

CATTLE FASCIOLIASIS IN GIZA PROVINCE, EGYPT

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ABSTRACT

During examination and treatment of cattle and buffalo fascioliasis in Imbaba districts of Giza Province, 1074 cattle fecal samples and 1477 buffalo fecal samples were examined microscopically for detection of *Fasciola* eggs. The prevalence rates of fascioliasis in cattle and buffaloes were 8.3 % and 7.6 % respectively. The highest prevalence recorded among cattle and buffaloes were 13.4 % and 14.6 % respectively, during the winter season. In addition, higher prevalence rates (12.3 % and 10.3 %) were recorded among cattle in Bani-Salama and Atris districts, respectively. Concerning buffaloes, higher prevalence rates were also recorded in Atris and Nekla districts, 9.8% and 7.5% respectively.

Triclabendazole (Fasinex[®] 10 %), was used to treat positive cases and related contacts, owned by the same owner, at a dose rate of 12 mg / kg body weight. After six months, the prevalence rate of fascioliasis dropped sharply from 10.3 % and 9.8 % to about 0.9 % and 1.2 % among cattle and buffaloes respectively, in Atris district which subjected to re-examination. It could be concluded that continuous non-interrupted examination and treatment of animal fascioliasis in a locality is of great value in lowering prevalence rates in such a locality with all the consequences of reducing economic losses of animal fascioliasis.

INTRODUCTION

Fascioliasis is the most important parasitic disease of cattle and buffaloes that causes severe economic losses due to: decreased conception rate of females (Arther, 1977), decreased milk production (Ross, 1970, Black & Froyd, 1972 and Lotfy et al., 2003) and reduced body gain (Cawdery, 1977). In addition to the increasing financial losses due to condemnation of livers infested with *Fasciola* species (Shehata, 1954) who estimated a financial loss of L.E. 56'573'100 in 1952 and L.E. 63'256'840 in 1953 due to liver condemnations in Egyptian abattoirs. Also, according to the Egyptian Academy of scientific Research and Technology 1990, losses due to fascioliasis were estimated at L.E. 190 million per year in Egypt Lotfy et al., 2003.

During the last few years, human fascioliasis was pronounced as a zoonotic problem in the Nile Delta, Egypt, where animal fascioliasis serve as the source of *Fasciola* species eggs to the local snails. **Hassan et al. (1995)** and **El-Baby (1997)** recorded an infection rate of 10.9% and 6.02 % among humans in El-Sharkda and Kafr-El-Sheikh Provinces, respectively. Also, Samaha (1989) recorded that the prevalence of human fascioliasis was 6.74% in Abbis, Alexandria province.

Animal fascioliasis was investigated by several authors, the incidence of fascioliasis among cattle and buffaloes in Egypt were recorded in table (1).

None of the available literature dealt with the effect of mass treatment of animal fascioliasis on infection rates. Therefore, the present investigation aimed at studying the prevalence of cattle and buffalo fascioliasis in certain districts and the effect of mass animal treatment on such prevalence.

MATERIAL and METHODS

1- Examined animals :

A total of 1074 cattle and 1477 buffalo from different localities of Imbaba districts, Giza Province, were used in this study to determine the prevalence of *Fasciola* infection. Table (2) showed the numbers of examined animals and the area of collection.

2-Fecal samples :

Fecal samples were collected, directly from the rectum of animals or from freshly voided fecal manure, in plastic bags and labeled. The collected fecal samples were directly transferred to the parasitology unit, Giza Provincial Lab., Animal Health Research Institute, Dokki, Giza and subjected to parasitological examinations for the detection of liver fluke eggs, using a sedimentation method described by **Boddie (1956)**.

3- Drug :

Triclabendazole (Fasinex[®] 10 %), a product of NOVARTIS (CIBA-GEIGY), was used to treat positive cases and related contacts, owned by the same owner, at a dose rate of 12 mg / kg body weight. After six months, 330 cattle and 330 buffaloes, in Atris district were subjected to re-examination for the detection of *Fasciola* species eggs and effect of mass animal treatment on cattle fascioliasis.

