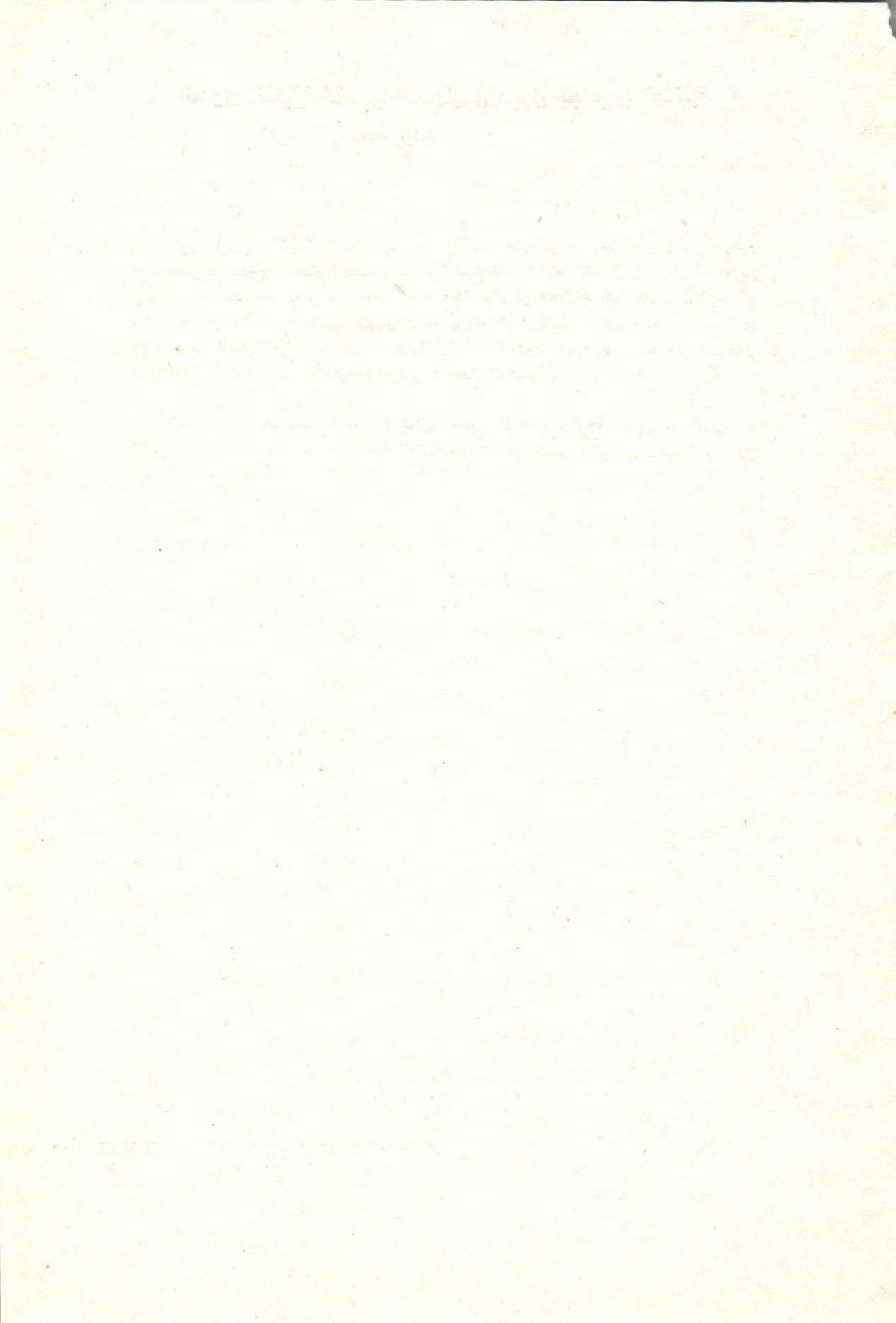


العدوى الطفيلية كمسبب للأسهال في عجول الجاموس الصغيرة

٠٤٠٢ توفيق

تكون الأيمريا^١ النيواسكارس فيتولورم^٢ الاسترونجيلويدس بابيلوسس والتريكوسترو. نجيلويدس المختلفة في الجهاز الهضمي أهم الطفيليات التي تسبب الاسهال في عجول الجاموس. ذات الستة أشهر من العمر . ويفحص ٥٠٠ عينة براز من عجول مريضة بالاسهال أثبت أن معدل العدوى بالايمرىا حوالى ١٢٪ وكان معدل العدوى بالنيواسكارس فيتولورم يساوى ٢١٪ ، أما الاسترونجيلويدس بابيلوسس فكان معدل العدوى ١٥.٢٪ وكانت أقل نسبة ٤٪ تمثل معدل العدوى بالتريكوسترونجيلويدس بالجهاز الهضمي .

