

## TRYPANOSOMES INFECTION IN CAMELS

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## ABSTRACT

One hundred and two blood samples from symptomatically infected camels were examined. Among these 14 (13.72%) samples were positive for *Trypanosoma evansi*. A higher infection was found in females (15.68%) as compared to males (11.76%). Higher (17.64%) infection was noted in males above 4 years of age compared with 5.88% in animals under 3 to 4 years of age.

**Key words:** Trypanosomes, sex, age, camel.

## INTRODUCTION

Trypanosomiasis is the most important and serious pathogenic protozoal disease of camel caused by Trypanosoma species. This parasite has a wide range of distribution throughout tropical and sub-tropical regions of the world. *T. evansi* was reported originally from India, where the term 'surra' is used to describe the disease. In South Africa, another form of Trypanosomiasis is prevalent which is known as "nagana". *T. evansi* can also cause the disease in other species e.g. cattle, buffaloes, sheep, goats and horses. *T. evansi* probably evolved from *T. bruce*, when camels entered the tsetse fly belt and acquired infection. Later, the disease was maintained via mechanical transmission by biting flies, notably Tabanus species, Haematopota and Pangonia and spread to the Northern Africa, Middle East, India and the Far East Asian countries (Lukins, 1992). The difference in species depends on size and shape of the body, position of nucleus, degree of development of the undulating membrane and flagellum (Smyth, 1996).

The objective of the present study was to identify the trypanosomes species prevalent in camels of Sind area of Pakistan and to find the comparative infection rate in different age and sex groups of camels.

## MATERIALS AND METHODS

A total of 102 camels were used in this study. These camels were separated into three age and sex groups A, B and C having 34 animals each, (17 males and 17 females), as given below:

- Group A Animals upto 2 years (male and female)
- Group B Animals from 3 to 4 years (male and female),
- Group C Animals above 4 years (male and female).

## Collection of blood samples

Blood samples (5ml) were collected from tip of ear or jugular vein of each animal with the help of a sterilized syringe after proper disinfection. These were transferred into the screw capped tubes containing 0.5 ml of 1% ethylene diaminetetra acetate (EDTA) solution.

## Preparation of slides

Thin and thick blood smears were made, as per method described by Adam *et al.* (1971) and air dried. Dried smears were fixed in absolute methyl alcohol for 2 minutes. The slides were immersed in Giemsa's stain for 20 minutes. After drying, the slides were examined under microscope (at 100x oil immersion objective) for identification of various Trypanosoma species according to their morphological characters.

## RESULTS AND DISCUSSION

Blood samples from 102 camels, 51 each from male and female were collected and examined for the presence of various Trypanosoma species. During the investigations, *Trypanosoma evansi* was the only species recognized from the samples of infected animals. Morphologically, *Trypanosoma evansi* was an elongated blood parasite and measured 14-29  $\mu\text{m}$  in length and 1.5 to 3.45  $\mu\text{m}$  in width, with a nucleus containing a large central nucleolus.

The morphological characteristics of *Trypanosoma evansi* recognized from blood samples of infected camels during the present study are the same as reported by Chandler and Read (1961). They measured *Trypanosoma evansi* which ranged from 15.30  $\mu\text{m}$  in length and 1.5 to 3  $\mu\text{m}$  in width. Similar characteristics were also observed by Lukins (1992) and Smyth (1996).

**Table 1: The prevalence of *Trypanosoma evansi* in different age and sex groups of camels**

Age groups	Number of samples examined	Number of positive samples	Percentage of positive samples
<b>A. Upto 2 years</b>			
Male	17	2	11.76
Females	17	3	17.64
Total	34	5	29.40
<b>B. 3 to 4 years</b>			
Males	17	1	5.88
Females	17	1	5.88
Total	34	2	11.76
<b>C. Above 4 years</b>			
Males	17	3	17.64
Females	17	4	23.52
Total	34	7	41.16
<b>Overall</b>			
Males	51	6	11.76
Females	51	8	15.68
Total	102	14	13.72

Out of 102 samples, only 14 (13.72%) samples were positive for *Trypanosoma evansi* species. The present results are in agreement with the investigations made by Hussain *et al.* (1991), who recorded 13.2% prevalence of *Trypanosoma evansi* in camels.

A higher infection rate (15.68%) was found in females, as compared to males 11.76% (Table-1). The higher prevalence of *Trypanosoma evansi* in blood samples of female camels recorded might be due to stress during pregnancy and lactation, which could decrease resistance in female camels and render them more susceptible to *Trypanosoma evansi* infection.

Table 1 shows a higher infection (23.52%) in females of above four years of age (group C), while second higher infection (17.64%) recorded was in very young camels with age of under 2 years (Group A). Lower rate (5.88%) was observed in middle age groups of animals of both sexes (Group B). In male camels, the higher prevalence recorded was 17.64% in those above 4 years of age. The higher prevalence in old camels at this stage might be due to heavy stress through their use for transportation of goods from one place to another and secondly may be due to poor management. Similar results were also recorded for female camels. However, Pathak and Khanna (1995)

reported that all camels were equally susceptible to trypanosome infection regardless of breed and age.

## REFERENCES

- Adam, K.M., G.J. Paut and V. Zaman, 1971. Medical and Veterinary Protozoology (An Illustrated Guide), Revised Edition. Longman Group Limited, Great Britain.
- Chandler, A.C. and C.P. Read, 1961. "Introduction to Parasitology" 10<sup>th</sup> edition, John Willey & Sons, Inc. New York, USA, pp: 131-160.
- Hussain, H.S., N.A. Al-Asgah, M.S. Al-Khalifa and F.M. Diab, 1991. The blood parasites of indigenous livestock in Saudi Arabia. Arab-Gulf J. Sci. Res., 9 (3): 143-160.
- Lukins. A.G., 1992. "Protozoal diseases of camels: Proc. 1st. Intern. Conf. Camel, Dubai, UAE, pp: 23-27.
- Pathak, K.M.L and N.D. Knanna, 1995. Trypanosomiasis in camel (*Camelus dromedarius*) with particular reference to Indian Sub-continent: a review. Intern. J. Anim. Sci., 10: 157-162.
- Smyth, G.D., 1996. "Introduction to Animal Parasitology". Cambridge University Press, Cambridge, UK.