

## A Short Note on East Coast Fever

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### Editorial

Received: 01/11/2021

Accepted: 15/11/2021

Published: 22/11/2021

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### DESCRIPTION

East Coast fever, an acute disease of cattle, is usually characterized by high fever, swollen lymph nodes, shortness of breath, and high mortality. Caused by *Theileria parva* and transmitted by the tick vector *Rhipicephalus appendiculatus*, it has become a serious problem in East and South Africa.

### ETIOLOGY AND TRANSMISSION

The African buffalo is an important wildlife reservoir in T-parva, but in buffalo the infection is asymptomatic. T-parva, transmitted by cattle or buffalo ticks, causes serious illness in cattle, but buffalo-derived parasites are poorly distinguished from bovine merozoite and are generally not transmitted by ticks. Hence, buffalo T-parva are maintained as a separate population. Buffalo T-parva was previously considered a separate subspecies but DNA typing suggests that bovine and buffalo parasites are a single species. T-parva is usually highly pathogenic and causes high mortality, but some less pathogenic isolates have been identified.

### PATHOGENESIS, CLINICAL FINDINGS, AND DIAGNOSIS

T-Parva sporozoite is injected into cattle by infected vector ticks. An occult phase of 5-10 days follows before infected lymphocytes are detected in gimsage-stained smears of cells aspirated from locally drained lymph nodes. After that, the number of parasitic cells in the entire lymphatic system increases rapidly, and

cells passing through the merogony are observed from about 14th day. It is associated with extensive lympholysis, marked lymphatic depletion, and leukopenia. Piroplasms in RBCs infected by the resultant merozoites assume various forms, but typically they are small and rod-shaped or oval.

Clinical symptoms vary depending on the level of stress and can range from overt or mild to severe and fatal. Lymphoblasts in a Giemsa-stained smear of needle aspirators from the lymph nodes contain polynuclear schizont. Anorexia nervosa develops and animals quickly lose stamina. Tear secretion and runny nose may occur. Dyspnea is common at the end of life. Immediately before death, a sharp drop in body temperature is common, with lung exudate draining through the nostrils. Death usually occurs 18 to 24 days after infection. The most prominent postmortem lesions are swollen lymph nodes and large-scale pulmonary edema and hyperemia. Bleeding usually occurs on the serosal and mucosal surfaces of many organs and can also occur with overt necrotic areas of the lymph nodes and thymus. Anemia is not an important diagnostic sign (as in Babesiosis). This is because red blood cells have minimal parasite division and therefore no major destruction of these parasites.

Recovered animals are immune to subsequent attacks on the same strain, but may be susceptible to several heterogeneous strains. Most recovered or immunized animals remain carriers of the infection.

### TREATMENT AND CONTROL

Treatment with parvaquone and its derivative, bupalbacon, is very effective when given in the early stages of clinical disease, but less effective in the more advanced stages than extensive destruction of lymphoid and hematopoietic tissues. Immunization of cattle against T-parva by infection and treatment is practical and continues to be accepted in some areas. The components of this method are a cryopreserved sporozoite stabilizer of the appropriate Theileria strain from infected mites and a single dose of long-acting oxytetracycline co-administered.

### CONCLUSION

Oxytetracycline has little therapeutic effect when given after the onset of the disease, but suppresses the development of parasites when given at the onset of infection. Cows need to be immunized for 3-4 weeks before entering the infected pasture. Parasitic bovine cells containing the schizont stage of T-parva and tannulata can be cultured in vitro as a continuously growing cell line. In the case of *T annulata*, cattle can be infected with a few thousand cultured cells.