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Parasitic Ulcerative Ventriculitis in Mallards (*Anas platyrhynchos*)

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ABSTRACT: Natural infections of *Streptocara crassicauda* and *Streptocara incognita* were diagnosed in four mallards (*Anas platyrhynchos*) from Red Rock Lakes National Refuge, Beaverhead County, Montana. Lesions at the junctions of the gizzard and proventriculus were associated with the nematodes, and resulted in debilitation, emaciation and death.

Key words: Mallards, *Anas platyrhynchos*, *Streptocara crassicauda*, *Streptocara incognita*, Montana, ulcerative ventriculitis.

In August 1981, four mallards (*Anas platyrhynchos*) were found dead at the Red Rock Lakes National Wildlife Refuge, Beaverhead County, Montana, and brought to the Veterinary Diagnostic Laboratory in Bozeman, Montana, for examination. During necropsy cestodes of the genus *Hymenolepis* were found in the small intestine. Because of the poor condition of the specimens, identification was possible only to genus. Attached to the intestinal lining were acanthocephalans (*Corynosoma constrictins* and *Polymorphus minutus*) associated with a severe hemorrhagic enteritis. Spirurid nematodes (*Streptocara crassicauda* and *S. incognita*) were found embedded in the lesions of the gizzard and surrounding tissue. *Streptocara incognita* was the most abundant species.

The nematodes visible in the lesions were teased from the tissue using dissecting needles and preserved in 70% glycerin-alcohol. Specimens of *S. crassicauda* and *S. incognita* have been deposited in the U.S. National Parasite Collection (Beltsville, Maryland 20705, USA) as USNM Helminth Collection Nos. 78753 and 79598.

Samples of the necrotic areas in the gizzard and small intestine were placed in 10% buffered formalin and processed for microscopic examination. Microscopically, the gizzard contained multifocal areas of mucosal ulceration. These foci were usually filled with necrotic debris and contained numerous specimens of *Streptocara* spp. (Fig. 1). All nematodes were placed in the same vial before being identified, therefore it was impossible to attribute the lesions to any one species of *Streptocara*. The lesions were probably caused by *S. incognita* based on the large numbers of this species found and the fact that this nematode has been reported previously to cause such lesions (Gibson, 1968). In many locations there were parasites deep within the muscle wall. These were surrounded by varying amounts of necrotic debris and a cellular infiltrate consisting of mononuclear and multinucleated phagocytes, lymphocytes, and heterophiles (Fig. 2). In a few areas there were circumscribed foci of granulomatous inflammation surrounding amorphous debris (Fig. 3). In the ulcerated area associated with the *Streptocara* spp. the cornified layer of the gizzard was sloughed, leaving large areas unsuitable for the grinding of food. In the small intestine there was mucosal ulceration and hemorrhage associated with the acanthocephalans.

Streptocara crassicauda is a common parasite found in the gizzard or under the mucosal lining of waterfowl. This species has been found previously in numerous North American waterfowl including mallards (McDonald, 1965; Kinsella and Forrester, 1972). *Streptocara incognita* is found also in the gizzard and the proventriculus. This species is reported from mallards, ruddy ducks (*Oxyura jamaicensis*) and goldeneyes (*Bucephala* spp.) (Gibson, 1968).

In the United States, *S. crassicauda* has

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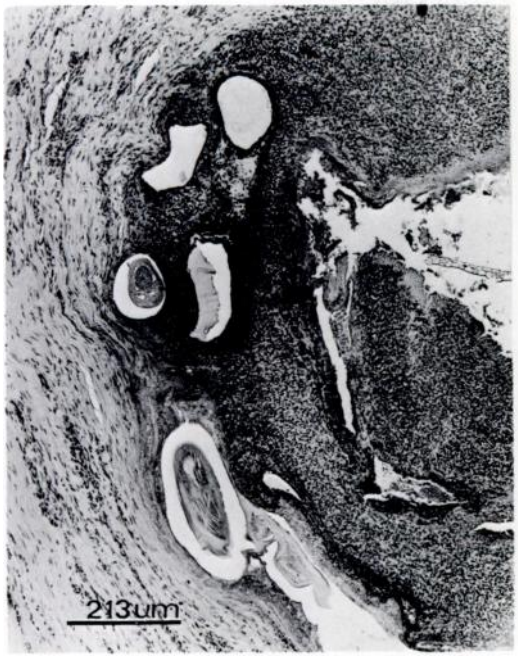

FIGURE 1. Ulceration of the gizzard mucosa of a mallard associated with infections of *Streptocara crassicauda* and *Streptocara incognita*. H&E.

FIGURE 2. Deeply embedded parasites (*Streptocara* spp.) within gizzard muscle of a mallard surrounded by necrosis and an inflammatory cell infiltrate. H&E.

FIGURE 3. Circumscribed foci of granulomatous inflammation within gizzard musculature of a mallard. H&E.

been found in Alaska, Texas, Florida, Montana, and Wyoming (Kinsella and Forrester, 1972; McDonald, 1974; Wilkinson et al., 1977). *Streptocara incognita*, first described in 1968, has been found previously in Nevada (McDonald, 1974).

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