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Case Report

# Therapeutic Management of Theileriosis in Sheep

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## Abstract

*Nine crossbred sheep presented with the symptoms of high fever (104 ℉ to 106 ℉), pale mucous membrane, enlargement of superficial lymph nodes and the presence of ticks on the body. The blood smears examination revealed the presence of Theileria organisms. On hematology reveal decreased Packed cell volume (PCV %), haemoglobin (Hb) and total erythrocyte count (TEC). The affected sheep were treated with single dose of buparvaquone at the dose rate of 2.5 mg/kg body weight intramuscularly along with supportive therapy of iron sorbitol injection once in 3 days for 4 times could cure all the animals.*

**Keywords:** Buparvaquone, Crossbred Sheep, Tick, Theileria

## Introduction

Theileriosis is a tick-borne haemoprotozoan disease caused by protozoan species belonging to the genus *Theileria*. These are obligatory intracellular parasites of the family *Theileriidae* that are known to infect wild and domestic ruminants in tropical and subtropical regions of the world (Dolan, 1989). The disease being a major threat to livestock industry has become a constraint to sheep production by causing economic losses in terms of high morbidity and mortality. Theileriosis caused by *T. hirci* and *T. ovis* have been reported in sheep in India (Sisodia 1981; Sruthi *et al*., 2016). Efficacy of buparvaquone against theileriosis in sheep was reported (Hussein *et al.*, 1993). However, information on the efficacy of buparvaquone in sheep in India is meagre. The present study reports the efficacy of buparvaquone in the treatment of clinical cases of *Theileria* infection in crossbred sheep.

## Materials and Methods

The trial was conducted in nine crossbred sheep (South Down x Deccani x Bannur) clinical signs exhibited by these adult sheep were high fever (104°F to 106°F) depression, anorexia, pale mucous membrane, enlargement of superficial lymph nodes, and nasal discharge. The presence of ticks on the body of sheep was noticed. The blood samples were collected by jugular venipuncture into EDTA vials. The blood smears were made and examined after Giemsa staining for the presence of protozoan parasites before and after treatment. A minimum of 200 erythrocytes were examined for *Theileria* species and the % of parasitaemia was calculated. Packed cell volume (PCV %), haemoglobin (Hb) and total erythrocyte count (TEC) were recorded in all sheep before the initiation of treatment and 15 days after treatment. The affected sheep were treated with single dose of buparvaquone at the dose rate of 2.5 mg/kg body weight intramuscularly along with supportive therapy of iron sorbitol injection once in 3 days for 4 times. Deltamethrin was sprayed on the animals at the rate of 3 ml per litre water to overcome the infestation of ticks. The efficacy of the drug was evaluated on the basis of remission of fever, reduction in the percentage of erythrocytic piroplasms, transition of haematocrit value and recovery from clinic-pathological syndrome.

## Results and Discussion

Giemsa stained blood smear examination revealed *Theileria* organism in nine affected sheep. Symptoms of pyrexia (104°F to 106°F), depression, anorexia, pale mucous membrane, enlargement of superficial lymph nodes, and nasal discharge recorded in *Theileria* affected sheep in the present study concurred the findings of earlier workers (Srinivas *et al*., 1985; Hussein *et al.*, 1993; Muraleedharan *et al.*, 1994). The mean parasitaemia observed before treatment was 7.90 ±0.95. The parasitaemia could not be detected after 15 days of treatment. The affected sheep started grazing after third day of treatment and temperature returned to normal and persisted throughout the observation period of 15 days. The mean packed cell volume (PCV %), haemoglobin (gm %) and total erythrocyte count (million/ cumm) observed were 19.4 ±2.77, 5.34 ± 0.53 and 3.38 ±0.08 respectively. Similar reduction in haematological values in *Theileria* affected sheep were recorded by El-Hussein *et al.*, 1993; Khaki *et al.*, 2015) There was increase in mean values of PCV %, Hb % and TEC million/cumm to 24.6 ±0.69, 7.29±0.23 and 4.46±0.14 respectively on 15$^{th}$ day of treatment (Table 1).

**Table 1:** Hemogram of Theileria infected sheep before and after treatment (Mean ± S.E)

| Variable | Control Apparently healthy Sheep (N=09) | Before treatment (N=09) | After treatment (N=09) |
|---|---|---|---|
| TLC (103µl-1) | 8.6±1.6 | 7.90 ±0.95 | 6.45 ± 0.19 |
| TEC ($10^6$/µl) | 7.5±1.2 | 3.38 ±0.08 | 4.46±0.14 |
| Hb (g/dl) | 9.5±0.9 | 5.34 ± 0.53 | 7.29±0.23 |
| PCV (%) | 31.5±2.1 | 19.4 ±2.77 | 24.6 ±0.69 |

El-Hussein *et al.* (1993) recorded 64% recovery rate with buparvaquone in *Theileria* affected sheep. On the contrary 100% recovery rate with complete elimination of parasitemia was observed in the present study. The treatment caused no apparent discomfort or untoward reactions. It may be concluded from the present study that buparvaquone may be effectively used in the treatment of *Theileria* infection in sheep.

## Conclusion

Nine crossbred sheep (South Down x Deccani x Bannur) naturally infected with *Theileria* were treated with single dose of buparvaquone at a dose rate of 2.5 mg/kg body weight. Drug efficacy of 100 % was recorded and no untoward effects were observed in the treated animals.

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## Conflict of Interests

There is no conflict of interest.

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