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STUDIES ON TWO TYPES OF MICROFILARIAE IN CAMELS' BLOOD IN UPPER EGYPT

(With 3 Tables and 2 Figures)

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دراسات على نوعين من الميكروفيلاريا في دم الجمال في محافظات الصعيد

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أجريت هذه الدراسة لتحديد نسبة إصابة الجمال بالميكروفيلاريا في صعيد مصر. فقد تم فحص ١٨٠ جمل (٩٠ من محافظة أسيوط ، ٩٠ من محافظة الوادي الجديد) وقد وجدت الميكروفيلاريا في ١٩ جمل بنسبة متوسطة ١٠,٥٥% حيث بلغت نسبة الاصابة في محافظة أسيوط ٤,٤% ، ١٦,٧% في محافظة الوادي الجديد. وتم تصنيف الميكروفيلاريا إلى نوعين: ديبتالونيما ايفانساى وقد بلغت نسبة الاصابة بها ١٦,٧% في الوادى الجديد و ١,١% في محافظة أسيوط و سيتاريا ميكروفيلاريا حيث بلغت نسبة الاصابة بها ٣,٣% في محافظة أسيوط بينما لم توجد في الجمال في محافظة الوادى الجديد وتعتبر هذه أول مرة لتصنيف السيتاريا ميكروفيلاريا في الجمال المصرية وقد وجد ان هناك اختلافات طفيفة بينها وبين سيتاريا اكوينا المنتشرة في الخيول المصرية وذلك يرجع لوجودها في عائل مختلف.

SUMMARY

The present study was performed to detect the incidence of microfilariae in camel's blood in Upper Egypt. Examination of 180 camels (90 from Assiut and 90 from the New Valley) revealed microfilariae infestation in 19 camels (10.55%) These incidences included 4 (4.4%) camels in Assiut Governorate and 15 (16.7%) from the New Valley Governorate. Two types of microfilariae were detected in the present work: *Dipetalonema evansi* microfilaria in 16.7% of camels in the New Valley Governorate and in 1.1 % of camels in Assiut Governorate, and *Seteria sp.* microfilariae in 3.3% of camels in Assiut, while it was not detected in the New valley Governorate. *Setaria sp.* microfilaria is reported for the first time from blood of Egyptian camels. The present microfilaria is that of

Setaria equina with few minor morphological differences due to their presence in a different host or it belongs to a new species, it needs further investigations.

Key words : Microfilariae, camels', blood.

INTRODUCTION

Although the camel is considered a creature of the desert, it is used till now in many villages of Egypt to carry load and as a source of animal protein. Many parasitic disases affect camels and cause indirect economic losses as a result of gradual deterioration in general body condition.

The most important helminth parasite of camels in Egypt is the filaria *Dipetalonema evansi* (Ezzat, 1960). Infected camels with *D.evansi* suffer arteriosclerosis, heart insuficiency and parasitic orchitis which affects the reproductive potency of the animal, this reaction depends on the location and number of the worms, (Soulsby, 1982). In addition, the parasite causes extensive damage to the alveolar tissue leading to pulmonary distress as a result of nodules formation in the lung of infected animal (Moghaddar *et al.*, 1992).

Dipetalonema evansi in camels was recorded in several countries (Moghaddar *et al.*, 1992, Rahbari and Bazargani, 1995 and Butt *et al.*, 1996). From Egypt, it was reported by Abdel-Latif (1957), Soliman (1965), Selim *et al.* (1970), Ramadan (1982) and Mahmoud (1998).

Sheathd microfilariae in camel's blood were recorded in Turkestan by Yakimoff *et al.*(1916), and in Egypt by Nagaty (1947) who identified them *D.evansi* microfilariae.

Therefore, the present work was performed to assess the incidence of different microfilariae in camel's blood in two localities of Upper Egypt and to describe their morphological characters.

MATERIAL and METHODS

Selected 180 living camels (90 from Assiut Governorate and 90 from The New Valley Governorate) were examined for filarial infection. Assiut samples were collected from 78 males and 12 females with age range from 1-6 years old. The New Valley samples were collected from 11 males and 79 females and ranged age from 8-20 years old. A blood sample was collected from the jugular vein of each camel. Fresh blood

sample was collected from the jugular vein of each camel. Fresh blood was examined for detection of motile micrfilariae by wet blood film (Levine, 1985). In positive cases, thick blood films were prepared. For detection of mild microfilariae, Knott's concentration technique was done (Lowernce and Thomas, 1987). Blood films were stained by Giemsa stain according Soulsby (1982). Microfilariae were drawn with the aid of camera lucida and the average dimensions of the various anatomical regions were determined with eye piece micrometer. Important morphological features were microphotographed.

