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## NATURALLY OCCURRING HEPATOZOONOSIS IN A COYOTE

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**Abstract:** Schizonts of *Hepatozoon* sp. were found in the myocardium of an adult coyote (*Canis latrans*) collected from the Aransas National Wildlife Refuge, Austwell, Texas. This constitutes the first time hepatozoonosis has been recorded in Canidae in the Western Hemisphere.

### INTRODUCTION

Hepatozoonosis in wild Canidae has been reported in several areas of the Eastern Hemisphere. *Hepatozoon chattoni* was found in the jackal (*Canis aureus*)<sup>7,8,9</sup> and in the African hyena (*Crocuta crocuta*)<sup>1,5,7</sup> in Africa. In India, wild foxes (*Vulpes bengalensis*) were reported to be infected with a parasite believed to be *Hepatozoon canis*.<sup>13</sup>

Infection with *H. canis* is known to occur in the domestic dog in many areas of Europe, Asia and Africa.<sup>2,3,6,7,10,12,16</sup>

In the Western Hemisphere, *H. procyonis* has been reported in raccoons (*Procyon lotor*) in Georgia<sup>14</sup> and Texas,<sup>1</sup> and in Panama in *P. carcrivorus panamensis*.<sup>15</sup> Hepatozoonosis was more recently found in mink (*Mustela vison*) in Ontario.<sup>11</sup>

### CASE REPORT

The subject of this report is an adult male coyote (*Canis latrans*) collected on 23 April 1977 on the Aransas National Wildlife Refuge, Aransas County, Texas. Monthly collections of raccoons (*P. lotor*) and coyotes (*C. latrans*) were conducted to obtain sera and tissue for a serologic survey for zoonotic diseases. Representative tissue samples of visceral organs were fixed in 10% buffered formalin, paraffin embedded, sectioned at 4  $\mu$ m and stained with hematoxylin and eosin.

During a microscopic examination of sections of cardiac tissue from this coyote, schizonts were observed within the myofibers and adjacent blood vessels (Fig. 1). The schizonts subsequently were identified as *Hepatozoon* sp. Five intact schizonts were observed in two sections of myocardium. They measured 21-40  $\mu$ m  $\times$  20-28  $\mu$ m with 31-47 merozoites located within each schizont. The schizonts seen in the myofibrils were not accompanied by an inflammatory reaction. In other areas, infiltrations of lymphocytes and macrophages were seen among the myocardial fibers. Numerous microfilariae of *Dirofilaria immitis* were seen throughout the sections. It was not clear if either of the agents was the cause of the granulomatous reaction.

### DISCUSSION

This is believed to be the first reported case of hepatozoonosis in Canidae in the Western Hemisphere. The high prevalence of infection in raccoons in the same study area (87%, 14 of 16 examined) and the relative scarcity of this infection in coyotes, (10%, 1 of 10 collected) suggests that this is an accidental infection of *H. procyonis* in *C. latrans*.

*Hepatozoon* sp. in new host species in the United States confuses the taxonomic state concerning this parasite.

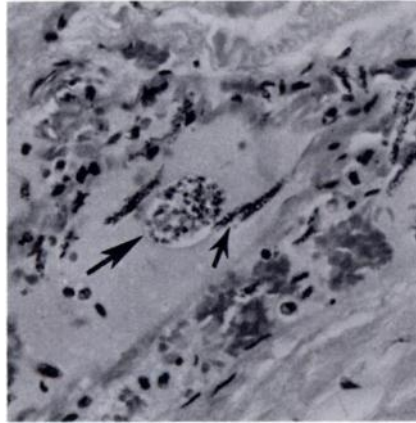


FIGURE 1. Myocardium from a coyote with a *Hepatozoon* sp. schizont (large arrow) in a blood vessel. Note numerous *Dirofilaria immitis* microfilariae (small arrow) also in the vessel. H&E stain;  $\times 400$ .

For this reason, no attempt has been made to name the species in this case.

The pathogenicity of *Hepatozoon* in coyotes was not determined. In naturally-infected domestic dogs, *H. canis* has been associated with anemia, fever, icterus, hepatitis, pneumonitis and death.<sup>7,10,12</sup> Wild Canidae in Africa<sup>7</sup> and raccoons in Texas<sup>1</sup> apparently tolerate infection quite well. It has been suggested, however, that concomitant infections with other diseases may enhance the virulence of *Hepatozoon*.<sup>1,7</sup>

The primary significance of *Hepatozoon* in wildlife is unknown, but wildlife may act as reservoirs, thus representing a possible health hazard to domestic dog populations. However, if the disease is debilitating and/or increases susceptibility to other diseases, *Hepatozoon* infection deserves further attention.

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