



E-ISSN: 2278-4136

P-ISSN: 2349-8234

JPP 2019; 8(2): 1416-1418

Received: 04-01-2019

Accepted: 07-02-2019

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Efficacy of diminazene aceturate in buffalo trypanosomosis in Chhattisgarh

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Abstract

A female Murrah buffalo of age 2.5 years was presented to the Teaching Veterinary Clinical Complex of College of Veterinary Science & A.H., Anjora, Durg, Chhattisgarh with the history of recurrent fever, anorexia, frequent micturition, nervous sign, pale mucous membrane and loss of appetite. On blood smear examination *Trypanosoma spp.* infection (+++) was observed. The buffalo was treated with diminazene aceturate (7.0 mg/kg) and blood smears were examined after every 24 h showing gradual decrease in the level of parasitaemia followed by complete recovery of animal within a week.

Keywords: Buffalo, diminazene aceturate, trypanosoma, efficacy

1. Introduction

Trypanosomosis is a fatal and debilitating disease of domestic livestock and wild animals caused by a unicellular flagellate *Trypanosoma spp.* The disease is caused by three major causative agents viz. *Trypanosoma congolense*, *T. vivax*, *T. brucei* and occasionally *T. evansi* and cyclically and mechanically transmitted by tsetse fly and other biting flies [1]. However it has been reported that Indian geographical area affected by enzootic trypanosomosis caused by non-tsetse borne trypanosome infection is about three times higher than tsetse borne trypanosomosis [2, 3]. Bovine trypanosomosis is one of the major problem and causes a considerable economic loss to the progress of livestock and agricultural production of many tropical countries in Africa and Asia [4, 5]. The impact of bovine trypanosomosis is not restricted to production alone, but extends to changes in land and exploitation of natural resources and restriction of opportunities for diversification of agricultural production [6].

Major clinical manifestations with trypanosomosis in livestock are fever and anaemia. Trypanosomosis causes serious economic losses to the farmers in terms of abortion, infertility, various neurological disorders, reduced milk yield, and even into death of the affected animals [7]. The present report represents a clinical case of *Trypanosoma spp.* infection in a female buffalo.

2. Case History

A female Murrah buffalo of age 2.5 years was presented to Teaching Veterinary Clinical Complex, College of Veterinary Science and Animal Husbandry, Anjora, Durg, Chhattisgarh. Animal had history of recurrent fever, anorexia, frequent micturition, nervous signs, pale mucous membrane and anorexia (Fig. 1A). On physical examination, the buffalo was found dull but the vital signs were normal.

3. Materials and Methods

Blood sample was collected from the jugular and ear vein for blood examination and detection of blood parasites, respectively. Collected blood sample was subjected to the complete blood count by using fully auto hematology analyser (#BC-2800Vet, Mindray, China). Thin blood smears were prepared and stained with the Field's stain so that the proper blood smear examination could be possible with ease. On confirmatory diagnosis, the animal was treated with the single dose of diminazene aceturate at the dose rate of 7.0 mg/kg body weight intramuscular. After treatment blood smears were collected in every 24 hour interval and microscopically examined to ascertain the level of parasitaemia.

4. Results and Discussion

Blood smear of the buffalo was found positive for the *Trypanosoma spp.* with +++ level of parasitaemia (Fig. 2A). Complete blood count (CBC) revealed low red blood cell counts, haemoglobin (Hb), packed cell volume (PCV) and

mean corpuscular haemoglobin concentration (MCHC) values as compare to normal reference values which can be correlated with moderate degree of anaemia caused by *Trypanosoma spp.* (Table 1).

