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Evidence of Prenatal Infection in the Bottlenose Dolphin (*Tursiops truncatus*) with the Lungworm *Halocercus lagenorhynchi* (Nematoda: Pseudaliidae)

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ABSTRACT: Adult lung nematodes identified as *Halocercus lagenorhynchi* were collected from the lungs of four *Tursiops truncatus* calves. The calves ranged in age from newborn to 3-wk-old and were found on both the Atlantic and Gulf coasts of Florida (USA). This finding suggests the possibility of a more cosmopolitan distribution of prenatal infection with lung nematodes in cetaceans than previously suspected.

Key words: Prenatal infections, lung nematodes, *Halocercus lagenorhynchi*, bottlenose dolphin, *Tursiops truncatus*.

Evidence for prenatal infection with the protostrongylid lung nematodes *Protostrongylus stilesi* and *P. rushi* has been reported previously in terrestrial animals (Gates and Samuel, 1977; Forrester et al., 1974; Hibler et al., 1974). Caldwell and Caldwell (1968) reported observations on a 2½-mo-old male *Tursiops truncatus* found infected with *Halocercus* sp. nematodes at St. Augustine, Florida. However, the transmission of a parasitic nematode in the lungs of a marine mammal has only been demonstrated for *Parafilaroides decorus* in the California sea lion (*Zalophus californianus*) (Dailey, 1970). The mode of transmission of lung nematodes in cetaceans has not been confirmed.

This study documents the findings of adult *Halocercus lagenorhynchi* in four *T. truncatus* calves from 1987 to 1989 in Florida (USA). Three of these calves were collected on the Atlantic coast in Brevard County, Florida and one on the Gulf coast near Tampa Bay. Nematodes were collected from the lungs of one dolphin, a 120 cm male found alive, stuck on a sand bar in the Banana River near Cape Canaveral (28°00′N, 80°30′W). The calf was transported to Sea World (Orlando, Florida 32821, USA) where it died 11 days later. Nematodes collected at necropsy were found in external abscesses on both lobes of the lung. Specimens also were collected from a second animal found stranded at 27°56′N, 82°50′W. This calf was found with the umbilical cord still attached. The nematodes were cleared and identified as *Halocercus legenoryhnchi*. Adult male and female *H. lagenorhynchi* were recovered from the lung tissue. Male worms had fully developed spicules with the looped gubernaculum, which is specific for *H. lagenorhynchi* according to Delyamure (1955) (Fig. 1). The females contained fully developed larvae in the uterus (Fig. 2).

Our findings of prenatal infections with *H. lagenorhynchi* suggest that the transplacental mode of transmission may be more common than previously suspected. The potential significance of this phenomenon may be suggested by the large numbers of nematodes infecting the lungs, pulmonary artery, auditory spaces and air sinuses of cetaceans. Dailey and Brownell (1972) list eight genera and numerous species of lung nematodes, any of which may use this method of transmission. Lungworm disease and its associated pneumonia are particularly important in the health of wild populations. Stroud and Roffe (1979) listed verminous pneumonia with secondary bacterial branchopneumonia as responsible for the death of three subadult *Phocoena phocoena* infected with *H. invaginatus*.

Just how many nematodes infect the air passage of cetaceans using this type of transmission needs additional documentation. However, the evidence presented here suggests the potential loss of large

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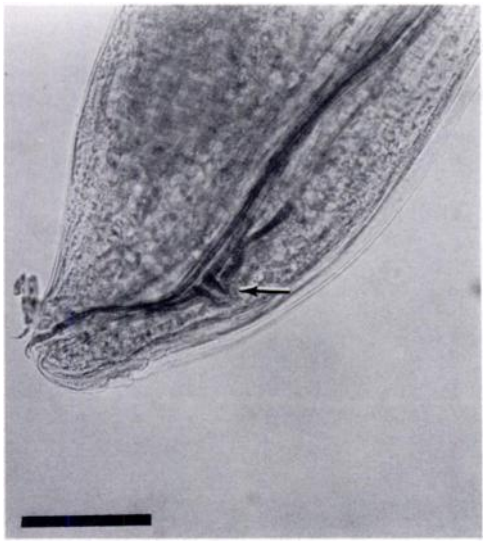


FIGURE 1. Posterior of adult male *Halocercus lagenorhynchi* with developed spicules and characteristic looped gubernaculum. Bar = 150 μm.

numbers of early postnatal cetacean calves where verminous pneumonia may develop through lungworm infection.

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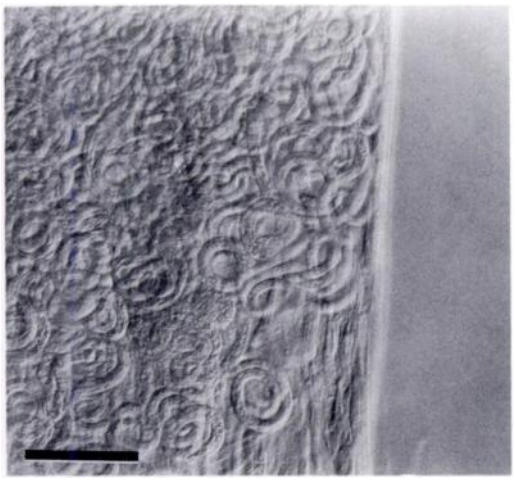


FIGURE 2. Uterus of an adult female *Halocercus lagenorhynchi* with developed first-stage larvae. Bar = 75 μm.

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