

AN OUTBREAK STUDY OF THEILERIOSIS IN YSR DISTRICT OF ANDHRA PRADESH

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SUMMARY

The farmers from three villages (Nadimipalli, Diguwapalli and Mavireddygaripalli of YSR district) reported the death of 10 animals in five days. The outbreak was investigated by physical, clinical and laboratory examinations in ailing animals. Physically, heavy tick infestation, pale mucous membranes and enlarged lymph nodes; clinically, rectal temperature of 106°F, increase in heart and respiratory rates were observed. Blood smears from all animals {412 (24-ailing, 388-incontact animals)} and random dung samples were collected for laboratory analysis. Dung samples were negative for parasitic ova. Microscopic examination of blood smears revealed *Theileria* piroplasms in red blood cells and schizonts (Koch's blue bodies) in cytoplasm of lymphocytes. The differential leucocyte counts of ailing animals' blood revealed slight eosinophilia. Upon postmortem examination, intestinal congestion and ulcers in abomasum were observed. The disease outbreak was declared as theileriosis based on the clinical, physical and laboratory findings. The animals were treated by using specific drug Buparvaquone with hematinics and iron injections and advised farmers for tick control.

Keywords: Andhra Pradesh, Koch's blue bodies, Non-descript cattle, Piroplasms, Theileriosis

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Theileriosis is caused by several species of *Theileria* organisms, *Theileria parva* (East Coast Fever), *Theileria annulata* (tropical theileriosis) and *Theileria orientalis* (Oriental theileriosis) in cattle and buffaloes. Worldwide benign tropical theileriosis is caused by *T. orientalis* and *T. sergenti* and transmitted by the tick, *Haemaphysalis* spp. (Radostits *et al.*, 2010). *T. annulata* is the important species causing Bovine tropical theileriosis in India, which is highly pathogenic and fatal disease in cattle and buffaloes, transmitted mainly by tick vector *Hyalomma anatolicum* and is reported from almost all parts of India (Narladkar, 2018). Ilhan *et al.* (1998) reported that the carrier animals play a vital role in the maintenance of the lifecycle. The estimated economic loss due to tropical theileriosis in India is US\$ 1,295 million (8,426.7 crore Rupees) annually (Narladkar, 2018). The present paper deals with the clinical signs, diagnosis and successful control of *Theileria* outbreak in non-descript cattle (white).

Farmers reported that ten animals (Non-descript-white cattle) died in Nadimipalli, Diguwapalli and Mavireddygaripalli villages of Lakkireddipalli mandal of YSR district in a period of 5 days. A total of 412 (24-ailing, 388-in contact animals) blood samples were collected on clean glass slides from the animals with clinical symptoms *viz.*, anorexia, dull, depressed, pyrexia, enlarged superficial lymphnodes especially prescapular, pale conjunctival and vaginal mucous membranes and in contact healthy animals. The blood samples were examined on the same day by Geimsa staining method

(Benjamin, 2005). The post mortem conducted and the lesions were observed in visceral organs.

On clinical examination of affected animals, high temperature (>104 °F), enlarged superficial prescapular lymphnodes, nasal and ocular discharges, pale mucous membranes, salivation, respiratory distress, emaciated conditions and heavy ticks and flies on body were observed similar to findings of Jeong *et al.* (2005). The heavy tick population in all the ailing animals and other contact animals was mainly because farmers were not aware of tick control measures and climatic conditions were suitable for multiplication of ticks. The heavy parasitic burden leads to reduction of immunity even in vaccinated animals (Thopireddy *et al.*, 2021). In monsoon season, the tick population is more which is the main source for *Theileria* infection. Similar observations were recorded by Malmquist *et al.* (2003) and Manan *et al.* (2007). Emaciation, weakness, recombency, depression and labored breathing was noticed in ailing animals. Friedhoff (1999) also observed the similar findings. Other observations were, that all the animals in that village and surrounding villages were the non-descript cattle and there were no crossbreed cattle and the villages were near to forest area. Also there were poor management and hygienic conditions with no proper shelters for animals.

Blood smears revealed piroplasms in red blood cells and Koch's blue bodies in cytoplasm of the lymphocytes (Fig. 1) and similar findings were also reported by Aktas *et al.* (2006). Out of 24 ailing animals, only 6 (25%) animals

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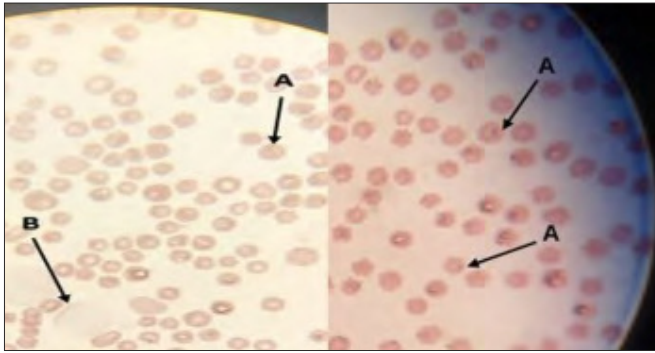


Fig. 1. A. Image showing *Theileria* piroplasms in RBC
B. Image showing KB bodies in lymphocyte.

were positive for *Theileria* organisms. The remaining 388 in contact animals did not show any piroplasms in red blood cells and Koch's blue bodies in cytoplasm of the lymphocytes. Similar type of results was observed by Aktas *et al.* (2006). The 388 animals that were negative might be due to low parasitemia and carrier state of animals and similar type of observations was recorded by Khatoon *et al.* (2015). The differential leucocyte counts of blood smears revealed slight increased eosinophils indicative of parasitic infection. On postmortem examination, dead animals showed severe congestion of intestines, the liver was friable, enlarged, pulmonary edema and ulcers in abomasum. Oryan *et al.* (2013) observed similar numerous multifocal areas of necrosis and ulcers in abomasum.

In this outbreak area, more nondescript cattle population was seen, the cattle are more prone to theileriosis than buffaloes. Further, the buffaloes might act as a reservoir for the theileriosis, less presence of tick vectors and resistance to diseases in comparison to cattle. This outbreak occurred in monsoon, similarly highest prevalence was recorded in the monsoon season (Krishnamurthy *et al.*, 2016), probably due to an increased vector population and potential for the incidence of disease. The highest occurrence was observed in adults that might be due to frequent exposure to vectors while grazing, similar observations were also recorded by Bazarusanga *et al.* (2006). The 6 positive animals and remaining 18 ailing animals were treated with buparvaquone at the rate of 2.5 mg/kg. b.wt. administered deep intramuscularly (Naik *et al.*, 2010) and supportive therapy with ferritas injections and sharcoferol tonics. After one week of treatment, the animals were completely recovered and for tick control, the butox @ 3ml per liter of water was used, afterwards

there was no mortality in that village.

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