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دراسات أولية تجريبية عن مرض الباييزيا فى الكباش بواسطة
القراد المصاب بطفيل الباييزيا وكذلك دراسة فترات سقوط
القراد بعد حدوث الاصابه

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استهدف البحث دراسة نقل العدوى لثلاثة كباش بعد ازالة الطحال بواسطة القراد
المصاب بالطفيل وقد نفق أحد الكباش بالرغم من علاجه بينما تم علاج الآخرين .
كما تمت دراسة الوقت الذى يتم فيه سقوط القراد من على هذه الحيوانات
بعد حدوث الاصابة بها .

PRELIMINARY STUDIES ON OVINE BABESIOSIS EXPERIMENTAL INFECTION
BY RHIPICEPHALUS BURSA INFECTED WITH BABESIA OVIS AND TIME OF TICK REPLETION*
(WITH 3 TABLES)

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SUMMARY

Three splenectomized sheep were experimentally infected with Rhipicephalus bursa infected with Babesia ovis. Course of the disease, parasitaemia were discussed. On animal died, the other two were treated successfully. The time of tick repletion was the 5th to 7th day of tick infestation which continued for another 2 days.

INTRODUCTION

Babesiosis, a tick transmitted disease of animals occurs in many countries all over the world. causing great losses. Little informations concerning host-parasite interactions especially in ovine Babesiosis or experimental infection by ticks are very rare especially in ovines. It is known that transmission by infected blood is more easier than by using ticks through which in nature the disease is transmitted. The time of tick repletion in Rhipicephalus bursa is very essential in eradication of the disease and in the available literature it is not fully investigated.

In the respect of experimental infection of splenectomized sheep with infected blood containing Babesia ovis, incubation period reported by KRISHNA (1966) was 4-6 days in his trials for experimental infection with Babesia ovis.

EL-ALLAWY, FRIEDHOFF and G. BUSCHER (1975) studied the transovarial infection of Babesia ovis in Rhipicephalus bursa and quantitative studies in egg infection. They reported that the 8th day of egg incubation is suitable for Babesia diagnosis in tick eggs as infection rate is greatest. Moreover, EL-ALLAWY (1977) reported that the 3rd day of Boophilus annulatus eggs infected with Babesia bigemina is suitable for the detection of Babesia infection.

The aim of the present study was designed to study ovine Babesiosis by Rhipicephalus bursa infected with Babesia ovis, incubation period and parasitaemia. The clinical observations and time of tick repletion is also included.

MATERIALS AND METHODS

I- Materials:

- a- Rhipicephalus bursa males and females infected with Babesia ovis has been maintained at the Dept. of parasitology School of Vet. Med., Hannover, West Germany for 19 generations.
- b- Three splenectomized rams weighing 30 kgs each.

II- Methods:

- a- Ticks were put on scrotal area after being shaved, cleaned with soap and water then disinfected with alcohol to remove any greasy material that may hinder tick attachment. This was facilitated by using a bag fixed around the scrotum in which the ticks are introduced and the bag was then sealed to prevent escape of ticks. This bag was checked every day.
- b- Clinical observations were recorded. Blood smears were prepared and examined daily.
- c- The animals were kept in stable in which temperature was adjusted to (25-28°C) and the relative humidity (80-90%) for the purpose of tick infestation.

* : This work was carried out in the institute of parasitology, school of Vet. Med. Hannover, West Germany C/O Prof. Dr. Friedhoff.

** : Splenectomy was performed by Prof. Dr. K. Friedhoff.

d- Estimation of parasitaemia by counting 50 - 100 microscopic fields when parasitaemia is low in number. Percentage was also calculated when the parasitaemia is high by counting the number of infected cells in 100 red blood corpuscles.

RESULTS

Rectal temp, degree of Parasitaemia and time of tick repletion together with clinical observations are recorded in Tables 1, 2 & 3.

