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No. 301

Title

DIPHYLLOBOTHRIUM SP. - PTEROCERCOID IN THE LAKE TROUT
FROM ALGONQUIN PARK, ONTARIO
1937

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DIPHYLLOBOTHRIMUM SP. PLEROCERCOID IN THE LAKE TROUT

FROM ALGONQUIN PARK, ONTARIO

In the summer of 1935 it was found that the lake trout, Cristivomer namaycush, in Cache lake, Algonquin Park, were infected with the second stage larva of a species of Diphyllobothrium which were enclosed in small round cysts. These cysts were attached to the wall of the intestine and to other organs in the abdominal cavity of the fish.

The cysts measured 2 to 3 mm. in diameter, tightly fitting around the coiled parasite. The parasite measured 7 to 12 mm. in length, possessed an attachment organ or scolex and showed no segmentation of the body.

On the 20th day of August, 22 cysts were fed to a kitten which was killed and dissected on the 30th of September. No endoparasites were found.

Through the kind arrangement of Professor W.J.K. Harkness it was possible to repeat the experiment in the summer of 1937.

On the 25th of July the internal organs of 18 trout were sent from lake Opeongo to the author by Professor Harkness, but not a single plerocercoid was found. The food found in the stomachs of these trout consist of small fish.

On the 26th of August the internal organs of four trout were received from Mr. K.H. Doan. These fish were caught in Cache and Cranberry lakes and two of them were infected with plerocercoids. One of these fish from Cranberry lake had over 40 cysts around and embedded within the intestinal wall.

On the 27th of August a cat, a dog and a pup were infected with these plerocercoids, 15 to each animal. The animals were previously examined for Diphyllobothrium infection. Three tests were made of each animal but all were negative. The larvae were placed in a gelatine capsule and the latter forced down the throats of the animals.

On the 28th of August one larva was introduced into a human.

On the 5th of September the pup died. Post mortem examination on the 7th of September showed that the death was apparently caused by a lesion in the urinary system. Several specimens of Dipylidium species, Ascarids and one individual of Diphylobothrium species were found in the intestine. The latter was undoubtedly one of those fed to the pup 10 days earlier. It possessed a scolex identical in shape and size to that of the plerocercoids taken from trout. The body was finely segmented and the appearance of the genitalia was noticeable in the proglottids at the distal end of the strobila.

On the 2nd of November the cat and dog were killed and examined. Both had been in good health throughout the experiment. No intestinal parasites were found in the cat. Dipylidium species only were found in the dog. The experiment with the human was also negative.

From these experiments it can be concluded that the plerocercoid in the trout is in all probability one of the Diphylobothrium species, which matures in water birds or in some other mammals. The autopsy of the pup, however, showed that the parasite was developing. It is possible that some of the larvae may be able to remain in the intestine of other mammals and develop to a certain degree, but not being in the proper host, they may be expelled after a short time.

The infection occurs probably in those trout which feed on plankton, as one of the plankton organisms has to serve as the first intermediate host for the parasite.

In most cases examined, only the internal organs of the trout were available. In a few cases the whole fish was examined but no plerocercoids were found in the muscles. Further study of the trout is therefore needed

to make it certain whether or not this parasite invades the muscles of the fish. If the parasite is restricted to the internal organs of the fish, there is no fear of transmission to the humans. Moreover, the experiments reported above suggest that the parasite is not Diphylllobothrium latum. Care should be taken that the internal organs of the fish are not thrown into the lake or on the shore where they are available to the definitive hosts thus spreading and increasing the infection.

Skinker (J. Parasit., 19: 162, 1932) made a comparative study of Diphylllobothrium latum (L) and D. cordiceps (Leidy). The usual definitive host for the latter has been recorded as the gull and pelican, and the trout as the second intermediate host. Skinker could find no characters as the basis for differentiation of the two species and, therefore, she considered D. cordiceps as a synonym of D. latum.

Scott (J. Parasit., 19: 162-163, 1932) studied D. cordatum from Yellowstone Park. He was unable to distinguish the ova of this species as well as the Plerocercoids from the trout, from those of D. latum.

There are several other records of Diphylllobothrium plerocercoids in trout, but no records of raising these in mammalian or avian hosts are available.