

## Cerebral Babesiosis in a Gir Bullock and its Successful Therapeutic Management

J.B. Solanki<sup>1</sup>; B.J. Thakre\*, N. Kumar, D.C. Patel and Y.G. Patel

Department of Parasitology, Veterinary College, Navsari Agricultural University, Navsari.

Department of Veterinary Clinical Complex, Veterinary College, JAU, Junagadh-362 001

### Publication Info

#### Article history:

Received : 09-07-2018

Accepted : 19-07-2018

Published : 17-10-2018

#### Key Words:

Cerebral, Babesiosis, Gir Bullock.

#### \*Corresponding author:

drbhupendrakumarthakre@gmail.com

This work is licensed under the Creative Commons Attribution International License (<http://creativecommons.org/licenses/by/4.0/P>), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

Copyright ©: 2018 by authors and SVSBT.

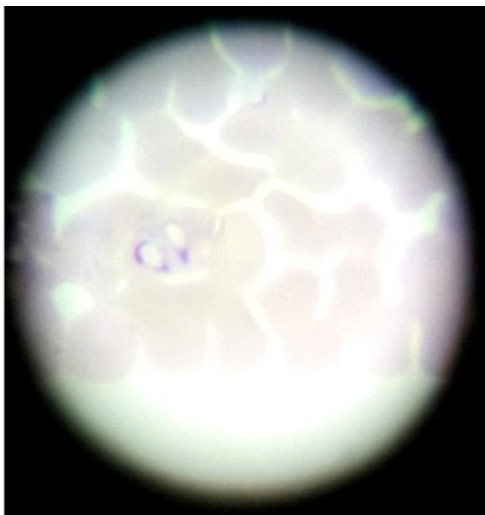
Among haemoprotozoan diseases of the animals, babesiosis is a tick-transmitted disease caused by protozoans of the genus *Babesia* and it is characterized by haemolytic anemia and fever, with occasional hemoglobinuria and death (Ristic, 1981). Among six species causing bovine babesiosis, *B. bigemina* and *B. bovis* are the most important in tropical and subtropical regions (Radostits *et al.*, 2008). The one host tick *Boophilus microplus* is responsible for transmission of the disease in India, both by trans-stadial and transovarian routes (Taylor *et al.*, 2007; Lefevre *et al.*, 2010). We came across an unusual and interesting observation about the *Babesia* associated with the cerebral form of the disease, the “cerebral babesiosis” in a Gir bullock, hence reporting in this communication.

### Case History and Observations

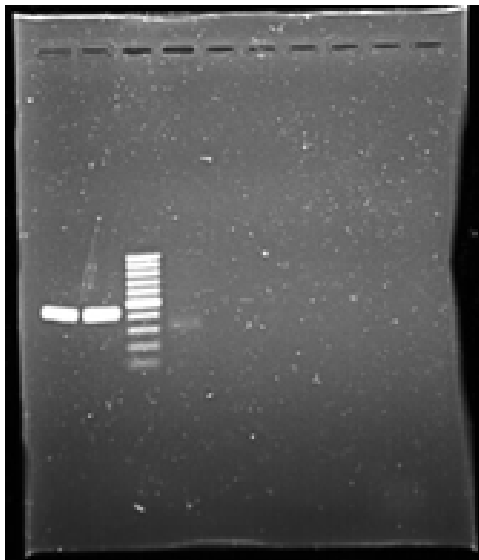
A 9 years old Gir bullock having approximately 270 kg weight was found ill with fever, anorexia and circling movement since last 7 days at a Gaushala in Dharampur, Gujarat. Upon inquiry it was revealed that the animal was treated with systemic antibiotics, antipyretics and appetizers by a local veterinarian, without fruitful results.

