SKRJABINGYLUS CHITWOODORUM (NEMATODA: METASTRONGYLIDAE) IN SKUNKS IN ILLINOIS

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Skrjabingylus chitwoodorum has been found in the frontal sinuses of skunks in several localities in the United States, but it has not heretofore been reported from Illinois. The purpose of the present paper is to record its occurrence in this state and to summarize earlier reports on its occurrence, life cycle and pathogenesis.

In connection with a study of sylvan rabies, the brains of 184 striped skunks (*Mephitis mephitis*) from northern Illinois were examined. *Skrjabingylus chitwoodorum* was found in the sulci and fissures beneath the dura mater in two of these animals. Two male and two female nematodes were found in an adult male skunk trapped March 19, 1958 in Carroll County, Illinois, and two males and two females were found in another adult male skunk trapped June 24, 1958 in Cook County.

In addition to the above, a single male *S. chitwoodorum* was found February 23, 1959 on the brain of a road-killed male skunk near Pomona, Jackson County, and a single female nematode was found on the brain of a female skunk caught in a trap March 11, 1959 by a fox trapper near Alto Pass, Union County. Both these counties are in southern Illinois.

All the worms were not intact, so that it was not possible to make complete measurements. Three females were 27 to 42 mm long and 842 to 1070 microns wide. Five males were 16 to 24 mm long and 502 to 816 microns wide. The spicules of four males were 800, 816, 846 and 875 microns long, respectively, and the gubernacula of two males were 90 and 97 microns long. These may be compared with spicule lengths of 540 to 710 (average 631) microns reported by Hill (1939) and of 715, 795 and 830 microns reported by Goble (1942), and to gubernaculum lengths of 72 to 88 (average 80) microns reported by Hill (1939).

Skrjabingylus chitwoodorum Hill, 1939 was originally described from two striped skunks, *Mephitis mephitis mesomelas* (syn., *M. mesomelas mesomelas*), and three eastern spotted skunks, *Spilogale putorius interrupta* (syn., *S. interrupta*), in Oklahoma by Hill, (1939). (The names of the hosts in our paper are those used by Hall and Kelson, 1959).

S. chitwoodorum has also been found in *Mephitis mephitis occidentalis* (syn., *M. occidentalis*) in California by Hobmaier (1941), in

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18 of 25 *M. m. nigra* (syn., *M. nigra*) in New York by Goble (1942) and Goble and Cook (1942), in a dead skunk (presumably *M. mephitis*) in Pennsylvania by Bell and Chalgren (1943), and in *M. m. nigra,* presumably from the vicinity of Beltsville, Maryland by Dikmans and Goldberg (1949). In addition, Stegeman (1939) found bone lesions suggestive of *S. chitwoodorum* infection in the skulls of 26 out of more than 150 *M. m. nigra* from New York, and Tiner (1946) found similar lesions in the skulls of 3 *M. m. varians* out of 400 skulls of this species and *Spilogale g. gracilis* (syn., S. *leucoparia*) in Texas. Finally, Miller (1899) found nematodes which were identified as *Filaroides mustelarum* but which were undoubtedly *S. chitwoodorum* in the frontal region of the skulls of skunks (*M. m. mephitis*) at North Bay, Ontario, and stated that all the adult skunks which he took in this area were infected.

The only record of *S. chitwoodorum* in *Spilogale putorius* is that of Hill (1939) in Oklahoma.

S. chitwoodorum has been found in the western spotted skunk, *S. gracilis,* in California by Grinnell, Dixon and Linsdale (1937), in *S. gracilis phenax* in California by Hobmaier (1941), and in *S. gracilis latifrons* in British Columbia by Cowan (1941). In addition, Tiner (1946) found bone lesions suggestive of *S. chitwoodorum* infection in the skulls of 3 *S. g. gracilis* (syn., *S. leucoparia*) out of 400 skulls of this species and *M. m. varians* in Texas.

Hobmaier (1941) found that third stage larvae developed in slugs and snails. Development was best in *Limax maximus, L. cinereus, L. flavus, L. niger, Agriolimax agrestis* and *Milax* sp., while *Epiphragmophora* sp. and *Helix pomatia* were seemingly less favorable hosts. Hobmaier apparently infected skunks with larvae from slugs or snails. In addition, he found a natural infection with third stage larvae in a Pacific garter snake, *Thamnophis sirtalis infernalis,* and he infected frogs artificially. He was unable to obtain adult nematodes in artificially exposed guinea pigs, dogs, cats or ferrets, but found some larvae in the stomach wall and mesenteries of mice and rats. He considered that the normal route of migration of the larvae in skunks was directly from the mouth thru the nasal passages to the sinuses.

S. chitwoodorum ordinarily occurs in the frontal sinuses and may deform the skull. Bell and Chalgren (1943) stated that the skunk which they examined ''had bulbous enlargments of the frontal sinuses containing'' the nematode. Miller (1899) reported that the parasites he found disfigured the frontal region of the skulls of a large proportion of the specimens. Stegeman (1939) found that 26 of more than 150 skulls of skunks from New York had a porous, relatively soft, frequently discolored dilation on the dorsal surface at the junction of the frontal and parietal bones; the cavities in these swellings were continuous with the frontal sinuses; he found no worms, since he was studying skulls alone. The lesions which Tiner (1946) found in the skulls of *S. gracilis* and *M. mephitis* and which he assumed were caused by *S. chitwoodorum* varied from marked bulging and osteitis over the frontal sinuses to actual holes in the walls of one or both of them.

Lesions suggestive of *S. chitwoodorum* infection were seen in the frontal region of the skull of a fifth skunk collected in northern Illinois; the frontal sinuses of this animal were not examined, and no worms were seen. However, no lesions were seen in the skulls or brains of the Illinois skunks in which *S. chitwoodorum* was found. Our report is apparently the first record of this nematode's occurrence in the brain cavity.

Summary

Skrjabingylus chitwoodorum was found in the sulci and fissures of the brain beneath the dura mater of 2 out of 184 striped skunks (*Mephitis mephitis*) in northern Illinois and in 2 other *M. mephitis* in southern Illinois. This is apparently the first record of this nematode's occurrence in the brain cavity. The hosts were apparently healthy, and their skulls were not noticeably deformed. Earlier reports on *S. chitwoodorum* are summarized.

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