AN OUTBREAK OF TRYPANOSOMOSIS IN BUFFALOES CAUSED BY DIMINAZENE RESISTANT TRYPANOSOMA EVANSI

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ABSTRACT

An outbreak of trypanosomosis caused by diminazine resistant Trypanosoma evansi was recorded in 6.9 percent of buffaloes in an organised government farm during the month of August’2012. A total of 144 buffaloes are being maintained at the district livestock farm, Orathanadu, Thanjavur district of Tamil Nadu. Initially, 2 animals had developed the clinical symptoms of fever (104°C), oedema of the legs, pale visible mucous membrane, frequent micturition and anorexia. The examination of thin blood smear showed the presence of Trypanosoma evansi with parasitaemia level of +++. Subsequently the affected animals were first treated with diminazene aceturate at the rate of 3.5 mg /Kg body wt i/m. The examination of blood smear on the next day of diminazene aceturate treatment showed the presence of Trypanosoma evansi without any reduction in the parasitaemia level. But, blood smear obtained after Antrycide Prosalt, at the dose rate of 7.4 mg/ Kg b.wt s/c , treatment free of T.evansi and hence it was presumed that the buffaloes might have been infected with diminazene aceturate resistant strain of Trypanosoma evansi. In addition, examination of blood smears collected from the remaining animals revealed that eight animals were found to carry Trypanosoma evansi with a moderate parasitaemia level of ++, without showing any clinical signs of trypanosomosis. Consequent to this all the animals were treated with Antrycide Pro-salt as prophylactic measures.

Keywords: trypanosomosis, buffaloes, diminazene resistant strain, India

INTRODUCTION

Trypanosomosis is one of the important haemoprotozoan diseases affecting wide range of domestic and wild animals in India. Horse has been incriminated as natural host for this haemoflagellate, while cattle, buffalo and camel act as reservoir hosts and they usually exhibit subclinical form of disease. However, the reservoir hosts may also suffer with clinical trypanosomosis, if they are subject to stress. Since the disease is endemic throughout India, it causes heavy economic losses to the farmers in terms of morbidity, mortality, abortion, infertility, reduced milk yield and various neurological disorders resulting into death of the affected animals. In India, diminazene aceturate, Quinapyramine sulphate and chloride (Antrycide Prosalt) and Quinapyramine sulphate (Antrycide) are currently available drugs for treatment and prophylactic use against trypanosomosis in domestic animals. But drug resistance is now a severe and increasing problem in trypanosome (Witola et al., 2005 and Shaba et al., 2006). The present paper
reports an outbreak of trypanosomosis in buffaloes caused by Diminazine aceturate resistant strain of *T. evansi*.

**HISTORY AND OBSERVATIONS**

The buffalo unit of District Livestock Farm (DLF), Orathanadu, Thanjavur district, is located inside the newly started Orathanadu Veterinary College campus in Tamil Nadu. A total of 144 buffaloes are being maintained there. The department of Parasitology received the blood smears obtained from buffalo with a history of fever (104°C), oedema of the legs, frequent micturition and pale visible mucus membrane. The blood smears were stained with Giemsa stain and examined under oil immersion. The affected animals were initially treated with Diminazine aceturate 3.5 mg / kg b.wt – i.m and then with Antrycide Prosalt 7.4 mg/kg b.wt s/c. After each treatment blood smears were collected and examined to ascertain that whether parasites are eliminated or not. The blood smears were also collected from remaining animals and screened for *Trypanosoma evansi*. Animals those found to be harboured *T.evansi* without clinical signs and animals which diagnosed negative for *T.evansi* as well were treated with Antrycide Prosalt 7.4 mg/kg b.wt s/c. A day after the treatment, the blood smears were collected from *T.evansi* infected animals and examined to monitor post treatment parasitaemia level.

**RESULTS AND DISCUSSIONS**

In the present investigation, of the 144 buffaloes 10 animals (6.9 %) were found positive for trypanosomosis. But, only two animals showed typical clinical symptoms of clinical trypanosomosis with parasitaemia level of ++++, while the remaining 8 animals though they harboured moderate parasitaemia level of ++, did not exhibit any symptoms (Figure 1). The findings of the present investigation are in consonance with Lang (2001) who recorded trypanosomosis in an average of 7.97 percent buffaloes in delta areas in Vietnam by blood smear examination and immunodiagnostic method. Lang (1984) also reported that buffaloes suffered with surra had heavy clinical signs and died more when they meet a lot of environmental stress and the light infection rates in buffaloes could be associated with the environmental factors rather than host factors, but this observations do not corroborate with the findings of the present study. Because, the hot and humid climatic conditions prevailed here during month of August might definitely have caused much stress to animals, despite of this barring two animals others did not exhibit any clinical signs. This observation is in agreement with Aulakh (2003) who reported that buffaloes exhibited latent infection and more than 50-80 percent of infections are cryptic and undetectable by direct microscopy.

In this case, intriguingly *Trypanosoma evansi* with parasitaemia level of +++ was observed in the blood smear obtained after diminazene treatment (Figure 2). But the drug Antrycide Prosalt, given on subsequent day, was able to clear the parasites clearly. These observations have prompted to suspect that animals might have been infected with diminazene resistant strain of *Trypanosoma evansi*. The observations recorded in the present case are akin to the findings of Elamin *et al.* (1982) who stated that single doses of 3.5 mg/ kg of benenil were less effective against *T.evansi* in mice. Gill (1991) also stated that there are variable reports on the therapeutic efficacy of diminazene
Figure 1. Parasitaemia before Diminazene aceturate treatment.

Figure 2. Parasitaemia after Diminazene aceturate treatment.
aceturate in buffaloes. In a similar vein Singh and Joshi (1991) observed that prophylactically single dose of diminazene (10 mg/kg) was not effective as there was persistence of T. evansi in buffaloes 48 and 30 days after treatment. They also reported that Quinapyramine and isometamedium were good therapeutic agents but prophylactically Quinapyramine proved better than isometamedium. In contrast, Aulakh (2003) reported that there was progressive decrease in number of trypanosomes immediately after treatment and blood smear was cleared of trypanosomes within eight hours of treatment with berenil (Diminazene aceturate) 5 mg/kg body weight.

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REFERENCES


