

A Case of *Diectophyme Renale* in a Dog

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Class of 1941

THE second case of *Diectophyme renale*, the giant kidney worm, to be reported in the state of Iowa was found in a dog being used in a surgery class at Iowa State College, February 8, 1940. The dog, a long haired mongrel,

ing 9 cm. by 5.5 cm. by 3.5 cm. Histological sections taken from both kidneys verified these conclusions.

Pathology

Diectophyme renale, or "giant kidney worm" is the largest known nematode, and occurs in the dog, fox, wild carnivora, man, and rarely in other domestic animals. It locates in the kidney, the right one usually, but many pass down to the bladder, or rupture into the peritoneal cavity. The worm is a comparatively rare one and is usually found in animals living near or having visited fresh water lakes. The life cycle is not known, but fish are suspected to be one intermediate host. The parasite causes extensive damage to renal tissue, and to the bladder. The animal may have a cystitis, ureteritis, or pyelonephritis, due to the presence of the worm.

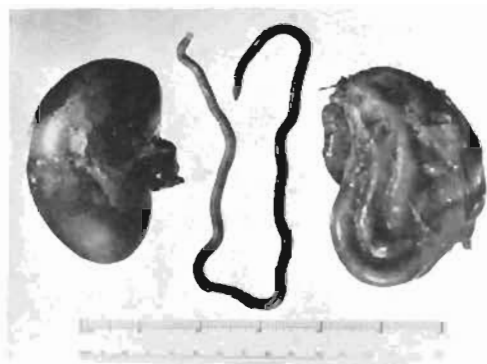


Fig. 1.

Diectophyme renale male from peritoneal cavity of dog (center). Female in right kidney (right). Left kidney (left). I.S.C. Vet. Path. photo.

was about four years old and weighed about forty pounds. It was brought to Ames, Iowa, from Ponsford, Minnesota. Two of the large nematodes were found. The first, the smaller of the two, was a male, measuring 33 cm. long and 5 mm. at its maximum width, was found when an abdominal incision revealed it coiled among the intestines. This led to the discovery of the second and larger worm, a female, 82 cm. long by 10 mm. maximum width, coiled in the right kidney. Both worms were bright red in color, but the female was the most vivid. The right kidney had atrophied until only the capsule of the kidney remained to surround the large female worm. The left kidney showed compensatory hypertrophy, almost twice the size of a normal kidney from a dog of that size, measur-

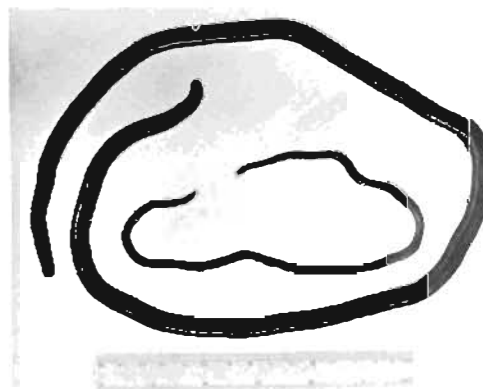


Fig. 2.

Diectophyme renale female and male. I.S.C. Vet. Path. photo.

Clinical diagnosis is readily made from urine examination which reveals heavily shelled eggs which are pitted except at

the poles. Measurements according to Monnig are 71 to 84 by 46 to 52 microns. No prevention or medicinal treatment is known. It is suggested that raw fish be avoided as a food for the dog. The worm may be removed from the abdomen surgically.

Other Cases

Only 75 other cases have been reported in the literature in North America, and of these only one was found in Iowa, that reported by Maxfield in 1917. A brief resume of the records is as follows: Riley, in 1916 reported 27 definite cases in America, of which only 8 were already on record. Five more cases were added by Hall in 1916, who mentioned that Brenton in Detroit had seen about a half dozen cases. Riley again that same year reported another case bringing the total to 39 cases. In 1917 Hall added 2 more cases. Riley followed with another account of a case in that year. It was at this time that Maxfield made his report of a worm in the abdominal cavity of a dog in Iowa. Fifteen years lapsed before Olson in 1932 made a report on two cases. In 1934 Wright reported a case and related others bringing the total to 57. Stiles gave an account of 2 cases of his own and 10 National Museum cases. Wright in 1935 again reported one case of his own and related three others. The 74th case was reported by Patterson in 1936, and the last one in a mink by Graves in 1937. The case described here makes a total of 76 reported cases in North America, which probably represents not more than half the cases actually found.

Acknowledgement

All pictures, measurements, and sections were obtained through the courtesy of the Iowa State College Veterinary Pathology Department.

References

1. Riley, W. A. Occurrence of the giant nematode, *Diectophyme renale* (*Eustrongylus*) in the U. S. and Canada. 1916. Jour. Am. Vet. Med. Assoc., 49 (2) : 801-809.
2. Hall, M. C. American records of *Diectophyme renale*. 1916 Jour. Am. Vet. Med. Assoc., 50 (3) : 370-372.

3. Riley, W. A. The occurrence of the giant nematode on the liver of a dog. 1916. Cornell Vet. Vol. 6, : 209.
4. Hall, M. C. Parasites of the dog in Michigan. 1917. Jour. Am. Vet. Med. Assoc., (4) : 383-395.
5. Riley, W. A. Another case of the occurrence of the giant nematode *Diectophyme renale*, in the abdominal cavity and data bearing upon the theory of entry via the genito-urinary tract. Cornell Vet. 1917. Vol. 7, : 43-45.
6. Maxfield, F. M. Common parasites of the digestive tract. 1917. Am. Jour. Vet. Med. 12 (5) : 295-297.
7. Olson, C. Two cases of infestation of the dog with *Diectophyme renale*. 1932. Jour. Am. Vet. Med. Assoc., 34 : 253-255.
8. Underwood, P. C. and Wright, W. H. A report of the giant nematode, *Diectophyme renale*, from a dog, with a summary of American records. 1934. Jour. Am. Vet. Med. Assoc., 85 : 256-258.
9. Wright, W. H. Additional American records of *Diectophyme renale* from a dog. 1935. Jour. Am. Vet. Assoc., 87 : 682-683.
10. Patterson, E. E. Another specimen of *Diectophyme renale*. 1936. Jour. Am. Vet. Med. Assoc., 88 : 184.
11. Graves, E. V. *Diectophyme renale* in a mink. 1937. Jour. Am. Vet. Med. Assoc., 90 : 531-532.

Anatomical Association Meeting of America

The annual meeting of the American Anatomical Association held in Louisville, Kentucky, March 20-22, 1940, was attended by Dr. H. L. Foust, Professor of Veterinary Anatomy; Dr. W. G. Venzke, instructor of Veterinary Anatomy; and Dr. A. M. Lucas, Assistant Professor of Zoology. On their return trip they visited the home of Mark Twain in Hannibal, Mo., the St. Louis Zoo at St. Louis, Mo., and spent considerable time at Purdue University.

Almost twenty per cent of the 43 captains of Iowa State's football teams have been students of the Veterinary Division, a great preponderance of veterinarians in proportion to the enrollment of the other divisions. The list with the year of captaincy follows:

- H. C. Scholty, 1901—Leon, Iowa
- F. W. Law, 1908—deceased
- V. A. Heater, 1918—deceased
- R. T. Coe, 1926—Belmond, Iowa
- M. L. Spear, 1930—Oelwein, Iowa
- Don Theophilus, 1934—Peoria, Illinois
- Ike Hayes, 1935—Waterloo, Iowa
- Clarence Dee, 1937—Miami, Florida