RESULTS

Data displayed in table (3) showed the results of microscopical examination of fecal samples which collected from cattle and buffaloes at different localities of Imbaba districts, Giza Province. The results revealed that, 8.3% (89 out of 1074) of the examined cattle exhibit fascioliasis, while 7.6% (112 out of 1477) of the examined buffaloes, exhibit fascioliasis. The prevalence rates among the examined cattle were 3.6%, 10.3%, 12.3% and 4.9% in Abou-Ghaleb, Atris, Bani-Salama and Nekla respectively. Higher prevalence rates were recorded among cattle in Bani-Salama and Atris districts. Concerning buffaloes, the prevalence rates were 6.2%, 9.8%, 5.9% and 7.5% in Abou-Ghaleb, Atris, Bani-Salama and Nekla respectively. Higher prevalence rates were also recorded in Atris and Nekla districts. Regarding to the results of seasonal variation of fascioliasis among examined cattle and buffaloes of some area of Giza Province, it revealed highest infection rates 13.4% and 14.6% were recorded among cattle and buffaloes, respectively, during the winter season. In cattle, the lowest infection rate of fascioliasis was occurred in summer season while in buffaloes the lowest infection rate was occurred in autumn season (table. 4). Re-examination of treated positive cases and related contacts, owned by the same owner with triclabendazole at a dose rate of 12 mg / kg body weight, at Atris area after six month exhibits a remarkable decrease in infection rates from 10.3% and 9.8% to about 0.9% and 1.2% among cattle and buffaloes respectively, table (5) .

DISCUSSION

Animal fascioliasis was investigated by several authors, the incidence of fascioliasis among cattle and buffaloes in Egypt were recorded in table (1). The results obtained in the present investigation revealed higher prevalence rate of Fasciola among cattle compared to buffaloes. This agreed with the results obtained by **El-Sherif et al., (1959)**, **Zaki et al., (1965)** **Amin (1972)**, **Samaha (1989)**, **Salem et al., (1990)** and **Lotfy et al., (2003)**, while **Shalaby (1998)** and **Sayed et al., (1998)** recorded higher fascioliasis rate in buffaloes more than in cattle. In the present study, the detected infection rates 8.3% and 7.6% of the examined cattle and buffaloes, respectively, agreed with those recorded by **Amin (1972)** in Giza (8.2% in cattle & 4.6% in buffaloes), **Aly (1993)** in Dakahlia (10.04% in cattle) and **Ezzat et al., (1994)** in Menoufia (10.78% in cattle). Higher infection rate of fascioliasis among cattle and buffaloes were recorded by **Salem et al., (1990)** in Beni-suef (26.1% in cattle & 23.5% in buffaloes), **Radwan (1996)** in Giza (19% in cattle) and **El-Bahy (1997)** in Kafar El-Sheikh (14.5% in buffaloes) while **Lotfy et al., (2003)** reported the highest rate in Mid Egypt (62.53% in cattle and 56.41% in buffaloes). These variations in prevalence rate of fascioliasis among domesticated cattle and buffaloes

might be attributed to different localities and the number of examined samples.

Higher prevalence rates of fascioliasis were also reported in the present investigation among cattle and buffaloes examined during the winter season. This agreed with the results obtained by **Salem et al., (1990)** and might be attributed to the fact that animals usually contracts Fasciola infection while grassing around the water passages outside stables during the hot summer season, therefore detection of Fasciola eggs (diagnostic stage) were increased in winter season. Proceeding further in examining and treating positive cases and related contacts in Atris districts lead to a remarkable reduction in the recorded infection rates among cattle and buffaloes in examined locality (table, 5). The reduced infection rate could be attributed to reduction in the number of infected animals as a result of continued treatment of positive cases and related contacts with all the consequences of reduced environmental pollution with Fasciola species eggs in the given locality, i.e. reduced infection of local snails and reduced numbers of the resulting metacercariae. This in turn led to a further decrease in the number of infected cattle and buffaloes with fascioliasis.

It could be concluded that continuous non-interrupted examination and mass treatment of animal fascioliasis in a locality is of great value in lowering infestation rates in such a locality with all the consequences of reducing economic losses of animal fascioliasis.

Table (1): Incidence of fascioliasis among cattle and buffaloes in Egypt recorded by some authors

Author	Incidence	Locality
Ezzat (1950)	90% sheep& calves	Dakhla & Kharga Oases
Haiba et al.(1955)	Zero% Cows ,calves & buffaloes	Facultry of Agriculture, Giza
El_shcrif et al., (1959)	22% (cows) & 13% buffaloes	Facultry of Agriculture Alexandria university
Zaki et al., (1965)	15.9% (cows) & 10.9(buffaloes)	El-Gharbia
Amin (1972)	8.3% (cattle) &4.6 (buffaloes)	Giza
Ayob (1983)	9.2%in cows less than3years,28.5% in 3-7 years old &41%in more than 7 years old	Gharbia
El-Refaii et al., (1984)	1.55% (cattle)	Cario abattoir
Samaha (1989)	70%(cattle),66.8% (buffaloes)	Abbis Alexandria
Salem et al.,(1990)	26.1%(cattle), 23.5 (buffaloes)	Beni-Suef
Abd-Rabo (1991)	5.2 %(cattle)	Kafr- El-Sheikh
Hassan and El-Bahi (1992)	13.33 %(cattle)	Suez
Aly (1993)	10.04 %(cattle)	Dakahlia
Ezzat et al., (1994)	10.78 %(cattle)	Menoufia
Radwan (1996)	19 %(cattle)	Giza
El-Bahy (1997)	14.5 (buffaloes)	Kafr- El-Sheikh
Shalaby (1998)	10.35%(cattle)&16.46 % (bufaloes)	Giza
Sayed et al., (1998)	4.57%(cattle)&9.43 % (bufaloes)	Beni-Suef abatoir
Lotfy(2001)	85.94 %(cattle)&93.15. % (bufaloes)	El-Fayom
Lotfy et al .,(2003)	62.53% (cows)&56.41 %(bufaloes)	Mid Egypt

