CLINICAL AND HAEMATOLOGICAL CHANGES IN CAMEL INFESTED WITH TRYpanosoma EVANSI AND MICROFILARIA

(With 3 Tables & 3 Figs.)

By

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SUMMARY

Among 500 native camels (10-13 years) belonged to different localities at Assiut Governorate, 15 animals were infected with trypanosoma evansi and 12 animals with microfilaria species.

The clinical signs of trypanosomiasis included emaciation, weakness with paler mucous membrane and dry scruffy coat, intermittent fever (38.5-40.1°C), the animal stand with his nose somewhat depressed and head hanging forward, the eyes dull and half closed with considerable amounts of tears.


In filariasis group, the camels showed severe weakness, paler mucous membrane, loss of appetite, elevation of body temperature (39.7°C), in addition both scrotum and testicles were swollen and attained the size of a tennis ball and sometimes extended downwards along the inside of both thighs. The affected camels showed stiffness in movement and wide gait. It was also found that the presence of microfilaria in the blood was not affected by night and day and enhanced by fever status.

Haematological studies: Revealed that, in trypanosomiasis, there were severe oligocythemia with significant decrease in both haemoglobin and packed cell volume. Normocytic hypochromic anaemia was also observed associated with leucocytosis, eosinophilia and monocytoisis.

Concerning filariasis, the affected camels showed oligocythemia, with significant decrease in both haemoglobin and packed cell volume. Microcytic hypochromic anaemia was also observed associated with leucocytosis and eosinophilia.

INTRODUCTION

Cytological analysis of the blood might reveal a remarkable and valuable informations about the general health of the animals. Also they might help in diagnosis, prognosis and treatment. Only a few scattered data have been reported on the analysis of camels blood (BARON, 1982).

PARKAR (1980) reported that the infestation of camels with trypanosoma evansi produced a wasting disease characterized by intermittent fever, weakness, anaemia and emaciation. The author added that trypanosoma appeared in the peripheral blood during the febrile attack.

GEORGI (1985) and ARAFFA (1990) described the trypanosomiasis as usually takes a chronic course, characterized by remittent fever, anaemia and emaciation while acute form was characterized by persistent fever, with demonstration of trypanosoma in the peripheral blood. The author observed another signs including weakness, oedema of limbs lower abdomen and thorax as well as lacrymation.

NADIM and SOLIMAN (1967) proved the presence of significant decrease in erythrocytes and haemoglobin concentration in camels naturally infested with trypanosomiasis.

JATKAR and PURUSHIT (1971) concluded that anaemia after trypanosoma infection was not due to depression of bone marrow function but to destruction of erythrocytes.
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with consequent production of immature red cells in the peripheral blood.

EL-MAGAWARY (1983) studied the haematological picture in camel trypansomiasis before and post-treatment. He concluded the presence of a highly significant decrease (P< 0.01) in erythrocytes, haemoglobin contents, P.C.V. and neutrophils.

BRANDER, et al. (1982) mentioned that treatment by a single dose of 5 gms, Naganol gave 100% cure in camels suffered from trypanosomiasis.

UDALL (1954) reported that a single dose of naganol was sufficient to cure camels infested with trypansomiasis.

EL-ATRASH (1980) and HIGGINS (1983) concluded that application of suramin (Naganol) at 10 mg/kg given at the end of March and the end of July seems to give good protection to camels living in or crossing endemic areas.

During the last few years, ivermectin was tried in the treatment of buffaloes infested with parafilaria species (PATNAIK and PANELE, 1963). Also, BURG, et al. (1978) and THEODORIDES (1985) reported that the ivermectin (Ivomec) are a relatively new family of antiparasitic agents with efficacy against some internal as well as internal parasites following parental administration.

ABU EL-MAGED, et al. (1988) showed that the efficacy of ivermectin in the treatment of Dipetalonema evansi infestation in camels. They revealed that, this drug was effective against the worm and its larvae in the blood by a dose of 1 ml/50 kg.b.w. Furthermore there was reduction of the clinical signs and gradual disappearance of microfilaria larvae from the blood occur to reach zero within 4 weeks post-treatment.

The aim of the present investigation is to study the haemogram of camels infested with T.evansi and microfilaria before and after treatment.

MATERIAL and METHODS

Materials:

A total number of 500 camels 10-13 years) were used in the present study. Clinical and laboratory examination revealed that 15 animals were infected with trypanosoma evansi, while the remainder (12) were infected with microfilaria species.

Samples:

Whole blood and blood serum samples were obtained from each animal by vein-puncture through jugular vein for haematological studies.

Whole blood sample:

Were used for the evaluation of haematological picture total erythrocytic count (T.R.B.C.s), haemoglobin content (Hb) packed cell volume (P.C.V), total leucocytic count (T.W.B.C.s) and differential leucocytic count (D.L.C).

Detection of microfilaria:

Was by concentration technique by draw 1 ml of blood in 10 ml of 2% glacial acetic acid, mix well, centrifugate and examined the sediment after the methods of KELLY (1984).