وقد وجد أن هناك نسبة ٢٤.٨٪ تمثل العدوى المختلفة بأكثر من طفيل من الطفيليات الأربع المشار إليها . ولذا تم دراسة العلاقة بين كل من العمر والجنس للعجول ومعدل العدوى للطفيليات .



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PARASITIC INFESTATION AS A CAUSE OF DIARRHOEA IN BUFFALO-CALVES.¹

(With one table and one figure)

By

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SUMMARY

Eimeria spp., *Neoascaris vitulorum*, *Strongyloides papillosus* and the different gastro-intestinal Trichostrongylidae constitute the most important parasites causing diarrhoea among buffalo-calves of 6 months old. Examination of 500 faecal samples of diarrhoea suffering calves revealed a rate of infection with *Eimeria* spp. in 12%. While 31.8% were infested with *N. vitulorum*, 15.2% with *S. papillosus* and 4% with the gastro-intestinal Trichostrongylidae. While, 24.8% showed mixed infestation with more than one of the fore-mentioned parasites. The relation between both age and sex of calves to the rate of infection with these parasites was also studied.

INTRODUCTION

In Egypt, the high morbidity and mortality rates among calves encourage quite a number of workers to study this subject (REDA and OLOUFA, 1954; ASKER and EL-ITRIBY, 1957; RAGAB and ASKER, 1959; EZZAT, OAN, GOUNHA and SOLIMAN, 1961; AWAD, 1963; GHARIB, 1963 and SHAHIN, EL-ITRIBY, BARRADA and SHIRBY, 1967). They stated that enteritis and pneumonia were the common causes of mortality among calves specially during the first few months of life.

Parasitic infestation is considered as one of the most important factors causing diarrhoea among animals in tropical and sub-tropical countries. It really causes death, but in some communities it takes a very serious role of death leading to retardation of growth in youngs, lowering their efficiency and even reduction of their resistance to diseases.

The present investigation was carried out among buffalo-calves present in the Governmental Breeding Stations belonging to the Meat and Milk Organization to estimate the different parasites which may be the cause of diarrhoea. Calves up to 6 months old were chosen because the highest percentage of morbidity and mortality rates were recorded at that age (ASKER and EL-ITRIBY, 1957).

MATERIAL AND METHODS

A total of 500 buffalo-calves, clinically suffered from diarrhoea, were used in the present investigation. They were proved to be free from enteric-pathogenic micro-organisms (COF, 1974) as well as they were kept under the same environmental conditions and a balanced ration was offered ad libitum.

Faecal samples were individually collected in a polyethylene sac after recording the age and sex of each calf. A macroscopic inspection of the faecal material was first carried out for the presence of gross parasites. A suitable portion of each sample was examined directly after collection by the concentration floatation technique using saturated common salt solution.

RESULTS AND DISCUSSION

The percentage of infection with protozoa and helminths is shown in table I & fig. 1.

It is clear that the rate of infection with *Eimeria spp.* is influenced with both age and sex of the host; being higher among older than younger calves and among male than female ones. Infected calves with *Eimeria spp.* were suffering from symptoms of diarrhoea with foul smelling faeces which sometimes contained blood and mucus. Similar symptoms had been observed by EDGSON (1948) among cattle infected with *E. zurnii*. It had been stated by SOULSBY (1968) that coccidiosis usually occurred in dairy herds where young stock were kept in large numbers with serious losses. HAMMOND (1964) estimated that 24 billion intestinal cells were destroyed after introducing 1000 oocyst of *E. bovis*, hence the cause of marked signs of illness with diarrhoea noticed among buffalo-calves examined. This may be attributed to the destruction of the epithelial layer of the intestine and the filling of the lumen with blood resulting in bloody diarrhoea.

