

CANINE DIOCTOPHYMOSIS IN THE NORTH EAST OF ARGENTINE

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SUMMARY

The Authors report the finding of *Dioctophyme renale* in dogs from two North Eastern Argentine cities. Details of the infected dogs are described, also the number, sex and length of the worms found. The results of several biochemical analysis done with serum and urine indicate that the dogs suffered from chronic pyelonephritis. The paper is illustrated with photographs of adult worms and their eggs detected in the urinary sediment. Of 102 canines examined, a Prevalent Rate of 2.9% was found.

INTRODUCTION

While developing a research programme in canines in the North Eastern Zone of the Argentine Republic, we were fortunate in finding a case of renal dioctophymosis³, which was duely reported.

Dioctophyme renale (GOEZE 1782) is a nematode widely dispersed internationally^{9,12} which can be found in the kidney, peritoneal cavity and other organs of the dog, several other wild and domestic animals^{4,6} and man^{1,5,7}.

We haven't had reports of this parasite in humans or animals in this zone. However, in this country repeated reports of the findings have come in from the Province of Buenos Aires^{8,10,11}.

Fish, crabs, leeches and earth-worms have been cited^{1,7,9,12} as intermediary hosts. The finding in this area of the country show the presence of said host/s and the potential risk of human infection, specially by those people who eat badly cooked fish.

Until 1972, twenty-five confirmed cases of human dioctophymosis were cited⁹ in the world. Worried by this latent threat, we decided to make an inquiry about the prevalence of *D. renale* in dogs in two Argentine cities, at the

same time to register the pathological alterations that might be found in serum and urine for diagnosis purposes.

MATERIAL AND METHODS

A hundred and two stray dogs (64 from Corrientes and 38 from Resistencia) were received from the Municipal Anti-Rabies Sections of the two cities. The dogs which were used were destined for sacrifice.

Prior to carrying out euthanasia, blood was taken from the saphenous vein and urine from a vesical puncture.

Afterwards they were subject to a careful necropsy in the search for *D. renale*.

Serological analysis was done with a digital UV photometer Labora Mannheim 4010 to 25°C, by means of conventional techniques cited in Table III, with kits from Wiener Laboratories.

Reactive Strips (Combur 9) were used for the urine analysis and also a microscopic sedimentation test was done.

RESULTS

The presence of *D. renale* was not observed in dogs from Corrientes. On the other hand, the renal worms were found in three dogs from Resistencia. The Prevalent Rate resulted in 2.9% as is shown in Table I.

TABLE I
Prevalence of *D. renale* in Corrientes and Resistencia

City of origin	Necropsied dogs	Infected dogs	Prevalence Rate (%)
Corrientes	64	—	—
Resistencia	38	3	7.9
Total	102	3	2.9

Table II indicates that the parasite attacks dogs of both sexes and different ages, but always affecting only the right kidney.

In the right kidneys of two dogs there were male and female worms. No renal tissue remained, as shown in Fig. 1. In the third case only one female worm was found.

The length of the nematodes varied from 8 cm in the smallest male, to 53cm in the largest female.

Table III shows increases of the level of Serum Creatinine, detected in all the cases. Urea, Inorganic Phosphorous and Total Cholesterol showed elevated values only in some cases.