RESULTS and DISCUSSION

Examination of the camel's blood samples revealed microfilariae in 19 camels (10.55%). This incidence included 4 camels (4.4%) from Assiut Governorate and 15 camels (16.7%) from The New valley Governorate. Two types of microfilariae were detected in the present work. The first type was *Dipetalonema evansi* microfilaria which was detected in 15 camels (6.7%) at The New Valley Governorate and in one camel (1.1%) at Assiut Governorate. The second type was *Setaria sp.* microfilaria which was detected in 3 camels (3.3%) in Assiut Governorate and not detected in the New Valley Governorate (Table 1). The difference in the incidence of infection between the two localities might be attributed to that most of examined camels in the New Valley were aged animals where the mean of their age was 12 years old. Also these animals were kept for breeding so they become more exposed to the intermediate host of these parasites (Mosquitoes and Tabanus). While the mean of the age of examined camels in Assiut was three years old and these animals were collected for slaughtering. This opinion agree with Abdel-Latif (1957) and Ramadan (1982).

Table 1: Incidence of different types of microfilariae in Assiut and The New Valley Governorates.

	No. of examined animals	No. of infected animald	%	*D. evansi* m.f.		*Setaria sp.* m.f.	
				No.	%	No.	%
Assiut samples	90	4	4.4	1	1.1	3	3.3
the New Valley samples	90	15	16.7	15	16.7	0	0
Total	180	19	10.55	16	8.9	3	1.7

The prevalence of infection of *D.evansi* and *Setaria* sp. was not influenced by host sex but it was decreased in camels more 15 years old (Table 2). This may be attributed to the age resistance of camels. This opinion agrees with Rahberi and Bazargani (1995) who mentioned that there are segnificant inverse relationship between age of camels and the prevalence of *D.evansi* infection.

Table 2: Age relation, of selected camels to filarial incidence.

	Camels less than 5 years No. = 72		Camels from 5-15 years No.= 78		Camels more than 15 years No.= 30	
	infected camels	%	infected camels	%	infected camels	%
D.evansi	3	4.16	12	15.38	1	3.33
Setaria sp.	2	2.77	1	1.28	-	-
Total	5	6.93	13	16.66	1	3.33

Morphological characters of *Dipetalonema evansi* microfilaria: (Figure 1, Plate I, 1,2)

It is unsheathed microfilaria tends to be straight but its ends are slightly curved. The cuticle has transverse striations especially at the posterior end. The somatic nuclei are well defined, deeply stained and are rounded or oval in shape. All microfilarial landmarks are easily detedted except the internal body (I.b.) and the last three genital cells which are not well defined (Table 3).

The identification of *D.evansi* microfilariae was based on their measurements and morphological characters which agree with the description of Soulsby (1982), in addition to the previous description of *D.evanci* microfilariae from Egyptian camels by Selim *et al.* (1970), Ramadan (1982) and Mahmoud (1998).

Morphological characters of *Setaria sp.* microfilaria: (Figure 2, Plate I, 3,4)

This microfilaria is characterized by having a delicate transparent sheath, which is closely fitted along its body but is clearly seen extending from anterior and posterior ends to about 24 µm and 16.6 µm respectively. This microfilaria appears more coiled. Its anterior end is truncated with parallel head sides. The somatic nuclei are not clear as they are not discrete. They stain pale blue and all microfilarial landmarks are well defined. (Table 3).

Table 3: Measaurements of *D.evansi* and *setaria sp.* microfilariae

	D. evansi microfilariae		*Setaria sp. microfilariae*	
	range	mean	range	mean
T.L.	229.6-292.4	259.3	188-240.4	215.4
B	6.0-7.2	6.9	6-8.4	8.2
C.S.	2.4-7.2	4.7	2.4-7.7	4.8
N.R.	51.6-61.6	56.45	34.8-52.5	43.5
E.P.	74.4-94.8	82.4	50.4-69.3	63.6
E. C.	80.4-100.1	89.6	61.2-92.4	70.9
F.G.C.	109.2-134.4	120.25	93.6-120	108
I.b.	not well defined	not well defined	108.1-138	118.2
A.P.	28.8-56.1	43.1	22.8-38.4	32.7
Tail	13.2-23.1	18.8	9.6-19.3	15.9

T.L.: Total length B: Breadth C.S.: Cephalic space N.R.: Nerve ring
E.P.: Excretory pore E. C.: Excretory cell F.G.C.: first genital cell
I.b: Internal body A.P.: anal pore

According to Dunn (1978) and Soulsby (1982), these microfilariae were identified to belong to those genus *Setaria. Setaria sp.* microfilariae detected from different ruminants. Siddiqui *et al.* (1996) identified them in 35.07% of Indian buffaloes and it was detected in ten cattles in Iran by Eslami (1998). While El- Azazy and Ahmed (1999) detected adults of *S.digitata* in the abdominal cavity of 10.4% of Saudi Arabian goats.