Clinically the animal had high temperature (105° F), ruminal hypotonocity (1/3 minutes), anorexia, aggressiveness, grinding of teeth, and cessation of defaecation, icterus, anaemia, paleness of conjunctival mucous membrane, hyper-excitability and convulsions. Haematological analysis revealed reduced haemoglobin (11.0 g/

dl), PCV (40%), TLC ( $4.0 \times 10^3/\mu\text{l}$ ) and altered differential leucocytes counts (Neutrophils 22%, Lymphocytes 69%, Monocytes 4% and Eosinophils 5%). Thin blood smears prepared with peripheral blood withdrawn from the ear tip, stained with Giemsa stain revealed intra-erythrocytic pyriform shape of *Babesia* spp. (Fig.1). The organisms were characteristically pea shaped and lied in pairs forming an acute angle in the red blood corpuscle. The molecular detection revealed *Babesia bigemina* organisms (Fig. 2) using 100 bp ladder standard (Ludwig Biotechnology, Porto Alegre, Brazil). Clinical and laboratory findings of the case were suggestive of cerebral babesiosis.



**Fig. 1: Intra-erythrocytic pyriform shape *Babesia***



**Fig. 2: Molecular detection of *Babesia bigemina* using PCR 100 bp ladder**

### Treatment and Discussion

The animal was treated with 2 lit of Ringer's lactate, 2 lit of normal saline, 100 ml Steclin (Oxytetracyclin 50 mg/ml) and 15 ml Neuroxin-M intravenously (Methylcobalamin 500 mcg, Pyridoxin 50 mg & Nicotinamide 50 mg/ml), and 15 ml of Melonex (Meloxicam 5mg/ml) intramuscularly for four days. 40 ml Berenil Vet 7% RTU was given intramuscularly on first day of treatment, along with Bol. Rumipro for five days. The animal made an uneventful recovery with improved haematology in next three days.

In the literature, more or less similar findings were reported in cattle suffering from cerebral

babesiosis either with *B. bigemina* or *B. Bovis* (Zaugg, 2009; Maharana *et al.*, 2018). Central nervous system signs are caused by brain anoxia resulting from severe anaemia (Zaugg, 2009). The clinical features observed could be due to destruction of large number of erythrocytes by blood parasites. The sudden onset of high fever (105°F) is due to non-specific toxic substances produced during the metabolism of *Babesia*. The haematological observations were suggestive of milder form of anaemia, severe leucopenia, lymphocytosis and moderate eosinophilia.

Treatment with 40 ml Berenil (Diminazene aceturate) Vet 7% RTU intramuscularly was found very effective along with other mentioned supportive therapy. Blood report after 3 days showed magic improvement in blood parameters with absence of piroplasms. Similar effect of diminazene aceturate (3-5 mg/ kg) has also been reported earlier for babesiosis (Cebra and Cebra, 2002).

### Conflict of Interest

All authors declare no conflict of interest.

### References:

- Cebra, C., and Cebra, M. (2002). Diseases of the hematologic, immunologic, and lymphatic systems (Multisystem Diseases). In: Pugh, D.G. (Eds): *Sheep and Goat Medicine*. Saunders, An Imprint of Elsevier. Philadelphia, Pennsylvania.
- Lefevre, P.S., Blancou, J., Chermette, R. and Uilenberg, G. (2010). *Infectious and Parasitic Diseases of Livestock*. Lavoisier Tec & Doc, France.
- Maharana, B.R., Patel, B.R., Patel, J. And Hirani, N.D. (2018). Parasitological and molecular based detection of cerebral babesiosis in Kankej bullock and its successful therapeutic management. *Asian J. Anim. Vet. Advances*, **13**(2): 122-127.
- Radostits, O.M., Gay, C.C., Hinchcliff, K. and Constable, P.D. (2008). *A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs, and Goats*, 10<sup>th</sup> ed. Saunders, Elsevier, Philadelphia, USA.
- Ristic, M. (1981). *Babesiosis of Domestic Animals and Man*. CRC Press, Boca Raton, Florida, USA. pp: 264.
- Taylor, M.A., Coop, R.L. and Wall, R. L. (2007). *Veterinary Parasitology*. 3<sup>rd</sup> ed. Edition Blackwell Publishing Ltd, UK, pp: 874.
- Zaugg, J.L. (2009). Babesiosis In: Smith, B.P. (Eds): *Large Animal Internal Medicine*. Mosby, Elsevier, St. Louis, pp: 1157.

□