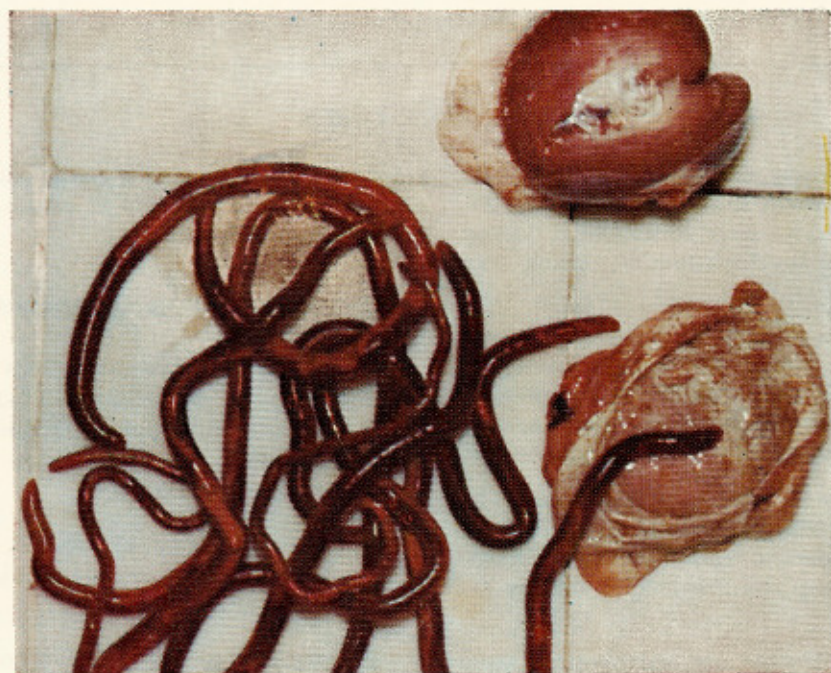


Fig. 1 — Dog No. 1. Its right kidney contained seven worms

TABLE II
Description of infected canines and their renal worms

Dog No.	Breed	Sex	Age	Affected kidney	Worms			Length of the largest
					♂	♀	Total	
1	Indefinite	Female	8	right	3	4	7	31 cm
2	Indefinite	Female	7	right	2	1	3	53 cm
3	Indefinite	Male	1	right	—	1	1	28 cm

T A B L E III
Biochemical Values of infected dogs

	Normal	Dog. No. 1	Dog No. 2	Dog No. 3
a — Serum				
Urea (Fawcett & Scott) g/l	0.10 a 0.40	0.90	0.28	0.19
Creatinine (Jaffe) mg/l	8 a 12	22	27	16
Inorganic Phosphorous (Baginski) mg/dl	2 a 5	7	5	11
Total Cholesterol (Wiener) g/l	1.20 a 2.00	3.08	2.66	1.80
b — Urine				
Colour	clear yellow	clear brown	dark brown	dark yellow
Aspect	limpid	turbid	turbid	turbid
pH	6.0 a 6.5	4.0	4.5	5.0
Nitrite	Negative	Negative	Negative	Negative
Glucose	"	"	"	"
Ketone Bodies	"	"	"	"
Urobilinogen	"	"	"	"
Bilirubin	"	"	"	"
Blood	"	Positive	Positive	"
Protein	"	Positive	Positive	Positive
Leukocytes	"	Positive	Positive	Positive
<i>D. renale</i> eggs	"	Positive	Positive	Positive

Urine samples showed changes of colour, aspect and pH, and the presence of Protein and Leukocytes. In two cases, erythrocytes were found.

The urine sedimentation test revealed the existence of a large amount of *D. renale* eggs. As can be observed in Fig. 2, the eggs are oval shaped, with a thick corrugated membrane of an approximate length of 80 microns and marked closed poles.



Fig. 2 — Egg of *D. renale* in the urinary sediment (400 ×)

DISCUSSION

We agree that the infection in dogs generally develops without symptoms^{7,12} and always affects only the right kidney².

It has been previously reported that *D. renale* is only found in adult animals⁹, but one of our cases occurred in a puppy.

Biochemical findings determined a pyelonephritis profile, reported by other investigators^{7,12}.

CONCLUSION

Dirocoeliasis is found in North Eastern Argentine and warnings should be given of the danger, due to the possibility of human contamination.

The prevalence of about 3% constitutes, in our opinion, a rate which should be taken into account to safeguard the health of the people in this area of the country and neighbouring territories (Brazil, Paraguay) which have similar ecological characteristics.

RESUMO

Dioctofimosis canina no nordeste argentino

Os Autores comunicam o achado de **Dioctophyme renale** em cães de duas cidades do nordeste argentino. Descrevem os dados dos cães afetados, bem como o número, sexo e comprimento dos vermes encontrados. Os resultados de vários exames bioquímicos realizados em soro e urina indicam que os animais sofriam de pielonefrite crônica. Ilustram a comunicação com fotografias de vermes adultos e seus ovos, encontrados estes últimos nos sedimentos urinários.

Nos 102 animais examinados, encontram uma taxa de prevalência de 2,9%.

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