

Diagnostic Exercise^{1,2,3,4}

Richard J Montali and Mitchell Bush

History

A 6-month-old golden lion tamarin (*Leontopithecus rosalia rosalia*), raised at the National Zoological Park, was hospitalized for syncope and lethargy. Nematodes had been found in its cage and parasite eggs were abundant in a recent fecal sample. The tamarin was moderately anemic, thin and died while receiving supportive treatment.

Pathology

The animal was thin and lacked subcutaneous and other fat stores. The small intestine contained numerous white nematodes ranging from 1 to 3 cm in length (Figure 1A). Most were free in the lumen, although a few

appeared to be attached to the mucosal surface. There was some mucosal hyperemia, but hemorrhage or exudation were not evident. There were numerous large (39-45 by 26-36 μm) embryonated eggs in the feces (Figure 1B).

A microscopic evaluation of the nematode embedded in the intestinal mucosa (Figure 1C) revealed subventral rows of combs (Figure 1D) and spines and intestinal cells with basally located nuclei.

Question

Identify the parasite. What is its life cycle? Make recommendations for treatment and prevention.

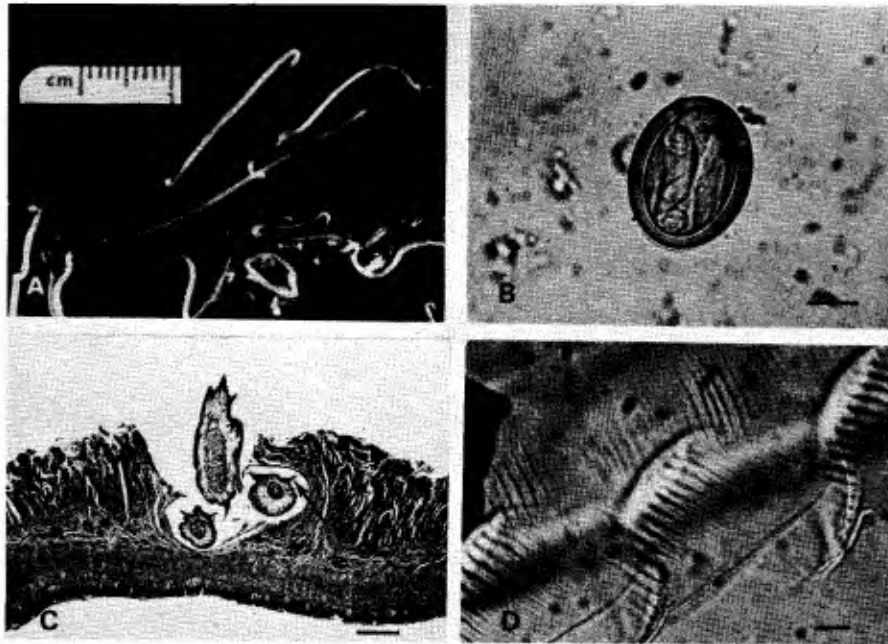


Figure 1
A: worms that were free in lumen of small intestine; B: embryonated egg recovered from feces. Line = 15 μm ;
C: worm embedded in small intestine showing characteristic subventral combs (arrow). Line = 1 mm; D:
details of spines that make up combs. Line = 100 μm .

Diagnosis and Discussion

Rictularia sp infection. The presence of subventral rows of combs, intestinal cells with nuclei at their base and large eggs are distinguishing features of this nematode (1).

This parasitism recently has arisen as a problem in the collection of Callitrichidae at the National Zoological Park, specifically affecting the golden lion tamarins and brown-headed tamarins (*Saguinus fuscicollis*). The parasites originally were recovered from a brown-headed tamarin that was acquired in 1977 and died several months later with a severe parasitic infection with *Rictularia* sp. Since the initial death, there has been an increase in the number of spirurid eggs observed in the Callitrichidae, followed by the recent loss of the golden lion tamarin presented in this report.

The only report of *Rictularia* sp in nonhuman primates is that of *R alphi* in guenons, capuchins and tamarins in Russia (2). Parasites in the genus *Rictularia* do occur in carnivores and rodents (3) on this continent; however, the nematodes are species specific and require at least one or possibly two intermediate hosts to complete their life cycle.

¹From the National Zoological Park, Smithsonian Institution, Washington, DC 20008.

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Cockroaches and crickets have been incriminated (4) as intermediate hosts for the canine and rodent forms. Although the life cycle for *Rictularia* sp has not been determined in nonhuman primates, it is likely that intermediate hosts may be similar as the monkeys have access to free-living cockroaches. The monkeys also were given crickets (*Acheta domestica*) in their diets.

Preliminary trials with mebendazole at 20 mg/kg daily for 3 days have eliminated egg passage in the feces from previously infected animals. Correction of the problem would depend upon specifically identifying and exterminating the intermediate host.

References

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³Contributions of manuscripts for this series are welcome and should be submitted to George Migaki, DVM, Registry of Comparative Pathology, Armed Forces Institute of Pathology, Washington, DC 20306.

⁴Reprint requests to: George Migaki, DVM, Registry of Comparative Pathology, Armed Forces Institute of Pathology, Washington, DC 20306.