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Prevalence of Gastrointestinal Helminthes, Hydatid Cysts and Nasal Myiasis in Camels in Jordan

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ABSTRACT

A total of 265 camels from four different parts of Jordan were selected randomly to study the prevalence of parasitic infestation. Fecal samples were tested by 3 different methods: the direct, the flotation and the sedimentation methods. Egg output was quantified by the McMaster technique. Results show that 96% of the camels were infested with gastrointestinal helminths. Another group of 156 camels slaughtered in Al-Ramtha abattoir, during a period of 23 months, was examined for the prevalence of hydatid cysts and camel nasal myiasis. The distribution of the hydatid cysts was 62.5% in the lung, 25% in the liver and 12.5% involving more than one organ of the body. The prevalence of nasal myiasis was 33%.

Key words: Parasites, Nasal fly, Hydatid cyst, Camels, Jordan.

INTRODUCTION

Parasitic infestations are considered common in one-humped camels in Jordan (Sherkov and El-Rabie 1976; Saliba, 1977; Sherkov and El-Rabie, 1978; Abdel-Hafez *et al.,* 1986). A recent survey showed that gastrointestinal nematodes are the most prevalent parasites in Jordanian camels (Sharif *et al.,* 1996). Similar conclusions were reported from the other Arab countries (Selim and Rahman, 1972; Altaif, 1974; El-Bihari, 1985; Al-Ani and Al-Shareefi, 1995). Hydatid cysts in camels have been reported in many countries with moderate to high prevalence rates (Babero *et al.,* 1963; El-Bihari, 1985; Abdel-Hafez *et al.,* 1986 and Wosen, 1991).

The tropical camel botfly (*Cephalopina titillator*) occurs in all breeds and sexes of camels in Iraq and Saudi Arabia (Al-Ani *et al.,* 1991). The objective of this study was to explore the prevalence of gastrointestinal parasites, hydatid cysts and nasal flies' larvae in camels in Jordan.

MATERIALS AND METHODS

Between September, 1997 and February 1998, a total of 265 camel fecal samples were collected from four different locations in Jordan. Areas are Al-Safawi in the North Badia; Al-Ramtha; East Badia (South of Amman) and Jordan Valley. Direct, flotation and sedimentation methods were performed on all fecal samples. Egg output was quantified by the McMaster technique and generic determination was performed on third stage larvae in fecal culture.

A total of 156 camels intended for slaughter at Al-Ramtha abattoir from April 1996 to February 1998 were also used to identify the prevalence of *Cephalopina titillator* larvae and hydatid cysts, The entire carcass was inspected and any cyst lesion in any organ was carefully examined. The entire cysts with adjacent tissue were then cut out of the organ and collected in plastic bags. These specimens were transported directly to the laboratory for further examination. Camel heads were dissected and gross examination was performed on the nasal cavity, frontal sinuses, turbinate bones and nasopharynx. Larvae of *Cephalopina titillator* were identified according to Zumpt (1965).

RESULTS

Out of 265 camels examined, 255 (96%) camels were infected with at least one gastrointestinal parasite. The type of parasites identified were nematodes (7 genera), cestode (1 genera) and trematode (2 genera) (Table 1). Nematodes presented 84% of all gastrointestinal parasites and the main nematodes were *Trichostrongylus probolurus, Camelostrongylus mentulatus, Trichuris ovis, Haemonchus longistipes, Ascaris spp, Cooperia onchophora* and *Nematodirus dromedarii* (Table 2). One cestode, *Moniezia expansa,* and 2 trematodes, *Eurytrema pancreatcum* and *Fasciola hepatica* were diagnosed with a prevalence rates of 21%, 5% and 4%, respectively (Table 3).