1 - Total erythrocytic count, haemoglobin content and total leucocytic count were determined using blood cell counter (CX 310) and (DC 210).

2 - Packed cell volume (P.C.V): Packed cell volume was carried out using micro-haematocrit tubes after SIMMONS (1976).

3 - Mean corpuscular volume and mean corpuscular haemoglobin concentration. Mean corpuscular volume (M.C.V) and mean corpuscular haemoglobin concentration (M.C.H.C) were calculated mathematically after the method described by McCURNIN (1985).

4 - Differential leucocytic count (D.L.C.s): Differential leucocytic count was determined after staining the blood films with Giema stain using 4 field meander method (COLES, 1980).

Methods of treatment:

1 - Naganol (Bayer):

Naganol was used for the treatment of camel trypanosomiasis. The drug was obtained in 5 gm bags and used as 10% solution in distilled water and prepared directly before administration. A dose of 50 ml of this solution was given by intravenous injection in the jugular vein of the camel. Blood smears were prepared 24 hours after treatment and every week for a period of 2 months. Also, another dose of naganol was given to camels at the 30th day.

2 - Ivomec (ivermectin, MSD) England:

Ivomec is the break through injectable parasiticide for camels, sheep and cattle. Its effectiveness controls internal and external parasites that impair livestock health and productivity.

RESULTS

The clinical signs of trypanosomiasis including emaciation, weakness with pallor of mucous membrane and dry scruffy coat, intermittent fever (39.5 to 40.1°C), the
head hanging forward and the eyes dull and half closed with considerable amounts of tears.

Filariasis in camels showed that, their appetite was hardly affected, severe weakness, paleness of the mucous membrane, harshness of the coat, high body temperature (39.7°C). In addition, both scrotum and testis were swollen and the swelling sometimes was extended downwards along the inside of both thighs. Microscopical examination revealed the presence of both *Trypanosoma evansi* and *Microfilaria* species in blood of diseased animals (Fig. 1).

Mean values and ranges of haematological picture of blood of healthy and diseased camels were presented in table (1-3).

**DISCUSSION**

**Blood parasites:**

*Trypanosoma* in the infected camels can be detected microscopically in the peripheral circulation only during fits of fever Fig. (2). Diseased camels were treated using Naganol (Suramin or Antipryl) in a double dose by I/V of 5 gm (10%) gave 100% cure of the infected camels. This results was agreeable with the findings obtained by ABD EL-LATIF (1957) and EL-MAGAWARY (1983).

Haemogram picture of diseased camels revealed a significant decrease in total erythrocytic count, haemoglobin content and packed cell volume with significant increase (P< 0.01) in total leucocytic count. In addition marked eosinophilia and monocytosis were recorded, table (1). The obtained data coincided with those previously obtained by NADIM and SOLIMAN (1967); JATKAR and PUROHIT (1971) and RAINSINGHANI, et al. (1981). On the other hand, significant improvement in haemogram picture of infested camels returned to their normal values after 45 days post-treatment, table (1).

Regarding filariasis in camels, it was believed that the presence of microfilariae in the peripheral blood was affected by night and day. But in this study, the presence of microfilariae in the blood of diseased camel could be easily detected in sufficient numbers in the films periodically. The periods were synchronous with those of fever. Fulleborn procedure was the most suitable technique for obtaining microfilariae from the blood film, Fig. (3).

Haematological findings in camels with filariasis revealed a significant decrease in total erythrocytic count, haemoglobin content and packed cell volume, while a highly significant increase in total leucocytic count accompanied with lymphocytosis, eosinophilia and neutropenia were detected in diseased camels tables (2 & 3). Diseased
camels were treated using five injections of Ivomec in a dose of 1 ml/50 kg b.wt.
gave a significant improvement in the haemogram values, general healthy condition
and appetite which extended from the twenty fourth day post treatment with Ivomec
as shown in table (2 & 3). This simulate these obtained by ABU-EL-MAGED, et al.
(1988).

REFERENCES

parasitology Assiut University.
Book society and Hodder and stroughton, London.
of potent antihelminthic agents. Producing organism and fermentation Abst.
13th. Intersei. Conf. on: Antimicrobial agents and chemotherapy, 15, 331-367.
Philadelphia and London.
Thesis, Cairo University.
El-Magawary, S.M.S. (1983): Parameters of some blood constituents in normal and
pany, London.
Nadim, M.A. and Soliman, M.K. (1967): The prognostic values of blood picture in animals
Patnalk, M.M. and Panel, B.P. (1963): A note on parafilariasis in buffalo (Bubalus


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<th>Parameter</th>
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Table (1): Keen values of hemoglobin percentage in pre and post-treatment in hypoprothrombinemic or irretent cate.

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<th>Condition</th>
<th>Pre-treatment</th>
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<th>% Hypophyseal Heterogeneity</th>
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Fig. (1): Oedema of the testicles in camel with filariasis.
Fig. (2): Blood smear showing *Trypanosoma evansi* in infested camels. (X 1000).
Fig. (3): Blood smear showing microfilaria in infested camel (X 200).