

CLINICAL MANAGEMENT OF BABESIOSIS IN CROSSBRED DAIRY CATTLE

A. Senthil kumar¹ and A.Yasotha²

¹Asst. Prof. and Head, Farmers Training Centre, TANUVAS, Theni-625 531, Tamil Nadu

²Asst. Prof., Department of Livestock Production Management,
Madras Veterinary College, Chennai-600 007

E-mail: senthilkumarwls@gmail.com (*Corresponding Author)

Abstract: Four months back calved crossbred dairy cow had history of coffee coloured urine. Blood smear and Blood samples of this cow were collected on the day of acute stage of infection and then 15th day of post treatment for haematological parameters. Based on the clinical pathonomonic symptom (coffee coloured urine) and blood smear examination presence of *Babesia bigemina* organisms the disease was diagnosed as babesiosis. The animal was treated with inj. diminazene diacetate 30 ml,i/m ,inj. Chlorpheniraminemaleate 10 ml,i/m:inj.Malexecam 15 ml,i/m and Iron injection 10 ml i/m. After 12 hours treatment the colour of the urine was almost normal and other feeding habits were improved. In post-treatment the haematological parameters were increased with administration of iron as well as diminazene diacetate compared to stage of infection.

Keywords: Clinical management- babesiosis -crossbred cattle.

INTRODUCTION

Babesiosis is one of the economically important vector-borne diseases of tropical and subtropical parts of the world including India. Bovine babesiosis caused by *Babesia bigemina*, is transmitted by brevivirostrate tick, causing significant morbidity and mortality. Hemoprotozoan disease especially babesiosis was considered some of the major impediments in the health and productive performance of cattle (Rajput *et al.*, 2005). Tick-borne diseases cause substantial losses to the livestock industry throughout the world (Ananda *et al.*,2009; Kakarsulemankhel, 2011) as these have got a serious economic impact due to obvious reason of death, decreased productivity, lowered working efficiency (Uilenberg, 1995), increased cost for control measures (Makala *et al.*, 2003) and limited introduction of genetically improved cattle in an area (Radostits *et al.*, 2000). Babesiosis is caused by intraerythrocytic protozoan parasites of the genus *Babesia* that infect a wide range of domestic and wild animals and occasionally man. The disease is tick transmitted and distributed worldwide. The major economic impact of babesiosis is on the cattle industry and the two most important species in cattle, *Babesia bovis* and *B. bigemina*.

Received Sep 22, 2015 * Published Oct 2, 2015 * www.ijset.net

CASE HISTORY AND OBSERVATIONS

A fourth calving crossbred dairy cow was brought to field veterinarian with the history of having anorexia, ruminal atony, dyspnoea, coffee coloured urine since today morning and animal was calved 4 months back. At the time of observation, the animal was dull and depressed. The clinical examination of the animal showed a pale visible mucus membranes, body temperature 41.4°C , heart rate 88/min, respiratory rate of 22/min and grinding of teeth. Peripheral blood smears prepared from above animal, stained with Giemsa was examined under microscope. On 0 and 15th day blood samples were collected from Vena jugulars and put into heparin tubes via using disposable cannulas for measuring haematological parameters..

DIAGNOSIS AND TREATMENT

Based on the clinical pathomonomic symptom (coffee coloured urine) and blood smear examination presence of *Babesia bigemina* organisms the disease was diagnosed as babesiosis. The animal was treated with inj. diminazene diacetate 30 ml,i/m (inj.Berenil RTC, Intervet India Pvt Ltd, India); inj. Chlorpheniramine maleate 10 ml,i/m (inj.Anistamin, Intas Pharmaceutical Ltd, India); inj. Malexam 15 ml,i/m (TTK Health care Ltd, Chennai) and Iron injection 10 ml i/m (inj. Feritas, Intas Pharmaceutical Ltd, India). After 12 hours treatment the colour of the urine was almost normal and other feeding habits were improved. The owner was advised to supplement the animal, iron containing preparation for next 15 days period.

RESULTS AND DISCUSSION

In this study, haematological parameters identified concerning with the administration of iron as well as diminazene diacetate in treating the cattle infected by Babesiosis were as follows: RBC $3.24 \pm 0.21 \times 10^6/\text{mm}^3$, WBC $1183 \pm 420.10 \text{ mm}^3$, Htc $16 \pm 0.98 (\%)$, Hb $8.49 \pm 0.35 (\%)$ prior to the treatment and RBC $5.60 \pm 0.14 \times 10^6/\text{mm}^3$, WBC $8401 \pm 244.72 \text{ mm}^3$, Htc $24.15 \pm 0.69 \%$, Hb $9.74 \pm 0.17 \%$ post-treatment. The haematological and treatment results of this study supported by Pandey and Misra (1987) who reported that administration of iron as well as diminazene diacetate in treating the cattle infected by Babesiosis.

