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RELATIONSHIP BATWEEN COPROLOGICAL AND SEROLOGICAL STUDIES ON TOXOCARA VITULORUM INFESTING BUFFALO- CALVES.

BY

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INTRODUCTION

Toxocara vitulorum (Goeze, 1782; Travasssos, 1927) is a helminth of a helminth of cosmopolitan distribution specially in tropical and sub-tropical countries. It is reported as a serious pathogen of calves, In Egypt, it is commonly met with specially among buffalo-calves 70.99% and 78.8% are infested probably as a result of prenatal infection (Selim and Tawfik, 1966 and Tawfik, 1970). In many instances coprological examinations are not suitable enough. It depends only upon the presence of the eggs in the faeces, So the presence of migratory larval stages can not be diagnosed. The objective, in the present study is to establish a proper diagnosis and a good control program by application of the serological tests.

MATERIAL AND METHODS

140 faecal and its corresponding blood samples were collected from Faculty of Agriculture farm, Cairo University for comparison between the coprological and serological studies. The faecal samples examined by the concentration flotation technique. The serum of pure *T. vitulorum* infested samples were separated and stored at -20 °C till use for serodiagnosis.

Fresh Toxoxara vitulorum worms were collected from slaughtered buffalo-calvs. The worms were washed with saline; cutted into small fragments in the blender, homogenized and centrifuged twice at 6000 r.p.m. for 15 minutes. Then the supernatant was collected and used as antigen Sinski (1975). Protein determination of the antigen was carried out according to Lowery et al., (1951).

Serodiagnosis was done by indirect haemagglutination test according to Kagan and Norman, (1976).

RESULTS

The results of coprological examination revealed that the infesta-

Table (1): Relationship between haemagglutinating activity and coprological examination in T. vitulorum

Examined number	Corprological Examination				Haemagglutinating activity			
	Positive		Negative		Positive		Negative	
	No.	Percent%	No.	Percent%	No.	Percent%	No.	Percent%
80	80	100	0	0	80	100	0	0
60	0	0	60	100	20	33.33	40	66.66
Total 140	80	57.14*	60	42.86	100**	171.43***	40	28.57

tion rate of *T. vitulorum* reached 57.14% in buffalo - calves. The positive faecal samples showed 100% positive haemagglutinating antibodies response when compared with the negative samples that revealed 33.33% serological response. The results after IHAT indicated that the sensitivity of test was 71.43% in the diagnosis of T. vitulorum, table 1.

In table 2, the results of 100 positive serological samples showed that the titre of antibodies ranged between 1/2 - 1.32 in 15 samples, 1/64 -1/256 in 25 samples and 60 samples showed a higher titre ranged between 1/512 - 1/4096.

DISCUSSION

In the present investigation the infestation rate of *T. vitulorum* as detected coprologically was 57.14%. However Salim and Tawfik (1966) and Tawfik, (1970) recorded 70.99% and 78.8% prevalence of *T. vitulorum* in 30-40 days old buffalo-calves. This may be of considerable clinical and therapeutic value.

The results of antibodies titre after IHAT revealed that the sensitivity of test was 71.43% in the diag-

Table (2): Titre variations of positive passive haemagglutinating samples

Posiive	1/2-1/32	1/64-1/256	1/512-1/4069
80	0	20	60
20	15	5	0
Total 100	15	25	60

nosis of *T. vitulorum*. This was in agreement with those obtained by **Swarup et al. (1987)** who concluded that the sensitivity of IHAT was 68.37 in the diagnosis of *Fasciola gigantica*.

In this study the haemagglutinating antibodies can be detected during the course of T. vitulorum primary infection in buffalo-calves up to 2 months old. This was in agreement with the results obtained by **Adams and Beh, (1981)** as well as **Rothwell and Griffths (1977)** who concluded that the haemagglutinating antibodies titre had been risen during the initial, primary infection in sheep infected with *H. Contortus* and *T. colubriformis*. Moreover, they reported that neither the first nor the second reinfection stimulated a further rise in the titre, supporting our finding above. Also **Wedrychowicz and Bezubik, (1981)** demonstrated that 3 antigen prepared from *O. circumcincta* could elicit production of precipitating and haemagglutinating antibodies in primary infected sheep.

T. vitulorum infestation of calves aged up two months was probably due to prenatal infection **(Selim and Tawfik, 1966)**. Such finding reflects on the control measures of this parasite are to be:

1. Faecal examination of mothers before and during of pregnancy period.

2. Treatment of infested cases with a suitable anthelmintic and

3. Sonitary measures must be carried out in buffalo-farms to prevent the development of the infective stages.

The above discussed results suggest that the serological examination are consider as an important tool in the proper diagnosis of *T. vitulorum* .

SUMMARY

140 buffalo-calves (up to 2 months old) samples (faecal and its corresponding blood samples) were examined coprologically and serologically (using indirect haemagglutination test, IHAT). It was found that the infestation rate of *Toxocara vitulorum* after coprological Examination reached 57.14% compared with 71. 43% that detected by passive haemagglutination test.

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