

Clinical and Hematological Parameters Study of sheep infected by *Theileria* SPP

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Summary

A Study of clinical and haematological changes in Awassi stock of sheep that had schizonts of *Theileria* spp. In Abu – Greeb region were conducted .

Seventy three blood samples were collected from jugular vein of different ages, 60 had schizonts indicating an infection rate 82.19% .

There were no great evidence of variation in clinical and haematological features between infected and non infected sheep .

Introduction

Malignant sheep and goats theileriosis is a highly fatal protozoan tick – borne disease which caused by *T. hirci* (1) . This disease has a wide spread in tropical and subtropical countries ; It is believed to be the cause of heavy losses (2) . The disease is usually acute and highly fatal in adult sheep and goats but it has mild nature in lambs and kids possibly due to maternal immunity . The disease characterized by high fever associated with nasal discharge , jaundice, enlargement of superficial lymph nodes and some times transitory associated with haemoglobinuria (3) .

This disease is transmitted from animal to animal by tick; in enzoatic area it is likely to be transmitted by ticks *Rhipicephalus* spp and *Hyalomma anatolicum* (4,5) .

Malignant ovine theileriosis is wide spread in many provinces of Iraq ; that (6) showed out of 900 animals examined , 237 had antibody to *T. hirci* indicating an infection rate of 26.33% and cause a major problem in sheep due to high morbidity and

mortality rates in enzoatic areas that reach 100% and 89.47% respectively (7) .

While in Diala and Baghdad (8) found the morbidity rates reach 60% , 54.2% and mortality rates 5.6% , 9.2% in Awassi and Assaf sheep suffering from theileriosis .

Due to the economic importance of this disease , a little information about the parasite effect on blood parameters as a result on its effect to impairment the function of some vital organs [liver , kidney and spleen] during the carrier state this study was conduct to explaine this relationship .

Materials and Methods

5 ml of jugular vein of blood samples were collected from seventy three of Awassi sheep in Abu – Greeb region .

The clinical picture and morphology of parasite were studied according to (3) . On the other hand the haematological parameters were measure in conformity with (9) .

Results

Of seventy three animals that were examined 60 had theilerial schizonts in there lymphocytes an indicating infection rate 82.19% .

Microscopical examinations of blood by wright's stain smears revealed presence of two cases of piroplasms in red blood cells with parasitemia > 0.1% .

Clinical picture revealed there was a significant differences ($P > 0.01$) in the pulse rate while there was no differencess in temperature and respiration rates in an infected and non infected animals .

Haematological parameters explained there was a significant differencess ($P > 0.05$) in packed cell volume and haemoglobin and ($P > 0.01$) in red blood cells and white blood cells between infected and non infected animals respectively (table . 1) .

Table (1)

Showed clinical and haematological parameters of sheep infected and non infected with *Theileria* spp.

Subject	Infected animals mean \pm SD	Non infected animals means \pm SD
Temperaturu °C*	39.48 \pm 0.58	39.39 \pm 0.37
Pulse rate / min	48.06 \pm 12.88	73.61 \pm 10.50
Respiration rate / min	33.90 \pm 8.52	30.61 \pm 4.44
PCV % **	27.60 \pm 5.16	24.52 \pm 4.09
RBCs cell / cmm*	6361000.36 \pm 2127.16	5982000.30 \pm 1828.94
Hb g / dl **	9.04 \pm 1.59	8.10 \pm 1.27
WBCs cell / cmm *	10350.00 \pm 2946.48	7576.92 \pm 3404.93
Lymphocytes %	50.35 \pm 10.89	47.46 \pm 11.55
Neutrophils %	42.80 \pm 10.57	48.07 \pm 12.70
Monocytes %	1.61 \pm 1.1	1.07 \pm 1.11
Eosinophils %	4.88 \pm 4.03	3.30 \pm 5.80
Basophils %	0.30 \pm 0.59	0.07 \pm 0.27
Plateltes cell / cmm	436000.65 \pm 177.77	39800000 \pm 108.36

** P > 0.05

* P > 0.01

There was no significant differences in protein fibrinogen and bilirubin (Total , conjugate and non conjugate) between infected and non infected animals (Table 2) .

Table (2)

showed the effect of *Theileria* spp parasite on some biochemical compantet of blood parameters .

Subject	Infected	Non infected
Total protein g / dI	6.87 ± 0.55	6.68 ± 0.36
Fibrinogen g / dI	0.28 ± 0.15	0.33 ± 0.17
Total bilirubin mg / dI	0.68 ± 0.35	0.69 ± 0.44
Conjugate bili mg / dI	0.13 ± 0.20	0.24 ± 0.25
Unconjugate bili mg / dI	0.55 ± 0.33	0.45 ± 0.36

Discussion

Haematozoon parasites of sheep had received no serious attention in Iraq in spite of their scientific importance and pathogenic gravity which is evident from the serious losses frequently in curred , the parasite which are recorded in sheep for the first time in Iraq by (10) . Estimated a mortality of approximately 20% while; (7) , recorded a mortality rate 89.47% among 39 sheep naturally infected with theileriasis in an enzootic area but (8) were reported a morbidity and mortality rates (60% and 5.6%) in Awassi breed in Diala and 45.2% and 9.2% in Assaf breed in Babhdad respectively . The morbidity finding by (6) , who recorded an incidence of 26.33% of malignant theileriosis in sheep by IFA test . (5) finding that the tick *Hyalomma anatolicum* were responsible for transmission of *T-hirci* in sheep .

The high incidence of the disease especially in the middle and south parts of Iraq has a significant effect on the economic status of the country (6) .

The clinical picture encountered in the flock showed there were no obivaus differences between infected and non infected animals that were notice in the acute state of disease (pyrexia , anorexia , depression , enlargement of superficial lymph nodes and pale to Icteric mucous membrane) (8) .

Microscopic examination of blood smears revealed that presence of piroplasms in the red blood cells in a single number and the schizonts in a great numbers in the lymphocytes , thus T-hirci produce numerous schizonts & piroplasms & are very pathogenic .

Haematological pictures revealed that there were no parasite effect in the Carrier state on the vital organs (bone marrow , liver , lungs , kidney) that responsible on blood parameters as a reflex between the comparisons parameters between the infected and non infected animals while the parasite stimulate bone marrow to produce more red blood cells to peripheral blood and activated the immune statues of the infected animal by increasing the lymphocytes numbers . This revealed that the parasite dose not effect on the animal and its vital organs of the productivity on the carries state of disease .

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دراسة سريرية ومعايير دموية للأغنام الخمجة بـ *Theileria* spp

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الخلاصة

تم إجراء دراسة التغيرات السريرية والدموية لقطيع من الأغنام العواسي والتي تحمل مفلوقات *Theileria* spp في منطقة أبو غريب، جمع 73 نموذج دم من الوريد الوداجي من أعمار مختلفة، أظهر 60 نموذج احتوائه على مفلوقات الطفيلي وبنسبة خمج 82.19 %، لم تظهر الدراسة تباين في الصورة السريرية والدموية بين الأغنام الخمجة وغير الخمجة.