Infestation with *N. vitulorum* declines significantly with the advance of the calf's age. DAVTYAN (1935), SRIVASTAVA and MEHRA (1955) and TAWFIK (1970) had related that evidence to a prenatal route of infection. This early infection has probably stimulated antibody formation leading to the expulsion of worms by a self-curing mechanism in older

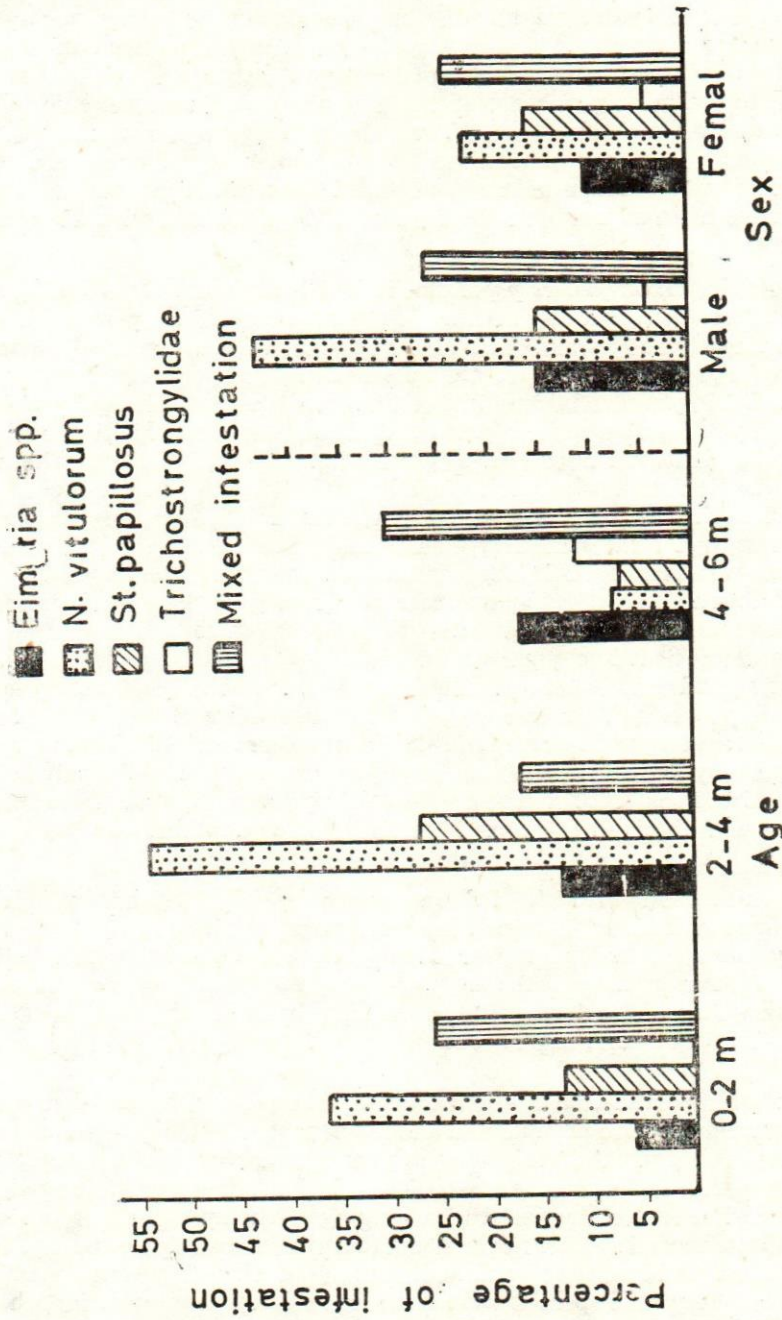


Fig. 1: Percentage of infestation with parasites causing diarrhoea among different age and sex groups of Buffalo Calves

calves. Moreover, WEBSTER (1953) stated that age of the host played an important role in determining the migratory behavior of ascaride specially *Toxocara canis* of dogs, the tracheal type of migration predominated among dogs, under 3 months old and the somatic type among those over 6 months old. Similarly, the sex of the host plays an important role affecting the rate of infestation with *N. vitulorum*; being higher in male than female calves. This may be attributed to the observation, mentioned by WEBSTER (1958), that more larvae migrated to the somatic tissues of female than male hosts as had been observed with dogs infested with *T. canis*.

