



## ***Babesia bigemina* INFECTION IN A TWENTY DAY OLD CALF**

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### **INTRODUCTION**

Babesiosis is caused by intraerythrocytic protozoan parasites of the genus *Babesia*. Two important species affecting cattle are *Babesiabigemina* and *Babesiabovis* and are wide spread in tropical and sub tropical areas. The main vectors of *B. bigemina* and *B. bovis* are one host *Boophilusspp* ticks. In *Babesia* infections, clinical signs can vary from in apparent to acute severe diseases. In acute diseases, there will be fever, later accompanied by inappetence, increased respiratory rate, anaemia, jaundice, weight loss and haemoglobinuria in final stages.

This paper describes a case of acute infection of babesiosis in a twenty day old cross bred Jersey calf.

### **CASE HISTORY AND CLINICAL OBSERVATION**

A twenty day old cross bred female jersey calf was presented to District Veterinary Centre, hospital with the history of passing coffee coloured urine. On clinical examination animal had temperature of 105°F and pallor of conjunctival and oral mucous membrane. Infection with haemoprotozoan parasite was suspected and the following samples were collected; thin blood smears prepared from ear tip for Giemsa staining and whole blood in EDTA @ 1mg/ml of blood for haematological evaluation.

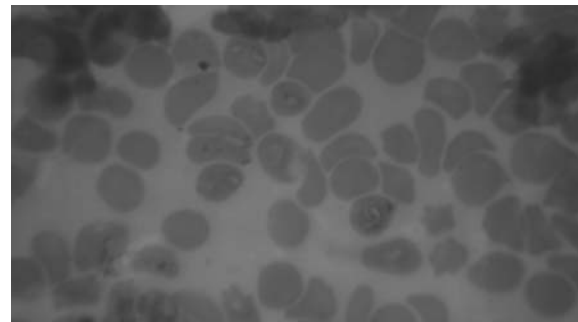
Freshly prepared peripheral blood smears from ear tip stained with Giemsa revealed intra erythrocytic merozoites of the parasites, elongated, slightly bigger, and paired at an acute angle to each other, confirmed as *Babesiabigemina* (Fig. 1).

Haematological analysis revealed anaemia of lower degree. Based on clinico haematological findings and blood smear examination, the case was diagnosed as Babesiosis due to *Babesiabigemina* infection.

### **TREATMENT AND DISCUSSION**

The animal was treated with, Dimenazineaceturate @ 5 mg/Kg intramuscularly (BERENIL), followed by oral haematinics. The owner was advised to present the animal after one week for further examination. After one week, the peripheral blood smear examination was found to be negative for *Babesia* organisms. Haematological analysis revealed haemoglobin, RBC count and PCV values were within normal range. The animal showed good response and uneventful recovery.

In endemic areas of babesiosis calves had a degree of immunity, related both to colostral-derived antibodies and to age, that persists for about 6 months. At high levels of tick transmission, all newborn calves will become infected with *Babesia* by 6 months of age, show few if any clinical signs, and subsequently be immune. This situation of endemic stability can be upset by either a natural (eg, climatic) or artificial (eg, acaricide treatment) reduction in tick numbers to levels such that tick transmission of *Babesia* to calves is insufficient to



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ensure all are infected during this critical early period (Jorgensen, 2008).

Niaziet *al.*, (2008) reported a 7.2 per cent prevalence of babesiosis, out of four hundred and fifteen cross bred cow calves examined less than 2 months of age. The average age at which calves in enzootic areas become infected is 11 weeks, but at this early age clinical signs and pathological changes are mild and short lived (Radostitset *al.*, 2000). In the present case, age of calf infected was only 20 days (3 weeks) and history revealed that the mother of calf had been treated for clinical case of babesiosis during third trimester of pregnancy. Intrauterine infection of babesiosis had been reported, but rare (Jorgensen, 2008). Since the incubation period described for clinical cases of babesiosis is one to three weeks, the probable reason for the calf to get infected in the present case may be intrauterine transmission.

Imidocarb dipropionate is the drug of choice to treat bovine babesiosis followed by Dimenazine acetate, with 100 per cent and 90 per cent efficacy at 10<sup>th</sup> day post infection respectively (Niaziet. *al.*, 2008). In the present case also, the animal showed good response to Dimenazine acetate @ 5 mg/kg, intramuscularly as evident from blood picture at 7<sup>th</sup> day post infection.

## SUMMARY

A case of acute infection of *Babesiabigemina* in a twenty day old female cross bred Jersey calf and its successful treatment with Dimenazine acetate and oral haematinics discussed. Confirmatory diagnosis of *Babesiabigemina* can be made by examination of peripheral blood smears after Giemsa staining for the demonstration of large, paired merozoites of the protozoan parasites at an acute angle to each other.

## ACKNOWLEDGEMENT

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## REFERENCES

- Jorgensen, W. K. (2008). The Merck Veterinary Manual. 9<sup>th</sup> Edn. The Merck & Co Inc, Whitehouse Station, NJ, USA. pp. 21-26.
- Radostits, A. M., Gay, C.C., Blood, D.C., and K. W. Hinchcliff. 2000. Veterinary Medicine. A text book of the diseases of cattle, sheep, pigs, goats and horses, 9<sup>th</sup> Edn., W.B. Saunders Co. Ltd., London. pp.
- Niazi, N., Khan, M.S., Avais, M., Khan, J.A., Pervez, K., and Ijaz, M. (2008). *Pak. J. Agri. Sci.* 45:2008

## VETERINARIAN'S OATH MODIFIED

The Executive Board of American Veterinary Medical Association approved an amendment to Veterinarian's Oath to highlight the priority of the profession in animal welfare as well. The responsibility of the veterinarian to ensure adequate animal welfare or to promote good animal welfare was not mentioned in the oath of veterinarians. The newly revised section of the oath the committee's additions appear in bold italics reads as follows: "Being admitted to the profession of veterinary medicine, I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health **and welfare**, the **prevention and** relief of animal suffering, the conservation of animal resources, the promotion of public health, and the advancement of medical knowledge."