Table 1: Haematological parameters in pre and post treatment of affected animal

Blood parameter	Pre treatment	Post treatment	Reference value ^[8]
Complete Blood Counts			
RBCs (x 10 ¹² /L)	4.68	6.38	5-10
Haemoglobin (g/L)	63.1	117.3	80-150
Packed cell volume (L/L)	0.23	0.49	0.35-0.55
MCV (fL)	47.5	56.1	40-60
MCHC (g/L)	298	327	300-360
WBCs (x 10 ³ µL)	8.1	6.9	5-8
Differential Leukocyte Counts (DLC)			
Neutrophil (%)	28	29	15-45
Monocyte (%)	04	02	2-7
Lymphocyte (%)	57	61	48-75
Eosinophil (%)	11	8	2-15

On treatment with a single dose of diminazene aceturate, the animal was recovered (Fig. 1B) and returns to its normal behaviour within a week. Blood smear collected after 24 hours of treatment revealed relatively less parasites and

gradual decrease in parasitaemia of *Trypanosoma spp.* from day 1 (+++) to day 3 (+) (Fig. 2B) and subsequently found negative on day 7 (Fig. 2C).

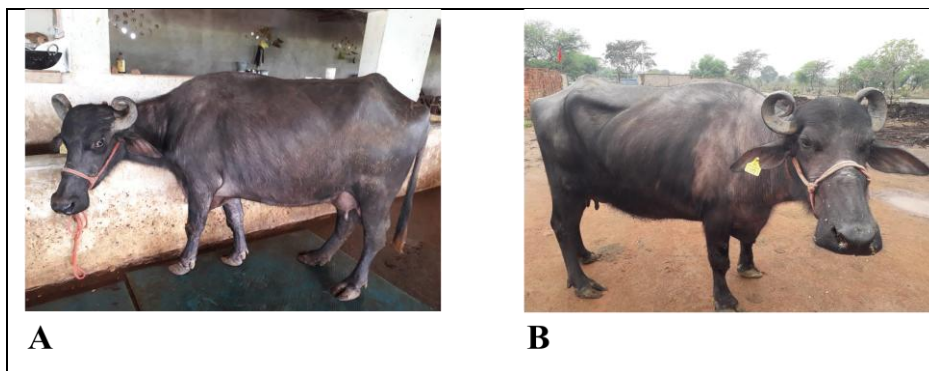


Fig 1: Buffalo showing dullness with pale conjunctiva (Pre-treatment; A). Recovered Buffalo after treatment (B)

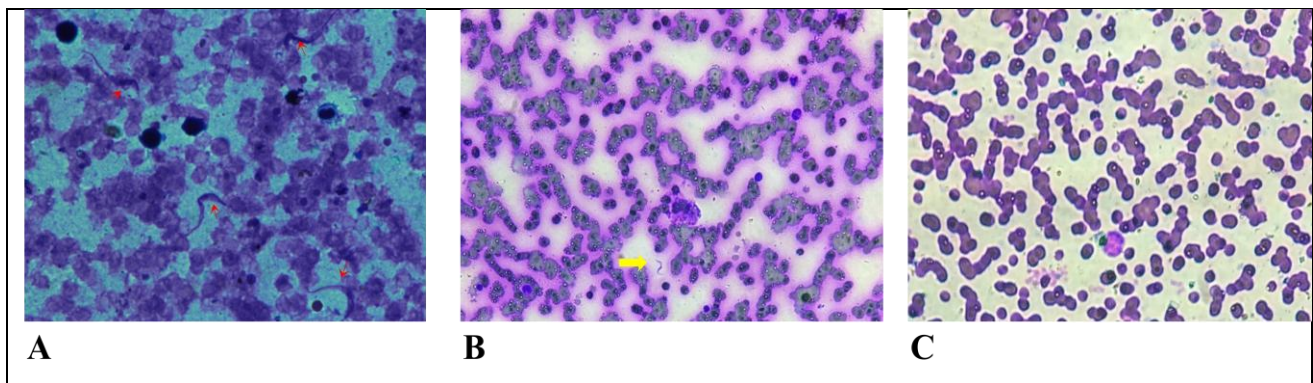


Fig 2: Level of parasitaemia (*Trypanosoma spp.*) in the blood smear of the Murrah buffalo. A: Thin red arrow indicates parasitaemia (+++) in the buffalo before treatment (100x). B: Thin yellow arrow indicates parasitaemia (+) 72 h post-treatment. C: No parasitaemia 1 week post-treatment (40x)