Age specific prevalence of hemoprotozoan infections revealed that adult cattle showed more susceptibility to hemoprotozoan diseases than calves. In the current study, higher susceptibility of adult cattle to hemoprotozoan diseases were found consistent with the findings of Ananda *et al.* (2009) who reported higher prevalence in animals aged more than 3 years followed by the lower prevalence in 1-2 years of age. Observation of this study also

supported by the findings of Kamani *et al.* (2010) who observed higher prevalence in adult than young cattle. Findings of babesiosis in this investigation were supported by the observation of Urquhart *et al.* (1996) and Annetta *et al.* (2005) who reported an inverse age resistance of the disease where adult showed more susceptibility than calves. This might be due to rapid immune responses to primary infection by the calves through a complex immune mechanism (Annetta *et al.*, 2005). However, female cattle were more prone to hemoprotozoan diseases than male. Significantly higher prevalence of babesiosis was recorded in female crossbred cattle. (Alim *et al.*, 2012). On the contrary, more attention in the management of HF crossbred cattle gives less chance of pre exposure of vectors and develop no or less immunity, resulting frequent occurrence of such diseases (Chowdhury *et al.*, 2006; Ananda *et al.*, 2009; Siddiki *et al.*, 2010).

REFERENCES

- [1] Ananda, K.J., E. Placid and G.C. Puttalakshamma, 2009. Prevalence of hemoprotozoan diseases in crossbred cattle in Bangalore north. *Vet World*, 12: 15-16.
- [2] Alim, M.A., S. Das, K. Roy, M. Masuduzzaman, S. Sikder, M.M. Hassan, A.Z. Siddiki and M.A. Hossain, 2012. Prevalence of hemoprotozoan diseases in cattle population of Chittagong division, Bangladesh. *Pak Vet J*, 32(2): 221-224.
- [3] Annetta, Z., S. Jeremy, Gray, E. Helen, Skerrett and G. Mulcahy, 2005. Possible mechanisms underlying age-related resistance to bovine babesiosis. *Parasitol Immunol*, 27: 115-120.
- [4] Chowdhury, S., M.A. Hossain, S.R. Barua and S. Islam, 2006. Occurrence of common blood parasites of cattle in Sirajgong Sadar area of Bangladesh. *Bangladesh J Vet Med*, 4: 143-145.
- [5] Kakarsulemankhel, J.K., 2011. Re-description of existing and description of new record of tick [*Hyalomma (Euhyalomma) schulzei*] from Pakistan. *Int J Agric Biol*, 13: 689–694.
- [6] Kamani, J., A. Sannusi, O.K. Eqwu, G.I. Dogo, T.J. Tanko, S. Kemza, A.E. Takarki and D.S. Gbise, 2010. Prevalence and significance of haemoparasitic infections of cattle in North-Central, Nigeria. *Vet World*, 3: 445-448.
- [7] Makala, L.H., P. Mangani, K. Fujisaki and H. Nagasawa, 2003. The current status of major tick borne diseases in Zambia. *Vet. Res*, 34: 27-45
- [8] Pandey, N.N. and S.K. Misra, 1987. Haematological and Biochemical Response to Haemolytic Anemia of Clinical Babesiosis in Cattle and Therapy. *Indian Vet.* 64: 882-886

- [9] Radostits, O.M., D.C. Blood and C.C. Gay, 2000. Veterinary Medicine: A text book of disease of cattle, sheep, pigs, goats and horse. 9th Ed, Baillere Tindall Publication, London, pp: 1172-1173, 1289-1290.
- [10] Rajput, Z.I., Hu Song-hua, A.G. Arijo, H. Habib and K. Khalid, 2005. Comparative study of *Anaplasma* parasites in tick carrying buffaloes and cattle. J Zhejiang Univ Sci, 6B: 1057-1062.
- [11] Siddiki, A.Z., M.B. Uddin, M.B. Hasan, M.F. Hossain, M.M. Rahman, B.C. Das, M.S. Sarker and M.A. Hossain, 2010. Coproscopic and haematological approaches to determine the prevalence of helminthiasis and protozoan diseases of red Chittagong cattle (RCC) breed in Bangladesh. Pak. Vet. J., 30: 1-6.
- [12] Uilenberg, G., 1995. International collaborative research: significance of tick-borne hemoparasitic diseases to world animal health. Vet. Parasitol., 57: 19-41.
- [13] Urquhart, G.M., J. Armour, J.L. Duncan and F.W. Jennings, 1996. Veterinary Parasitology. 2nd Ed, Black well Science Ltd, Oxford, UK, pp: 213,242-251.