Sheathed microfilariae were reported from camels by Yakimoff *et al.,* (1916) in Turkestan. In Egypt, Nagati (1947) detected sheathed microfilariae in blood of camels, but identified them as belonging to *Dipetalonema evansi.* This seems to be erroneous identification as microfilariae of the genus *Dipetalonema* are known to be unsheathed (Dunn, 1978; Soulsby, 1982; Mahmoud, 1998). Moreover, table 2 shows great differences in size, site and staining properties of internal structures between the two microfilariae. Hence, it seems that the present study reports a member of the genus *Setaria* for the first time from camels of Egypt. From that genus, only *Setaria equina* microfilariae were previously described from Egyptian equines (Mohamed, 1979; Khalifa *et al.,*1988; Arafa, 1998; Mahmoud, 1998). Comparing the present microfilariae with those of *Setaria equina* they were found to be longer and thinner, with more truncated anterior end and more closely fitted sheath around their bodies. Wheather the present microfilariae are those of *Setaria equina* with few minor morphological differences due to their

presence in a different host or they belong to a new species is left for further studies.

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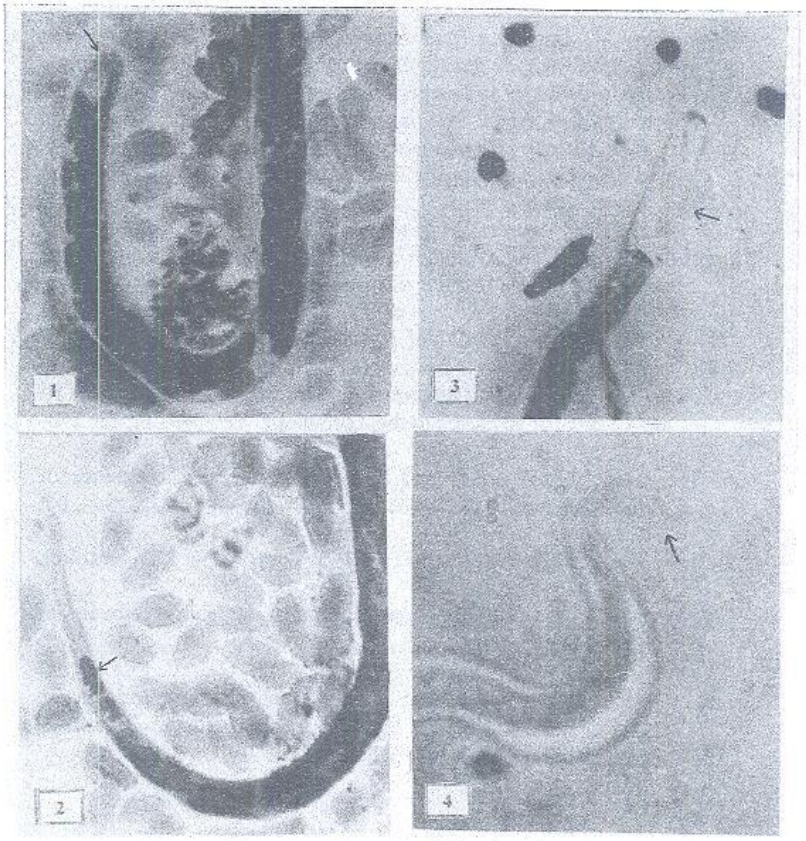
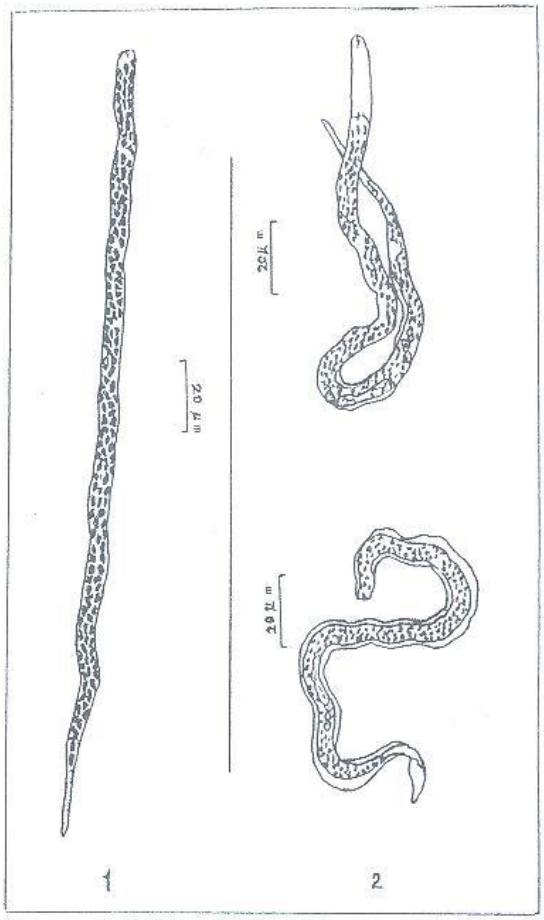


Plate I

1- Anterior end of *Dipetalonema evansi* microfilaria X1000
2- Posterior end of *Dipetalonema evansi* microfilaria X1000
3- Anterior end of *Setaria sp.* microfilaria X1000
4- Posterior end of *Setaria sp.* microfilaria X1000



A Figure showing the length and different morphological features of microfilariae in thick films of:

1- *Dipetalonema evansi*

2- *Setaria sp.*