



TRICHINOSIS AND SARCOSPORIDIOSIS IN A PUMA

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BRIEF NOTES, SURVEYS AND COMMENTS

TRICHINOSIS AND SARCOSPORIDIOSIS
IN A PUMA

Trichinella spiralis larvae have been isolated from several species of wild Felidae (bobcat, leopard, lynx, and wildcat-European), but there are no reports on their occurrence in the puma, *Felis concolor* (Zimmermann, and Hubbard, 1963, Sci. Proc. 100th Ann. Mtg. A.V.M.A., pp. 194-199). Sarcocystis is common in many species of animals but is reported to be extremely rare in carnivores such as the dog and cat (Levine, 1961, Protozoan Parasites of Domestic Animals and of Man. Burgess Publishing Company, Minneapolis, Minn.).

The following report is based on histological examination of tissues obtained at necropsy from a 13-year-old male puma, *Felis concolor*. The animal had been obtained by the National Zoological Park, Washington, D.C. at 6 years of age from a dealer in Colorado. During its 7 years at the National Zoological Park, the animal was fed a diet which consisted mainly of raw horse meat and occasional raw beef.

Multiple cysts containing larvae of *Trichinella spiralis* were present within skeletal muscle bundles in the esophagus and tongue. The diameters of the muscle bundles were greatly enlarged and the sarcoplasm was replaced by thick hyaline walls which surrounded the parasitic larvae. Often these hyaline walls contained mineral deposits (Figure 1). The larvae had typical morphological characteristics of *Trichinella* (Gould, 1945, Trichinosis. Charles C. Thomas, Springfield, Illinois). Some cysts contained partially degenerated larvae and in others the larvae were replaced by homogenous eosinophilic material, mineral deposits and a few chronic inflammatory cells. There was little or no inflammatory reaction surrounding the cysts.

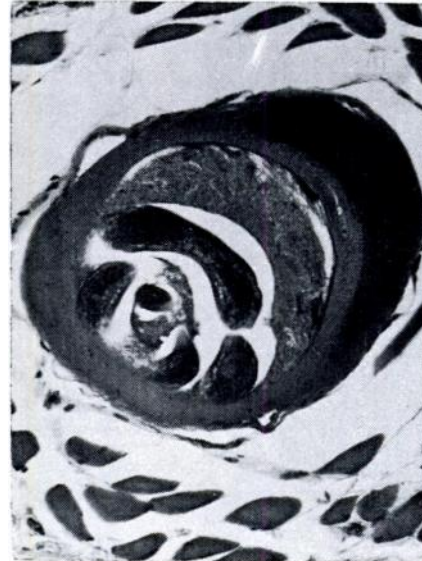


FIGURE 1. *Trichinella spiralis* cyst in a muscle bundle of the esophagus with a partially mineralized hyaline wall. H & E X245.

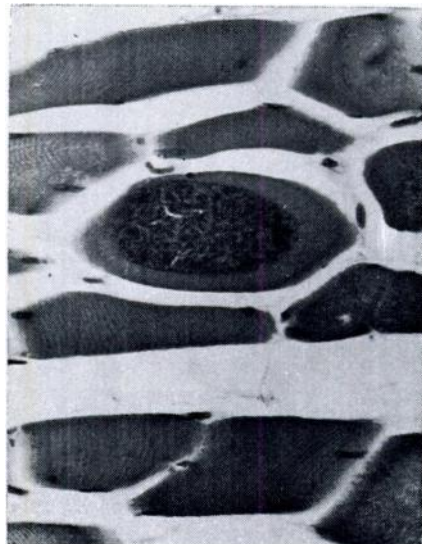


FIGURE 2. *Sarcocystis* cyst in skeletal muscle bundle. H & E X525.

A few parasitic cysts with different morphological characteristics were present in skeletal muscle. These had thin single layer eosinophilic walls with smooth external and internal surfaces. The cytoplasm of the walls was granular and there were no septae projecting from the internal surface. The cysts contained numerous banana-shaped basophilic structures, each of which had a round to oval subterminal nucleus and small basophilic granules within the cytoplasm. The cysts replaced approximately two-thirds of the sarcoplasm in the slightly swollen affected muscle bundles (Figure 2). There was no inflammatory reaction surrounding the cysts or the affected muscle bundles. The author

believes that the above described parasitic cysts are caused by a member of the genus *Sarcocystis*, based on their morphological characteristics.

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AN UNUSUAL CASE OF FISH DISEASE CAUSED BY *OPHRYOGLA SP** (Protozoa:Hymenostomatida)

During July and August, 1959, several fish which were kept in small aerated aquaria for other experiments became infected with a medium-sized ciliate which caused rapid mortality of small fish. The affected fish were largemouth black bass (*Micropterus salmoides*), bluegills (*Lepomis macrochirus*), fall-fish (*Semotilus corporalis*), creek chubs (*Semotilus atromaculatus*) and sculpin (*Cottus bairdi*). Most of the fish were 2 to 3 inches long but the bass were 1.5 inches long.

The smallest fish were most seriously affected and died about 2 days after the appearance of infection, which was manifested by sloughing of large patches of epithelium (Figure 1). The larger of the affected fish which had smaller, but easily visible, white spots of sloughing epithelium, became lethargic and finally died.

Histopathological studies revealed the parasites within, as well as beneath, the

*Identified by Dr. Jiri Lom, Academy of Science, Prague, Czechoslovakia.

epithelium. No pathologic changes were seen except necrosis of the invaded epithelium. Death of the fish was probably caused by the loss and malfunction of invaded epithelium.

When a small live affected fish was observed in good light with a dark background or under the dissection microscope, swarms of the ciliate could be seen around the fish. After the death, or removal of the fish, most of the ciliates settled to the bottom of the container, where many of them rounded up and formed cysts which were still intact on the bottom of the container after 16 days. Although the methods of treatment were not investigated by controlled experiments, a 30-minute exposure of the infected fish to formalin at a final concentration 1:4000 appeared to alleviate the symptoms.

Morphology

The size of this living, free-swimming, *Ophryoglena* is 150-200 by 85 μ . Its shape is a constant ellipsoid, slightly more attenuated anteriorly. When burrowing in the epithelium it is capable of rounding up, and sinuating, somewhat like *Ichthyophthirius*, but its body