CAPILLARIASIS/TRICHURIASIS

Animal Group(s) Affected	Transmission	Clinical Signs	Severity	Treatment	Prevention and Control	Zoonotic
Wide range of mammals, birds and reptiles affected	Fecal/oral transmission via transmis-sion of eggs with infect-ive L2 Some capillarids may use earthworms as intermediate or paratenic host	Weight loss, and diarrhea.	High morbidity, but low mortality	Fenbendazole, milbemycin oxime	Sanitation; eggs are very resistant	Yes, some species of *Trichuris* and *Calodium hepaticum*

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Susceptible animal groups: Mammals, birds and reptiles.

Causative organism: Capillarids of many genera (e.g., *Capillaria*, *Eucoleus*, *Calodium*, *Pearsonema*) occur in mammals, birds, reptiles, amphibians and fish, and *Trichuris* spp. occur in mammals: primates, ruminants, carnivores, suids, and rodents.

Zoonotic potential: Yes, some species of *Trichuris* and *Calodium hepaticum*.

Distribution: Worldwide, although parasite of concern will vary by location and species

Incubation period: Variable, but tends to be longer than many other parasites. Prepatent period is three months in many intestinal *Trichuris*.

Clinical signs: Clinical cases and fatal disease are rare. Many low parasite burdens can be asymptomatic, and problem is frequently asymptomatic in hoofed stock. In clinical animals, weight loss, colitis, diarrhea, hematochezia or melena can present. *Capillaria* tend to infect airways, nasal cavity or the urinary bladder such as air sacculitis or pneumonia from *Eucoleus* spp. or *Pearsonema* spp. in the urinary system, although *C. hepaticum* causes hepatic cirrhosis.

Post mortem, gross, or histologic findings: *Trichuris* spp. can be observed embedded in the wall of the colon of carnivores and ungulates, and also found in the neutral pH forestomach of some leaf-eating monkeys (e.g. *Colobus*). *Calodium hepatica* induces cirrhosis of the liver. Other capillarids can cause nasal, bronchial, intestinal, hepatic and urinary infections, and findings will vary according to parasitic and host species, and site of parasitism.

Diagnosis: Centrifugation fecal flotation can be performed for identification of infection. However, the eggs (bipolar plugs) are very dense and require correct flotation solution – good choice is Sheather's with specific gravity of 1.27 - and centrifugation to recover them. Eggs also are shed intermittently so repeated fecals may be necessary. For pulmonary species, bronchoalveolar lavage, and, for urinary tract infections, urine sedimentation could be used similarly. Ova of different capillarids that infect same host (e.g.; carnivores) can be distinguished by structure or patterns of egg shell. Biopsies of affected areas - gastrointestinal tract or liver –

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could be used.

Material required for laboratory analysis: Fecal sample, colon or gastric biopsy, colon biopsy, hepatic biopsy.

Relevant diagnostic laboratories: These diagnostics are readily available, as in-house fecal flotation or any laboratory performing fecal exams or histopathology.

Treatment: Fenbendazole, milbemycin oxime, other benzimidazoles, and pyrantel pamoate can be used. Variable sensitivity to ivermectin has been noted. Due to its long prepatent period, it is appropriate to treat monthly for 3 treatments.

Prevention and control: Quarantine measures and treatment before introduction is best. Chronic treatment may be required. Environmental control and preventing recontamination is critical.

Suggested disinfectant for housing facilities: Eggs are very resistant to destruction, and may remain infective in the soil for long time periods. Remove fecal material promptly from enclosures. Dirt floored enclosures are almost impossible to disinfect. Dig out dirt or use fire to sterilize.

Notification: None

Measures required under the Animal Disease Surveillance Plan: None.

Measures required for introducing animals to infected animal: Many facilities manage chronically infected groups with varying levels of problems. Many use chronic anthelminthic treatment.

Conditions for restoring disease-free status after an outbreak: Clear animals while held in cement floored facility before introducing to a clean group and treat for a minimum of 3-4 months. Continue long term monthly fecal screening and environmental sanitation.

Experts who may be consulted:

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