Table (2) : Number of examined animals and areas of collection

Area \ Animal	Cattle	Buffaloes
Abou Ghaleb	55	146
Atris	398	438
Bani Salama	212	441
Nekla	409	452
Total	1074	1477

Table (3): Prevalence of cattle and buffaloes Fascioliasis in Imbaba districts ,Giza

Area \ Animal	Cattle			Buffalos		
	No.	positive	%	No.	positive	%
Abou Ghaleb	55	2	3.6%	146	9	6.2
Atris	398	4	10.3	438	43	9.8
Bani Salama	212	26	12.3	441	26	5.9
Nekla	409	20	4.9	452	34	7.5
Total	1074	89	8.3	1477	112	7.6

Table (4) : Prevalence of Cattle Fascioliasis in Imbaba Districts, Giza Governorate during different season.

Animal \ Season		Season				Total
		Winter	Spring	Summer	Autumn	
CATTLE	Number	231	331	242	270	1074
	Positive	31	23	14	21	89
	%	13.4	6.9	5.8	7.8	8.3
BUFFALO	Number	419	294	428	336	1477
	Positive	61	14	23	14	112
	%	14.6	4.8	5.4	4.2	7.6

Table (5): Prevalence rate of Cattle Fascioliasis in Atris area in Imbaba Districts, Giza before and after treatment with Triclabendazole.

Animal	Before treatment			After treatment		
	No.	positive	%	No.	positive	%
Cattle	398	41	10.3	330	3	0.9
Buffaloes	438	43	9.8	330	4	1.2

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الملخص العربي

الإصابة بالديدان الكبدية فى الأبقار والجاموس بمحافظة الجيزة - مصر

المشركون فى البحث

عادل نبيه مرقس ، عبدالنواب فهمى غريب - محمد عبدالجواد الشافعى

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استهدف البحث دراسة نسبة الإصابة بالديدان الكبدية بين الأبقار والجاموس بقطاعات مركز إمبابة بمحافظة الجيز وتقييم أثر العلاج الجماعى للحيوانات المصابة والحيوانات المخالطة لها من الأبقار والجاموس على النسبة المثوية للإصابة بالديدان الكبدية حيث تم فحص عدد ١٠٧٤ عينة براز من الأبقار و١٤٧٧ عين براز من الجاموس بهذه القطاعات.

هذا وقد بلغت نسبة الإصابة بالديدان الكبدية ٨٣٪ فى الأبقار، ٧٦٪ فى الجاموس حيث سجلت الإصابة أعلى معدل لها خلال فصل الشتاء (٨٣٪ فى الأبقار و ٧٦٪ فى الجاموس). بالإضافة إلى ذلك تم تسجيل أعلى نسبة إصابة فى الأبقار بمنطقتى بنى سلامة وأتريس حيث بلغت نسبة الإصابة ١٢٣٪ و ١٠٣٪ على التوالى، بينما سجلت أعلى نسبة إصابة فى الجاموس بمنطقتى أتريس ونكلا حيث بلغت نسبة الإصابة ٩٨٪ و ٧٥٪.

بدراسة أثر العلاج الجماعى للحيوانات المصابة والمخالطة لها فى منطقة أتريس، على هذه النسب تبين حدوث إنخفاض حاد فى نسب الإصابة المذكورة حيث إنخفضت نسبة الإصابة فى الأبقار إلى ٠٩. كما انخفضت نسبة الإصابة فى الجاموس إلى ١٢٪.

بناءً على نتائج هذه الدراسة فإنه يمكن إستنتاج أن العلاج الجماعى للحيوانات المصابة بالديدان الكبدية والحيوانات المخالطة لها بصفة دورية ودون ما انقطاع يؤدي إلى إنخفاض كبير فى نسبة الإصابة بالديدان الكبدية مع كل مايتبع ذلك من إرتفاع فى الناتج القومى.