d) anterior end, detail of hooks and roots of hooks, ventral view; (e) details of the location of eggs, lateral view; (f) posterior region, detail of apical genital pore, lateral view.

for 48 h, stored in ethanol 70° GL, stained in Delafield's Hematoxylin and mounted in Canada balsam on permanent slides for specific identification. The specimens were identified and digital images were recorded with an Olympus BX-51 microscope

light microscope equipped with Nomarski differential interference contrast (DIC) optics. Identification of acanthocephalan worms was based on Machado-Filho (1950) and Schmidt (1972). Voucher specimens were deposited in the Helminthological

Collection of Oswaldo Cruz Institute (CHIOC 38100), Rio de Janeiro, RJ.

The prevalence of parasitism by *Pachysentis gethi* (Machado-Filho, 1950) (Fig. 1) in lesser grison of this current study was 27.7% (5 infected hosts), with a mean intensity of 2.6 parasites per infected host, and mean abundance of 0.7 parasites per examined host.

Meyer (1931) proposed the genus *Pachysentis* to include the species *P. ehrenbergi* Meyer, 1931, *P. canicola* Meyer, 1931, and *P. procumbens* Meyer, 1931, from Brazilian and Egyptian carnivores. Currently, 10 nominal species of this parasitic genus in mammal hosts around the world are considered valid: *Pachysentis angolensis* (Golvan, 1957), *P. canicola* Meyer, 1931 (type species), *Pachysentis dollfusi* (Machado-Filho, 1950), *P. ehrenbergi* Meyer, 1931, *P. gethi*, *Pachysentis lenti* (Machado-Filho, 1950), *P. procumbens* Meyer, 1931, *Pachysentis procyonis* (Machado-Filho, 1950), *Pachysentis rugosus* (Machado-Filho, 1950) and *Pachysentis septemserialis* (Machado-Filho, 1950) (Amin, 2013).

In Brazil, 5 species of *Pachysentis* have been reported (Machado-Filho, 1950; Vieira, Luque, & Muniz-Pereira, 2008). *P. lenti* was described parasitizing *Callithrix geoffroyi* (Humboldt, 1812) (Primates, Callitrichidae) from the state of Espírito Santo; *P. procyonis* (Machado-Filho, 1950) is a parasite of *Procyon cancrivorus* (Cuvier, 1789) (Carnivora, Procyonidae) in the state of Rio de Janeiro; *P. rugosus* (Machado-Filho, 1950) was reported in the large intestine of *Cebus cay* (Illiger, 1815) (Primates, Cebidae) in the state of Rio de Janeiro; *P. septemserialis* (Machado-Filho, 1950) is a parasite of *Saguinus ursulus* Hoffmannsegg, 1807 (Primates, Cebidae) in the state of Pará; and *P. gethi* was described as a parasite of *Eira barbara* Linnaeus, 1758 (Carnivora, Mustelidae) in the states of Pará and Rio de Janeiro (Machado-Filho, 1950).

Schmidt (1972) transferred the species *P. dollfusi*, *P. gethi*, *P. lenti*, *P. procyonis*, *P. rugosus* and *P. septemserialis* from the genus *Prosthenorchis* Travassos, 1915 to the genus *Pachysentis*. This taxonomical change was made mainly because these species do not possess a conspicuous festooned collar at the base of proboscis, and by having 12 longitudinal rows of hooks (in apical view), showing a total of between 42 and 102 hooks in the proboscis.

In the current study, we collected only female specimens of this acanthocephalan. The specimens studied have the similar morphometric (Table 1) and morphologic features of females of *P. gethi* described by Machado-Filho (1950). In the specimens of the current study, we observed that the hooks of the first 4 rows have a double root, and the other rows are of simple root, the same was reported in the specimens of *P. gethi* described by Machado-Filho (1950).

*P. gethi* was originally described as a parasite of the carnivore mustelid gray headed tayra (*E. barbara*) in a state of the northern region of Brazil (Pará), and in the state of Rio de Janeiro, in the southeast of Brazil. The type locality of this species is municipality of Aurá in the state of Pará. Vieira et al. (2008) when analysing samples of helminths of wild carnivore mammals from Brazil stored in CHIOC, observed specimens of *P. gethi* collected in *E. barbara*, *G. cuja* and the grisson *Galictis vittata* (Schreber,

Table 1

Comparison of morphometric features of females of *Pachysentis gethi* described by Machado-Filho (1950) and the current study.

	Machado-Filho (1950)	Current study
Trunk length (mm)	15–25	11–14
Proboscis length (μm)	583–794	500–600
Number of hooks	42	42
Hook length type 1 (μm)	210	190–200
Hook length type 2 (μm)	210	180–210
Hook length type 3 (μm)	138	130–150
Hook length type 4 (μm)	96	90–100
Hook length type 5 (μm)	84	80–85
Hook length type 6 (μm)	71	60–70
Eggs length (μm)	84	80–90
Eggs width (μm)	54	50–60
Host species	<i>Eyra barbara</i> (type host)	<i>Galictis cuja</i>
Localities (states)	Pará (type locality) and Rio de Janeiro	Rio de Janeiro

1776) (Carnivora, Mustelidae). These last 2 hosts had not been reported as hosts of *P. gethi* by Machado-Filho (1950), and were considered new hosts for this acanthocephalan species. However, the record labels of 2 samples of paratypes of *P. gethi* stored in CHIOC (Nos. 9203 and 17838) that were originally associated with *E. barbara* in the study of Machado-Filho (1950), report that these were collected in specimens of *G. cuja* from the state of Rio de Janeiro. Therefore, these samples of *G. cuja* in the state of Rio de Janeiro were erroneously associated to *E. barbara* by Machado-Filho (1950). Since the study by Machado-Filho (1950) which described *P. gethi* with samples of acanthocephalans collected during the first half of 20th century, this species had never been recorded again. Therefore, this study constitutes the rediscovery of this species of *Pachysentis* after 65 years of a unique and last record.

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