

FURTHER STUDIES ON NATURALLY OCCURRING FILARIAL INFECTIONS IN DOGS

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(Manuscript received 15 September 1997)

Abstract

Screening of 100 dog-blood samples collected from Sharkyia and Giza Governorates were examined for canine filariae by direct wet and modified knotts techniques. *Dipetalonema reconditum* was found in 67 dogs (8.9%) in Sharkyia and *Dipetalonema gracile* was found only in one of 33 dogs in Giza (3.03%).

INTRODUCTION

At least 11 species of filarial worms occur naturally in dogs and confusion between the microfilariae were recorded. The morphological differences between the microfilariae of *Dirofilaria* and *Dipetalonema spp.* have since been recorded by several workers (Wallentein & Tibola 1960, Thrasher *et al.* 1963, Sawyer *et al.* 1965, Korkejian & Edeson 1978, Amer 1986, Ortega-Mora *et al.* 1991, Mello *et al.* 1994 and Scarizi 1995).

In the present study, *Dipetalonema reconditum* and *Dipetalonema gracile* microfilariae were reported in dogs with their morphological differences.

MATERIALS AND METHODS

Sixty-seven dogs from different parts of Zagazig (Sharkyia), and 33 dogs from of Vet. Medicine, Zagazig University were subjected for Parasitological examination. Only older dogs were used in this study. The dogs were anaesthetized with chloroform and killed by cutting the carotid and jugular blood vessels. Twenty ml of blood were taken and examined for microfilariae using heparin as

anti-coagulant. Skin snips were taken from the back, abdomen and legs, teased on a slide in a drop of saline and examined for microfilariae (Lindsey 1962).

Blood examination :

Three methods were used for blood examination:

- a. Direct wet blood examination.
- b. Duplicate thick films, stained with diluted Giemsa stain and examined with a X 10 objective and X 6 eye piece.
- c. A modified knott's technique (Knott 1939) was used. Two ml of venous blood from saphenous vein were added to 20 ml of 2% formalin and the whole mixed and fixed by slowly inverting the tube two to three times. the mixture was centrifuged for five minutes at 3200 r.p.m. The supernatant was poured off and the sediment, after staining with an equal volume of 1% methylene blue solution, was examined with a X 10 objective with reduced light.

Skin scraping

In some cases of canine filariasis, the dogs suffered from ulcerative dermatitis. The lesions were cleaned with 70% ethanol, skin scrapings were collected from the periphery of the lesions, mixed with a drop of normal saline and examined under the microscope.

RESULTS

Among 100 blood samples collected from Sharkyia and Giza Governorates microfilariae of *Dipetalonema reconditum* were found in 8.9% of 67 dogs in Skarkyia, and *Dipetalonema gracile* was found in 3.03% of 33 dogs in Giza. The morphological differences between the two species are illustrated in Fig. 1 & 2 and described in Table 1 and plate 1.

A button-hooked tail was reported as diagnostic for microfilariae of *D.reconditum* when fixed in 2% formalin solution. Also, there appeared a large refractile inner body near the junction of the middle and posterior thirds of the body in *D.reconditum* not found in *D.gracile*. In fresh blood smears, it was found tha, the microfilariae of *D.reconditum* moved in rapid, regular forward movement that tended to take them out of the microscopic field of vision. But those of microfilariae of *D.gracile* moved in a jerky fashion, backlashing on themselves as in *Dirofilariae* sp. microfilariae movement.

In the present study, two infected dogs suffered from pustular and follicular eruptions on the limbs (Fig. 3 & 4). Examination of skin scrapings and pus revealed numerous microfilariae of *D.reconditum*.

DISCUSSION

Little work has been done on filarial infection of dogs in Egypt. Amer (1986) described two canine microfilariae, *Dirofilaria repens* and *Dipetalonema reconditum* in Abu-Roash, Giza not found in dogs of Sharkyia. These results are in disagreement with the present study, where six dogs in Sharkyia were found infected by *D.reconditum* and only one dog was found infected by *D.gracile* in Abu-Roash, Giza.

The morphological characters of the two species of canine filariae in the present study are in agreement with Newton & Wright (1956 & 1957), Nelson (1962), Thrasher *et al.* (1963), Amer (1986) and Ortega Mora *et al.* (1991) in case of *D.reconditum microfilariae*.

In case of *D.gracile microfilariae*, the morphological character is in agreement with Caballero & Peregrina (1938) and Webber (1955) and is in disagreement with Van-Thiel (1926) and Mc Coy (1936) who reported on presence of sheath in *D.gracile microfilariae*.

Concerning filarial dermatitis in dogs, Vallis (1936) reported on pruritic and ulcerative filarial dermatitis in dogs. McKee (1938) described pustular and follicular eruptions on the limbs of dog, where, skin scrapings and pus revealed numerous microfilariae.

In the present study, infected dogs were noticed suffering from mild erythema, ulcerative dermatitis and patch alopecia of the limbs, where, skin scrapings revealed microfilariae; a result which is in agreement with Muller and Kirk (1976) and Scarzi (1995).

Lastly, the present work added another species of canine filaria in dogs in Egypt, and this work needs further studies to identify a new species of filariae in dogs in Egypt.