The distribution of the 80 hydatid cysts in the internal organs were as follows: 50 (62.5%) in the lung, 20 (25%) in the liver and 10 (12.5%) mixed in more than one organ (Table 4). Fertile hydatid cysts represented 82.5% and calcified (dead) hydatid cysts represented 17.5% (Table 4). The diameter of fertile cysts ranged from 1.5 cm to 8 cm with the arithmetic mean of 3.8 cm and standard deviation of 1.1 cm.

Nasal myiasis due to *Cephalopina titillator* was present in 33% of the camels examined. Most cases developed no obvious signs. Other developed clinical signs of nasal discharge, restlessness, frequent sneezing and snoring on inspiration. Examination of the nasal cavity following slaughter revealed that the sinuses were congested and had dark mucus in which the larval stages of the parasite were entangled.

Table 1: Distribution of gastrointestinal parasites in Camels in Jordan.

		North Badia	East Badia	Al-Ramtha	Jordan Valley	Total[1]
No. of Camels		100	60	80	25	265
		%				
Nematode		85	80	86	84	84
Trematode		10	0	0	4	4
Cestode		20	15	25	24	21
Total[1]	No.	100	50	80	25	255
	%	100	83	100	100	96

[1] Infestation with any gastrointestinal parasite.

Table 2: Distributions of gastrointestinal nematodes in camels in Jordan

	North Badia	East Badia	Al-Ramtha	Jordan Valley	Total
No. of Camels	100	60	80	25	265
			%		
Trichostongylus	50	60	44	40	49
Camelostrongylus	70	42	5	16	39
Cooperia	12	8	14	16	12
Ascaris spp	10	10	14	20	12
Haemonchus	14	12	19	24	16
Nematodirus	2	0	4	4	2

Table 3: Distributions of Trematodes and cestodes in Camels in Jordan.

	North Badia	East Badia	Al-Ramtha	Jordan Valley	Total
No. of Camels	100	60	80	25	265
			%		
Eurytrema	11	0	0	8	5
Fasciola	10	0	0	0	4
Moniezia	20	17	25	24	21

Table 4: Distribution of 80 hydatid cysts in 70 camels slaughtered in Northern Jordan.

	Dead		Fertile		Total	
Organ	No. of parasite	%	No. of parasites	%	No. of parasites	%
Lung	8	16	42	84	50	62.5
Liver	4	20	16	80	20	25
Mixed	2	20	8	80	10	12.5
Total	14	17.5	66	82.5	80	100

DISCUSSION

Our study showed that 94.4% to 100% of different camel herds in Jordan are infested with gastrointestinal parasites. Mixed infestations comprising of 2 or 3 parasites in the same camel were common. These findings are in agreement with the findings of Selim and Rahman (1972) in Egypt and Altaif (1974) in Iraq. An interesting question with regard to camel helminths is the extent of interchange of parasites between camels, sheep and goats (El-Bihari, 1985).

Echinococcus granulosus is found in the small intestine of carnivores, particularly the dog, and the hydatid cyst is found in a wide variety of domestic animals and man. Hydatid cysts have been reported in camels from almost all countries where camels are raised (El-Bihari, 1985). The prevalence of hydatidosis in camels varies in different countries and rates as high as 49% have been reported (Babero *et al.,* 1963).

Camel nasal flies occur wherever camels live (Zumpt, 1965). The eggs of this fly are deposited in the nostrils of camels and molt twice while attached to the nasal passages and pharynx (Fatani and Hilali, 1994). Pathological lesions of the nasal sinuses associated with pathogenic bacteria were reported by Al-Ani *et al.* (1991). Infestation rates of 47%, 81% and 74% were reported from Iraq, Egypt and Sudan (Steward, 1950; Soliman, 1965 and Al-Ani *et al.,* 1991). Fatani and Hilali (1994) indicated in their study in Saudi Arabia that the percentage of infested camels with both second and third instars showed two peaks, during February and September, suggesting two annual cycles of *C. titillator. This* was in agreement with the findings of Al-Ani *et al.* (1991) in Iraq.

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