Concerning *Strongyloides papillosus*, it had been found that 26.92% of calves between the age of 2-4 months were infested; while the percentage of infection among younger and older calves was much less being 12.94% and 6.89% respectively. Therefore, the age of the animal plays a role in such parasite. During the first two months of life, there is a sort of immunity which can be easily broken by various factors, e.g. change of diet which is noticed among 2-4 months old calves where green fodder (clover or Maize blades) are offered. Similarly, it had been stated by VIGORS (1954) that about 80% of calves less than 4 months old were found infested with *St. papillosus* kept, more or less, under the same Egyptian conditions. In the present investigation as well as LAPAGE (1956) stated that, infected calves showed symptoms of diarrhoea loss of appetite, retardation of growth and emaciation. Hence, this infestation is considered to be serious from the onset of clinical manifestation noticed among 2-4 months old calves, as soon as the host no longer offers sufficient resistance. This may be due to the quick multiplication and propagation of the free stages of the parasite to the infective 3rd stage larvae, leading to successive infestation in a short period. Also, it had been noticed by TURNER (1959) that no passive immunity could be attained among lambs exposed to infection with *St. papillosus* after administering immune serum obtained from experimentally infected lambs.

The infestation with the different gastro-intestinal trichostrongylids was only met with among calves of 4-6 months old, while among younger ones they had never been met with. Most of the infested calves were usually found with their grazing mothers, hence they were liable to acquire the infestation. They showed gastro-intestinal disturbances in the form of alternating constipation and diarrhoea.

In the present study, calves-carried mixed infestation with more than one parasite were most seriously affected and a constant mortality began, a few ones dying each day. They lose weight, pass soft manure which eventually became very thin and dark-green to yellow in colour, developed a long, dry hair-coat and became dehydrated with sinking of the eyes in the terminal stages. Gross anaemia was not evident but the mucosae were pale and dry. In stages, the calves became so weak and emaciated that they were unable to stand but they were persist in recumbent state. Moreover, in other studies of mixed infestation, SHUMARD, BOLIN and EVELETH (1957) reported the physiological and nutritional changes in lambs infested

with *Haemonchus contortus*, *Trichostrongylus colubriformis* and *Nematodirus spathiger*. They found a decrease in food consumption as the infections progressed and the weight losses were rapid. In all infected lambs there were a hypoglycaemia, a hypophosphataemia and depression of the total serum protein.

From the present investigation, it can be concluded that *Eimeria spp.*, *N. vitulorum*, *St. papillosus*, the different members of the gastrointestinal trichostrongylides and mixed infestation with more than one of these parasites may be considered the most important ones causing diarrhoea among buffalo-calves of up to 6 months old.

TABLE 1. Number and Percentage of Buffalo-calves Infested with Parasites Causing Diarrhoea in Relation to Age and Sex.

Parasite	Age & number of calves						Sex and Total number of calves					
	0-2 m. (170)		2-4 m. (156)		4-6 m. (174)		Male (266)		Female (274)		Total (500)	
	+	%	+	%	+	%	+	%	+	%	+	%
<i>Eimeria spp.</i> . .	10	5.88	20	12.82	30	17.24	33	14.60	27	9.85	60	12.0
<i>N. vitulorum</i>	62	36.47	84	53.85	13	7.47	98	43.36	61	22.26	159	31.8
<i>S. papillosus</i> . .	22	12.94	42	26.92	12	6.89	33	14.60	43	15.69	76	15.2
<i>Trichostrongylidae</i> . .	00	00	00	00	20	11.49	9	3.98	11	4.01	20	4.0
Mixed Infestation . . .	44	25.88	27	17.31	53	30.46	59	26.11	65	23.72	124	24.8
Trematodes . .	00	00	00	00	00	00	00	00	00	00	00	00
Cestodes . .	00	00	00	00	00	00	00	00	00	00	00	00

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