Our observations indicate towards positive effects of diminazene aceturate in the treatment of trypanosomosis. The prognosis of this case was found good as we diagnosed the trypanosomosis during early phase, treated it on time and the animal responded well towards the treatment. Our findings are correspond to report of Jesse *et al.* (2016) ^[8] who reported pale mucous membrane, wounds on joints, enlargement of prescapular, pre femoral lymph nodes and presence of

considerable amount of parasitaemia in blood smear which goes down following treatment of Diminazene aceturate. Values of CBC (Table 1) were strongly correlated with Jesse *et al.* (2016) ^[8]. Reddy and Sivajyothi (2017) ^[9] observed anorexia, irregular pyrexia, ocular discharges and reduction in the milk yield with the corneal opacity in the animal infected with *Trypanosome spp.* and they also found that clinical conditions of the animal was back to the normal in response

to anti-trypanosomal drug. Ponnudurai *et al.* (2015) ^[10] reported fever (104 °C), oedema of the legs, pale visible mucous membrane, frequent micturition and anorexia with +++ level of parasitaemia in buffaloes as an outbreak.

5. Conclusion

From the present case, it may be concluded that on early diagnosis of the Trypanosomosis and subsequent treatment with anti-trypanosomal drug (diminazene aceturate @ 7 mg/kg) animal responds better with good prognosis as the particular medicine is still effective against hemoprotozoa.

6. References

1. Chau NV, Desquesnes M, Herder S, Lan NP, Campbell JI, Van Cuong N, Yimming B, Chalermwong P, Jittapalpong S, Franco JR and Tue NT. A clinical and epidemiological investigation of the first reported human infection with the zoonotic parasite *Trypanosoma evansi* in Southeast Asia. *Clinical Infectious Diseases*. 2016; 62:1002-1008.
2. Woo PT. Salivarian trypanosomes producing disease in livestock outside of sub-Saharan Africa [*Trypanosoma evansi*, *Trypanosoma equiperdum*, *Trypanosoma vivax viennei*, trypanosomiasis, insect vectors, Tabanidae, Stomoxys]. *Parasitic protozoa*. Krier, J.P. (Ed.), Academic Press Inc., New York. 1977; 1:269-296.
3. Evans G. Report on 'surra' disease in the Dera Ismail Khan district. Punjab Government Military Department. 1880; 493:446.
4. Zeryehun T, Abraham Z. Prevalence of bovine trypanosomosis in selected district of Arba Minch, SNNPR, Southern Ethiopia. *Global Veterinaria*. 2012; 8(2):168-73.
5. Abdoulmoumini M, Jean EN, Suh PF, Youssouf MM. Prevalence and impact of bovine trypanosomiasis in Mayo Rey division, a Soudano-Sahelian zone of Cameroon. *Journal of Parasitology and Vector Biology*. 2015; 7(5):80-8.
6. Swallow BM. Impacts of trypanosomiasis on African agriculture. Food and Agriculture Organization (FAO); 2000.
7. Morrison WI, Murray M, Whitelaw DD, Sayer PD. Pathology of infection with *Trypanosoma brucei*: Disease syndromes in dogs and cattle resulting from severe tissue damage. *Contributions to microbiology and immunology*. 1983; 7:103.
8. Jesse FF, Bitrus AA, Abba Y, Sadiq MA, Hambali IU, Chung EL, Ping FL, Haron AW, Lila MA, Saharee AA, Norsidin MJ. A clinical case of bovine trypanosomosis in an endemic farm in Malaysia. *Journal of Advanced Veterinary and Animal Research*. 2016; 3(3):286-91.
9. Reddy SB, Sivajothi S. Corneal Opacity Due to Trypanosomosis in Buffaloes-Need of Topical Medication. *Open Access J Sci*. 2017; 1(5):00031.
10. Ponnudurai G, Sivaraman S, Rani N, Veerapandian C. An outbreak of trypanosomosis in buffaloes caused by diminazene resistant *Trypanosoma evansi*. *Buffalo Bull*. 2015; 34(1):1-4.