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DIROFILARIA IMMITIS IN UROCYON CINEREOARGENTEUS FROM SOUTHERN ILLINOIS

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ABSTRACT

Dirofilaria immitis was found in the hearts of 3 (1.1%) of 267 gray foxes (*Urocyon cinereoargenteus*) from Union, Williamson, and Jackson counties, southern Illinois. Two (1.4%) of 143 males and 1 (0.8%) of 124 females were infected. Parasitic burdens ranged from 2 to 8 worms per infection with worms being much smaller than those found in domestic dogs in these areas. None of the females contained either developing embryos or microfilaria. The low prevalence of infection in gray foxes suggests that this carnivore is probably an incidental host and does not represent a serious threat as a source of *D. immitis* for dogs in southern Illinois.

INTRODUCTION

Although *Dirofilaria immits* (Leidy 1856) has been reported from several wild carnivores and other mammals in the contiguous United States, few positive infections have been recorded for gray foxes (*Urocyon cinereoargenteus*). Erickson (1944) found no evidence of canine heartworms in 26 gray foxes fromMinnesota. Likewise, Walton *et al.* (1963) found the blood of 48 gray foxes from Georgia negative for microfilariae and Schlotthauer (1964) reported negative infections in the hearts of 9 gray foxes from Minnesota. Miller and Harkema (1968) recorded 1 of 15 gray foxes from North Carolina and 1 of 2 from South Carolina infected; but, none of 7 they examined from Georgia were infected. Monson *et. al.* (1973) found no evidence of heartworms in 179 gray foxes from New York; however, they noted a single positive infection subsequent to their initial study. Stone (1974) observed adults in the heart and microfilaria in the blood of a female gray fox from New York. Of 20 gray foxes from Louisiana, Crowell *et al.* (1977) recovered microfilaria in the blood of one and adults in the heart of another. Kazacos (1977) recorded a single male specimen of *D. immitis* in the heart of 1 of 4 gray foxes from Indiana. Later, (1978) Kazacos and Edberg (1979) reported 3 of 81 gray foxes from Indiana infected.

Stuht (1978) recovered a single heartworm in the pulmonary artery and right ventricle of a gray fox from Michigan. Simmons *et al*. (1980) reported heartworm infections in 3 of 82 male and 1 of 67 female gray foxes from Alabama and Georgia. Independent of their initial study, they also reported an infected gray fox from Mississippi and one from Alabama. The present investigation represents the results of a survey of gray foxes from southern Illinois for the presence of the adult stage of the filariid nematode.

MATERIALS AND METHODS

Two hundred and sixty-seven gray foxes were either trapped or shot in Union, Williamson and Jackson counties, southern Illinois between January and November 1962. Subsequent to the removal of the heart and lungs, the atria, ventricles, and pulmonary arteries were incised and examined for *D. immitis*. The lungs were likewise incised, washed, and the filtered sediment examined with a dissecting microscope. Specimens of *D. immitis* were counted, measured, and the female worms examined for developing embroys and microfilariae. The blood, however, was not examined.

RESULTS

Of the 267 foxes studied, specimens of *D. immitis* were recovered from the right ventricle of 3 (1.1%). This included 2 (1.4%) of 143 males and 1 (0.8%) of 124 females. Parasitic burdens ranged from 2 to 8 worms per infection with worms being much smaller than those recovered from domestic dogs in these counties. None of the female worms contained either developing embryos or microfilariae.

DISCUSSION

The low prevalence of infection in gray foxes suggests that this carnivore is probably an incidental host and does not represent a serious threat as a source of *D. immitis* for dogs in southern Illinois. However, further studies are warrented to up-date this data and to determine whether gray foxes have a role in the epizootiology of *D. immitis* infections in this area. To our knowledge, the viability of this filariid nematode in gray foxes has not been tested. In concurrence with Walton *et al* (1963), Franson et al (1976), Crowell *et al* (1977), and Hubert *et al* (1980), experimental cross-transmission of *D. immitis* between wild carnivors and dogs is warrented to ascertain the possibility of the former in serving as suitable reservoir hosts.

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