TABLE (1)

Days of exp.	Temp.	Parasitaemia	Repletion	Clinical observations
1	38.3	negative	no	normal
2	38.7	"	no	"
3	39.0	"	no	"
4	39.5	"	no	"
5	39.9	"	+	"
6	40.1	15/100 M.F.	++	loss of appetite.
7	40.8	89/100 M.F.	+++	stop eating.
8	41.6	29.9%	-	salivation, haemoglobinuria, in recumbent position.

TABLE (2)

Days of exp.	Temp.	Parasitaemia	Repletion	Clinical observations
1	38.1	negative	no	normal
2	38.5	"	no	"
3	39.0	"	no	"
4	39.3	"	no	"
5	38.8	"	no	"
6	39.9	"	no	"
7	40.1	"	+	loss of appetite.
8	40.5	3/100 M.F.	++	slight salivation.
9	40.9	2.1%	+++	No haemoglobinuria.
10	41.1	5.3%	-	
11(treatment)	39.8	32/100 M.F.	-	
12	38.4	0/100 M.F.	-	Normal Survived.

TABLE (3)

Day of Exp.	Temp.	Parasitaemis	Repletion	Clinical observations
1	38.2	negative	no	normal
2	39.1	"	no	"
3	39.8	"	no	"
4	39.8	"	no	"
5	39.9	"	no	"
6	40.0	"	no	loss of appetite.
7	40.5	25/100 M.F.	+	Salivation
8	40.8	1.8	++	No haemoglobinuria.
9	41.3	4.8%	+++	
10(treatment)	38.3	60/100 M.F.	-	
11	38.1	0/100 M.F.	-	Survived.

EXPERIMENTAL OVINE BABESIOSIS

DISCUSSION

All animals reacted to tick infestation by rise in body temperature that started to rise gradually from the second day without the presence of parasitaemia. Such rise in body temperature is mainly due to tick infestation as it caused some disturbances and irritability to the animals.

However, KRISHNA (1966) interpreted the rise in body temperature met with in his experiment as an incubation period from 4-6 days post-infection with infected blood without the appearance of haemoglobinuria. However the maximum rise in body temperature in all 3 animals reacted afterwards 41.6, 41.1 and 41.3 on the 8th, 10th and 9th day for sheep No. 1, No. 2 and No. 3 respectively.

From the mentioned results in Tables 1, 2 & 3, parasitaemia started respectively on the 6th, 8th and 7th day of experimental infection in sheep No 1, No. 2 and No 3. The recorded degrees started as 15/100 M.F. to reach 29.9% on 8th day for sheep No. 1. For sheep No. 2 & 3 the parasitaemia was 3/100 M.F. to 5.3% on 10th day and 25/100 M.F. to 4.8 on 9th day.

Treatment was started on the 8th day for sheep No. 1 without success and the animal died on the 9th day. Salivation, haemoglobinuria and recumbancy were observed on day before death (8th day). Death is probably due to organic failure which is caused by blocking of capillaries of vital organs by parasitized cells, (parasitaemia 29.9%), cell debris and free parasites, such blocking caused an accumulation of toxic metabolic product and anoxia (RIEK, 1968). On the other hand, treatment was successful for sheep No 2 and 3 as we started treatment when parasitaemia reached 5.3% and 4.8% in the absence of haemoglobinuria for both animals. Treatment was carried out by Berenil in a dose 3.5 mg/kg body weight.

From such observation one can recommend to start treatment before haemoglobinuria appears in ovine Babesiosis. In such phase parasitaemia is usually less than 10%. Concerning tick infestation and repletion, most of Rhipicephalus bursa ticks started repletion between the 5th, 7th day for all animals and complete repletion was achieved two days later. This is very important for eradication of Rhipicephalus bursa ticks and should be adopted before 5th - 7th day of tick infestation. As it is known that after tick repletion they start oviposition few days later in crivices which hatch larvae already infected transovarially. (EL-ALLAWY, ET AL. 1976).

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