ACKNOWLEDGEMENT

Thanks and deepest gratitude are due to all members of Parasitology Department, Faculty of Vet. Med. Zagazig University.

Table 1. Differences in measurements between microfilariae of *Dipetalonema reconditum* and *Dipetalonema gracile*.

Species	Length in μ	Width in μ	1 st.n	N.r	Ex.P	G1	A.P.	L.N.
<i>Dipetalonema reconditum</i>	220-255	8.1-9.5	7.5-86	13-16	13-16	70.5-74	38-2-40	36-38.5
<i>Dipetalonema gracile</i>	135-164	8.6-10.6	9.2-10.5	15.1-10.5	15.1-10.5	58.5-60	20-20.5	17.5-18.8

- 1 st.n (Length from anterior end to first nuclear cell).

- N.r (Length from anterior anterior end to nerve ring).

- G1 length from the anterior end to the first nucleare cell.

-A.P. (Anal pore). Length from posterior end to anal pore.

- L.N. (Length from posterior end to last to last nuclear cell).

- Ex. P (Length from anterior end to excretory pore).



Fig.1. Microfilaria of *D.reconditum* (X 400).

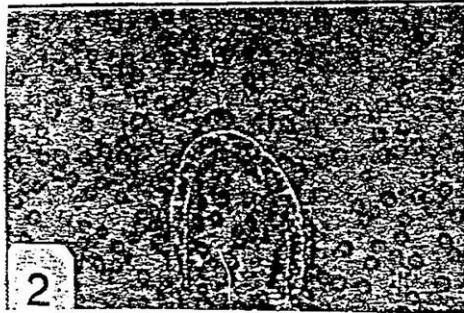


Fig.2. Microfilaria of *D.gracile* (X 40).

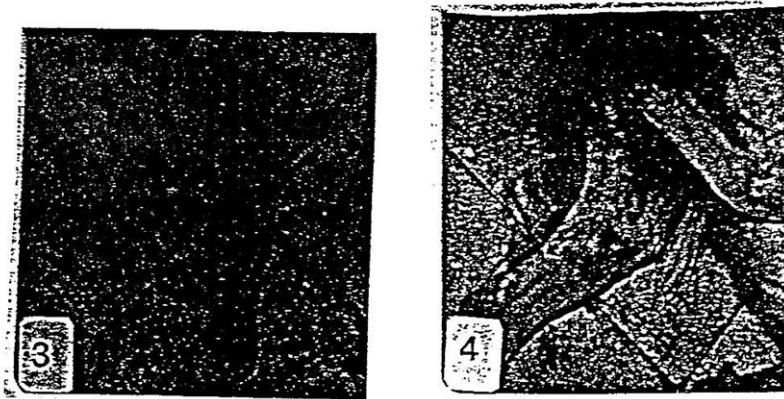


Fig. 3.4. Pustular and follicular eruptions on limbs of infected dogs by *D.reconditum*.

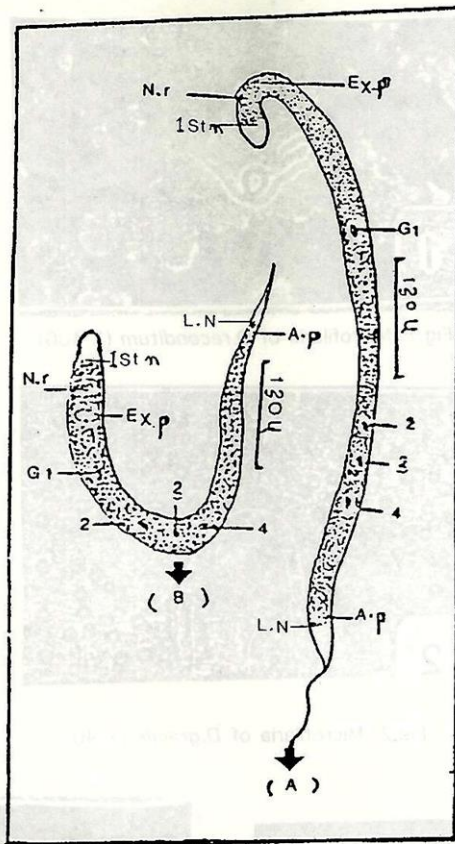


Plate 1. A-Microfilaria of *D.reconditum*.

B- Microfilaria of *D.gracile*.

1st n ____ first nuclear cell.

N.r. ____ nerve ring.

Ex. P. ____ Excretory pore.

G1 -2-3-4 ____ first giant cell-second-third-fourth.

A.P. ____ anal pore.

L.N. ____ Last nuclear cell.

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دراسات تكميلية علي العدوي الطبيعية للفيلايريا في الكلاب

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إشتملت هذه الدراسة علي فحص ١٠٠ عينة دم من كلاب جمعت من محافظتي الشرقية والجيزة لمعرفة مدى إصابتها بطفيل الفيلايريا. تم التعرف علي الميكروفيلايريا لديدان الدبتالونيما ركنديتم في الكلاب التي جمعت من محافظة الشرقيه وكانت نسبة الإصابة بها ٨,٩٪، الميكروفيلايريا لديدان الدبتالونيما جراسيل في كلب واحد من محافظة الجيزة وكانت نسبة الاصابة ٣,٠٢٪، ويعتبر النوع الأخير تسجيل جديد له في مصر.