

***Capillaria procyonis* (Nematoda: Trichuroidea) Eggs from the Tongue of the Raccoon (*Procyon lotor*)**

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ABSTRACT: During an investigation to determine the prevalence and intensity of larvae of *Trichinella spiralis* in raccoons (*Procyon lotor*), unembryonated capillariid-type eggs were found routinely in the sediment resulting from 1% pepsin-HCl acid digests of the tongue. The sediment from 36 (90%) of the 40 tongue digests examined contained these capillariid-type eggs. Mean measurements of egg width and length were $25 \pm 2 \mu\text{m}$ and $62 \pm 2 \mu\text{m}$, respectively. In addition, the surface of the egg shell had a pitted appearance. Adult parasites were not found in any of the tongue digests. The egg measurements and surface topography agree with what has been described previously and are tentatively identified as *Capillaria procyonis*. The detection of *C. procyonis* eggs in the present report indicates that this parasite inhabits the epithelial lining of the raccoon tongue, in addition to the esophagus, and that eggs expelled by females are deposited in the tracts these parasites create as they migrate.

Key words: *Procyon lotor*, raccoon, *Capillaria procyonis*, eggs, tongue.

Capillaria procyonis was described as a new species by Pence (1975) from the esophagus of raccoons (*Procyon lotor*) in Louisiana. Butterworth and Beverley-Burton (1980) briefly redescribed *C. procyonis* in raccoons from Ontario. Recently, Moravec (1982) revised the family Capillariidae; under this classification, *C. procyonis* would be designated *Eucoleus procyonis*. Since 1975 this parasite has been reported a number of times from the esophagus of raccoons in North America (Butterworth and Beverley-Burton, 1980, 1981; Schaffer et al., 1981; Snyder and Fitzgerald, 1985). Butterworth and Beverley-Burton (1980, 1981) also described this parasite from the esophagus of the striped skunk (*Mephitis mephitis*).

The purpose of this report is to describe the presence of eggs of *C. procyonis* in the tongues of raccoons. One hundred tongues were obtained in December 1987 from

hunter-shot or trapped raccoons in central Illinois (39°00' to 42°00'N, 88°00' to 91°50'W). The original purpose for obtaining the tongues of these raccoons was to screen for the prevalence and intensity of larvae of *Trichinella spiralis*. Details surrounding the collection and processing of this material have been described previously (Snyder, 1987). Two of five pooled samples, representing a total of 40 tongues, were positive for larvae of *T. spiralis*. The distal two-thirds (\bar{x} weight $8.5 \pm 0.37 \text{ g}$) of these 40 individual tongues were thoroughly washed with running tap water to remove any adherent debris and digested at 37 C overnight in a 1% pepsin-HCl acid solution. Examination of these sediments revealed that 36 (90%) of the 40 digests contained unembryonated capillariid-type eggs. Mean measurements ($n = 10$) of egg width and length were $25 \pm 2 \mu\text{m}$ and $62 \pm 2 \mu\text{m}$, respectively. In addition, the surface of the egg shell had a pitted appearance. The mean number of eggs recovered per infected tongue was 33 ± 6 . Adult parasites were not found in any of the digests. Measurements and surface topography of the egg agree with what has been described previously for *C. procyonis* (Pence, 1975; Butterworth and Beverley-Burton, 1980). Consequently, the eggs recovered in the present study are tentatively regarded as those of *C. procyonis*.

This report is the first to describe the presence of the eggs of *C. procyonis* in the tongue of the raccoon. Ogren (1953) described *C. blarinae* (= *C. oesophagicola*) from the esophagus of the short-tailed shrew (*Blarina brevicauda*) and observed that adult parasites occupied tracts in the esophageal epithelium. Eggs from the females were expelled directly into the esophageal lumen or into the tracts created

by the parasites as they migrated in the epithelial lining. The detection of eggs of *C. procyonis* in the present report indicates that this parasite inhabits the epithelial lining of the tongue of the raccoon, in addition to the esophagus, and that eggs expelled by females are deposited in the tracts they create. The eggs are eventually released into the oral cavity as the epithelial cells are shed and replaced.

The reason for the absence of adult parasites in the digests is not known. The thorough washing of the tongues prior to digestion, the digestion process itself, and postmortem autolysis of the epithelial lining of the dissected tongues may all be factors. Histopathology of tongue and examination of this organ not subjected to the digestion treatments may allow an *in situ* demonstration of adult parasites. The life cycle of this parasite is unknown. The ability to obtain a pure culture of eggs of this parasite by digesting the tongue, rather than using a fecal isolation technique, may facilitate life cycle studies.

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LITERATURE CITED

- BUTTERWORTH, E. W., AND M. BEVERLEY-BURTON. 1980. The taxonomy of *Capillaria* spp. (Nematoda: Trichuroidea) in carnivorous mammals from Ontario, Canada. *Systematic Parasitology* 1: 211-236.
- , AND ———. 1981. Observations on the prevalence and intensity of *Capillaria* spp. (Nematoda: Trichuroidea) in wild carnivora from Ontario, Canada. *Proceedings of the Helminthological Society of Washington* 48: 24-37.
- MORAVEC, F. 1982. Proposal of a new systematic arrangement of nematodes of the family Capillariidae. *Folia Parasitologica (Praha)* 29: 119-132.
- OGREN, R. E. 1953. *Capillaria blarinae*, n. sp. (Nematoda: Trichuridae) from the esophagus of the short-tailed shrew, *Blarina brevicauda* (Say). *The Journal of Parasitology* 39: 135-138.
- PENCE, D. B. 1975. *Capillaria procyonis* sp. n. (Nematoda: Trichuridae) from the esophagus of the raccoon, *Procyon lotor*. *The Journal of Parasitology* 61: 815-818.
- SCHAFFER, G. D., W. R. DAVIDSON, W. F. NETTLES, AND E. A. ROLLOR, III. 1981. Helminth parasites of translocated raccoons (*Procyon lotor*) in the southeastern United States. *Journal of Wildlife Diseases* 17: 217-227.
- SNYDER, D. E. 1987. Prevalence and intensity of *Trichinella spiralis* infection in Illinois wildlife. *The Journal of Parasitology* 73: 874-875.
- , AND P. R. FITZGERALD. 1985. Helminth parasites from Illinois raccoons (*Procyon lotor*). *The Journal of Parasitology* 71: 274-278.

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