

## Acute Babesiosis and Naval Ill in a Calf

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### Abstract

A fourteen days old Jersey crossbred calf was presented with Naval ill and epiphora. Calf was later diagnosed as a case of acute Babesiosis. The clinical signs, postmortem lesions and prognosis observed in this case suggest an early blood smear examination, even if the calf is suffering from common newborn infections.

**Keywords:** Babesiosis; calf; epiphora; naval ill

### Introduction

Babesiosis is more frequently reported as a disease of adult cattle in tropical and subtropical regions. Among two main species *Babesia bovis* and *Babesia bigemina*, earlier one reported to have more pathogenicity in cattle. Mode of transmission mainly involves ticks and biting flies as vectors (Spickler, 2008). In-utero transmission is also a possible mode in cattle (Costa *et al.*, 2016). Often in field situation, acute Babesiosis in calf may be misdiagnosed or unnoticed under other clinical conditions prevailing and due to the earlier reports of disease resistance among calves (Levy *et al.*, 1982). Scarcity of documents concerning the clinical symptoms and postmortem lesions of this disease in calves necessitated reporting of present case, *Babesia bigemina* infection in a calf with naval ill.

### History

A Jersey crossbred calf under treatment for open Naval ill after 14 days of birth was found with epiphora and slightly pale conjunctival mucous membrane. Blood smear examination by Giemsa staining revealed RBCs infected with *Babesia bigemina* piroplasms (Fig. 1). By the time result came, calf was found on lateral recumbency with panting respiration. On detailed examination, pyrexia (103°F), enlarged prefemoral lymph nodes, pale buccal mucosa and numerous ticks over the body could be noticed. The calf was soon treated with Diminazene aceturate at dose rate of 4 mg/kg b.wt. and liver supplement injection. After 4 hours of injection, the

calf was found with involuntary movement of legs and grunting which finally succumbed to death. Postmortem lesions are described in Fig. 2.

### Discussion

The incubation period of *Babesia bigemina* is usually 4-21 days. In the present case, the incubation period was masked by the overt signs of naval ill. Throughout period of naval ill, the calf was weak and inactive which is a common sign in naval ill (Gay, 2006). So no other clinical condition was suspected during the treatment period for naval ill. The prognosis of Babesiosis with fever, epiphora, pale mucous membrane, with or without coffee coloured urine, panting respiration and nervous signs is poor (Fujinaga, 1981, Ukwueze and Orajaka, 2014, Maharana *et al.*, 2016, Venu *et al.*, 2015). In this case all symptoms except haemoglobinuria was found in the terminal stages of *Babesia bigemina* infection. Also when compared to conjunctival mucosa, buccal mucosa was found more useful in grading severity of anemia. As *Babesia bigemina* piroplasms are large and can easily be differentiated from other *Babesia sp.* only blood smear examination was done in the present case. Since the dam was

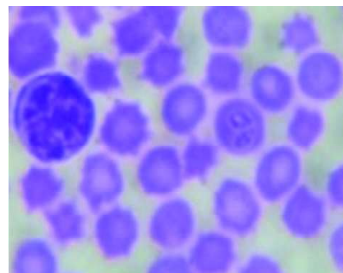
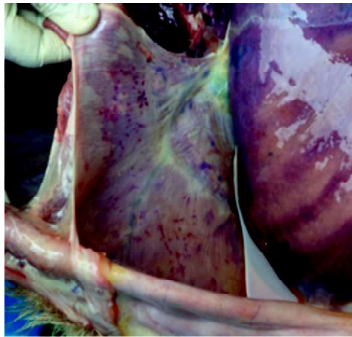


Fig. 1: *Babesia bigemina* piroplasm in RBCs

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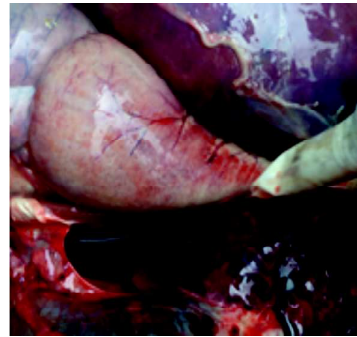
Babesiosis and naval ill



a: Hemorrhages over diaphragm



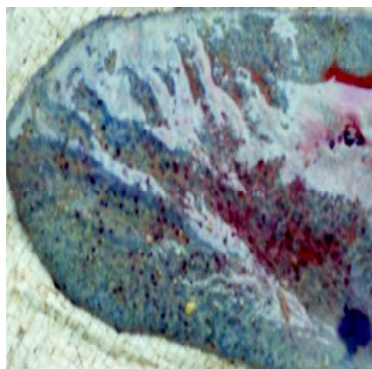
b: Liver- hepatomegaly, friable, pale, hemorrhage



c: Petechiae on abomasal surface



d: Tracheal hemorrhage



e: Splenomegaly petechiae on surface



f: Lungs-congestion and pulmonary oedema



g: Epicardial and endocardial hemorrhage

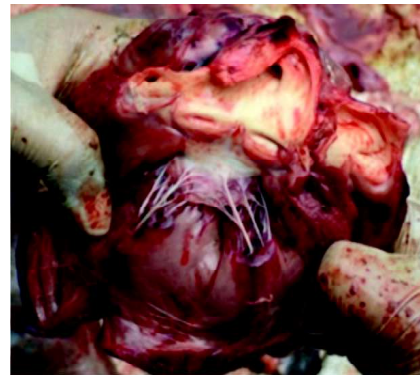


Fig. 2 (a-g): Post-mortem lesions in a calf died of *Babesia bigemina* infection

not having any history of babesiosis and the calf was carrying ticks on the body, tick bite was considered as the source of infection. Though,

Diaminazene aceturate is one of the drug of choice for babesiosis, its use in later stages is reported to be ineffective (Aulakh *et al.*, 2005). Concurrent

infection with naval ill and poor immunity of calf may be the predisposing factors for this case fatality. Though the signs of hemoglobinuria were absent in this case, widespread hemorrhagic lesions found in most of the internal organs suggested intravascular hemolysis and resultant anemia.

### Conclusion

It is a rare case of acute babesiosis in a newborn calf with open naval ill. The clinical signs and post mortem lesions described in the present supplement for the exact diagnosis of *Babesia bigemina* infection among calves.

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### ICAR-NIANP Celebrates World Milk Day-2022



Dr. Bhatta addressing the august gathering

On 1<sup>st</sup> June 2022, the ICAR-National Institute of Animal Nutrition and Physiology (NIANP), Bengaluru, Karnataka celebrated World Milk Day-2022 in collaboration with Indian Dairy Association-South Zone (IDA-SZ) and Bureau of Indian Standards (BIS), Chennai. The theme of the World Milk Day was "Sustainability in the Dairy Sector with Nutrition, Environment and Socio-Economic Empowerment". During the event, Shri Amit Roy, Deputy Director General (South), BIS, Chennai underlined the newly launched Awareness Scheme of BIS-NDDB on "Conformity Assessment Scheme for Milk and Milk Products". Chairman, IDA-SZ, Mr C.P. Charles highlighted the need of regulating the Milk quality to meet the International standards. Dr. Raghavendra Bhatta, Director, ICAR-NIANP, outlined the importance of Milk for a healthy life. He also emphasized the mandatory quality assurance for creating confidence among the consumers. About 100 participants from various Milk Unions of Karnataka; ICAR-NIANP, Bengaluru; ICAR-NDRI, Haryana; NDDB; IDA-SZ; Bengaluru Dairy Science College and Private Dairies participated in the event.