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Research Article

### THEILERIOSIS IN BUFFALO: A CASE STUDY

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#### ABSTRACT

Bovine theileriosis is caused by the protozoan parasite *Theileria annulata* and *Theileria parva* and is transmitted through tick *Hyalomma* and *Rhipicephalus*, respectively leading to economic losses and causes devastating losses to the livestock worldwide. This paper deals with clinical signs, diagnosis and treatment of theileriosis in buffalo having 4years of age and clinical signs observed were; high fever (106.7°F), anorexia, enlarge lymph nodes, dyspnoea and ocular discharge with pale mucous membrane. The peripheral blood smear confirmed the presence of Koch blue bodies. The animal was treated with a single dose of Buparvaquone, 2.5 mg/kg i.m. along with supportive therapy.

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#### INTRODUCTION:

Theileriosis is a disease caused by an apicomplexan protozoan parasites belonging to the family of Theileriidae. The *Theileria* spp. infecting animals include *T. velifera*, *T.taurotragi*, *T. buffeli*, *T. mutans*, *T. annulata* and *T. parva*. Theileriae are obligate intracellular protozoan parasites that infect both wild and domestic *Bovidae*. They are transmitted by ixodid ticks, and have complex life cycles in both vertebrate and invertebrate hosts<sup>1</sup>.

Bovine theileriosis is caused by the protozoan parasite *Theileria annulata* and *Theileria parva*. The disease is considered one of the most destructive obstacles to livestock production. The incubation period varies from 4 to 14 days after attachment of the infected ticks to the host. The disease may last as little as three to four days in the acute form or may be prolonged for about 20 days<sup>2</sup>. Clinical signs of the infected buffaloes include, pyrexia (40.5–41.5 °C), anorexia, enlargement of superficial lymph nodes (parotid, prescapular and prefemoral), slight nasal and ocular discharges with congestion of conjunctiva and salivation. Constipation was recorded in some cases later turning to tarry diarrhoea, with pale mucous membranes, milky infiltration of the cornea and respiratory distress in the form of dyspnoea, coughing and evidence of pulmonary oedema and nervous manifestations in the form of hyperesthesia, head pressing, convulsions, tremors and paddling prior to death<sup>3</sup>.

The diagnosis of theileriosis in acute cases is mainly based on clinical findings and microscopic examination of Giemsa's stained thin blood smears. In long standing carrier animals blood smears are negative on microscopy. The advent of the PCR coupled with the specificity of deoxyribonucleic acid (DNA) hybridization had led to the development of specific and sensitive molecular diagnostic tests to detect and characterize the organisms that cause theileriosis<sup>4</sup>.

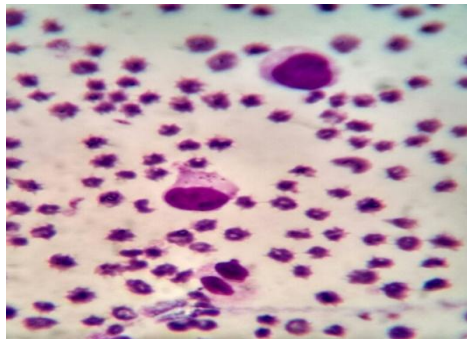
Haemoprotzoan parasites, which include *Babesia*, *Theileria* and *Trypanosoma*, often present a challenge to successful livestock farming and cause devastating losses to the livestock industry throughout the world. Haemoprotzoan infections have a global distribution. This is due to the fact that their vectors; ticks and bloodsucking flies, also have a global distribution. The hot and humid climate is very conducive for the development and survival of potential vectors and is a constant source of infection to susceptible animal. Annual economic losses due to theileriosis alone have been estimated to the tune of US\$ 800 million. The recovered animals from acute or primary theileriosis remain infected for a long period and even for the rest of their life, so acting as reservoir of infection for ticks and cause natural transmission of disease. Therefore detection of *Theileria* in asymptomatic carrier cattle and buffaloes is important for implementation of successful control programme.

## HISTORY AND OBSERVATIONS

Buffalo aging 4 years was presented at Teaching Veterinary Clinical Complex (TVCC) veterinary college Mhow with a history of high fever (106.7 °F), anorexia, and agalactia and tick infestation.



**Figure 1:** Buffalo showing pale mucous membrane.



**Figure 2:** Pale mucous membrane in presence of Koch's blue bodies in blood smear

On clinical examination buffalo was found severely dull and depressed with pale mucous membrane, enlarged lymph nodes, rough hair coat, dyspnoea and ocular discharge. Buffalo was suspected to be hemoprotozoan diseases and for confirmation, blood smears were made from ear tip.

## Therapeutic Management and Discussion:

The buffalo was diagnosed positive for *Theileria* after blood smear examination stained with Giemsa stain. Intra-erythrocytic piroplasm and Koch's blue bodies were found on microscopic examination (100X) of prepared smears. The buffalo was treated with inj Buparvaquone (Butalex) @ 2.5 mg/kg body weight injected deep IM in the neck region, inj OTC @ 10mg/kg b.wt along with Normal saline 4lit IV, inj Paracetamol @ 10 mg/kg b.wt IM, Avil 10ml IM, Tribivet 10ml IM. The buffalo responded after first day of treatment. Inj paracetamol, Avil, Tribivet and OTC were continued for next 4 days along with inj Normal Saline. Second day temperature came down to almost normal.

This is in accordance with (4) who used Buparvaquone along with supportive therapy for the successful treatment and the oxytetracycline treated animals produced a serological response and were immune to a 50-fold higher challenge with the immunizing stabilate, several animals in the buparvaquone did not show a serological response and were not immune to challenge.

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