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## SEVERE PARASITISM IN AN OPOSSUM

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**Abstract:** Chronic debilitation and anemia were observed in a free-living opossum (*Didelphis marsupialis*) heavily parasitized by *Physaloptera turgida*, *Brachylaima virginianum*, and *Cruzia americana*. Chronic interstitial pneumonia associated with *Capillaria aerophila* and a metastrongyloid nematode also was present.

### HISTORY

In February, 1973, an opossum was observed repeatedly in a farmyard in Jackson County, Georgia. The animal was emaciated, weak in the hindquarters, circled, and fell frequently. Ten days after the first observation, it was captured by hand and submitted for examination.

The opossum was an adult female weighing 2.27 kg. Prior to necropsy she was comatose and had extremely depressed respiratory and heart rates. Blood examination revealed a hematocrit of 28% and a total leukocyte count of 5600 cells/mm<sup>3</sup> consisting of 49% lymphocytes, 45% neutrophils, 4% monocytes, and 2% eosinophils. Nucleated erythrocytes, leptocytes, polychromasia, and poikilocytosis were evident in blood films.

### POST MORTEM FINDINGS

At necropsy severe dehydration and emaciation were noted. Body tissues were abnormally pale, and approximately 30 ml of clear fluid was present in the abdominal cavity. The liver was pale yellow and moderately fibrotic. Histologically, occasional foci of histiocytes and neutrophils were found in portal areas. The kidneys were abnormally dark

in the cortical region, a condition which was attributed to bile pigment in numerous tubules.

The stomach was distended with 220 stomach worms, *Physaloptera turgida* Rudolphi 1819, of which a large proportion (67%) were immature stages. Numerous pinpoint ulcers were present where worms were attached to the gastric mucosa. These ulcers penetrated the glandular mucosa to the submucosal level. Focal necrosis, mild hemorrhage, moderate numbers of eosinophils, and mononuclear inflammatory cells were present at the sites of parasite attachment. The intestinal content was dark brown and semifluid, in which particles of insect exoskeleton and mollusk shell were found. Three hundred and nine intestinal flukes, *Brachylaima virginianum* Dickerson 1930, and 1989 roundworms, *Cruzia americana* Maplestone 1930, were found in the intestine and cecum.

The lung parenchyma was firm and multifocal indurated lesions occurred on the pleural surface. Four *Capillaria aerophila* (Creplin, 1839) were found in the lungs, and there were numerous eggs in the pleural lesions. In addition, approximately 20 metastrongyloid nematodes were present. These helminths resemble those of the genus *Perostrongylus* Schlegel 1934, and studies are in

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progress to further identify this nematode. Histologic examination of the lung revealed diffuse interstitial pneumonia characterized by smooth muscle hyperplasia, alveolar wall fibrosis, and focal accumulations of histiocytes.

#### DISCUSSION

*Physaloptera* embed in the gastric mucosa where they cause focal gastric ulcers<sup>7,8</sup> although recent reports<sup>4,5</sup> indicate that they may not feed on host tissue. Perforation of the stomach wall<sup>1</sup> and clinical illness characterized by profuse diarrhea, weight loss, partial gastric occlusion and hemorrhagic enteritis<sup>8</sup> have

been associated with *P. turgida* infection in opossums. The intensity of infection in this animal exceeds previous reports,<sup>2,6</sup> and the gastric ulcers associated with the attachment sites probably caused chronic blood loss which resulted in anemia.

Pathologic processes were not previously associated with slightly greater numbers of *B. virginianum* or *C. americana* than those reported herein,<sup>9</sup> but such large numbers of helminths undoubtedly interfere with host nutrition. Additionally, pulmonary nematodes produced lung lesions that were another stress on the host. The cumulative effects of all parasites present were considered to be the cause of chronic debilitation observed in this opossum.

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