Anaplasma marginale infection in a buffalo: A case report

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Abstract

A 3 year old female buffalo with a clinical history of progressive weakness, anorexia, high fever (105°F), tachycardia, laboured breathing, pale mucus membrane and tick infestation was found to be suffering with Anaplasma marginale. It was treated with oxytetracycline at 20 mg/kg body weight slow I/V daily for 5 days, Feritas at 10ml IM for 3 consecutive days and Belamyl at 10 ml IM for 3 alternate days. Clinical signs started to subside 3 days post treatment. Complete recovery from parasitemia and symptoms were achieved by 4 weeks post treatment.

Keywords: Anaplasma marginale, buffalo, haematological parameters, parasitaemia.

Introduction

Anaplasma marginale is an obligate intra-erythrocytic rickettsial organism belonging to the family Anaplasmataceae of the order Rickettsiales (Dumler et al., 2001). It mainly affects cattle but other ruminants like buffalo, bison, African antelopes can also be infected (Kocan et al., 2003). It is transmitted mainly by tick Rhipicephalus (Boophilus) microplus which is considered to be the main vector (Aubry et al., 2011). The organism is also transmitted mechanically by infected RBCs through insect bites, needles and during minor operational procedures like dehorning etc. Anaplasmosis is endemic in tropics and subtropics (Torina et al., 2008). Infection is characterised by progressive haemolytic anaemia associated with high fever, jaundice, decreased milk production, abortion, hyper-excitability, dullness/depression, rapid deterioration of the physical condition, brownish urine, loss of appetite, muscular tremors, constipation, pale mucus membrane and laboured breathing (Bram, 1983). While several reports are available on anaplasmosis in cattle from India (Kumar and Sangwan, 2010; Nair et al., 2013), while scanty reports are available in buffaloes (Ashuma et al., 2013). The present case report describes anaplasmosis in a buffalo.

Case history

Blood and faecal samples of a 3 year old female buffalo of local breed weighing about 200kg were brought to the Department of Veterinary Parasitology with a clinical history of progressive weakness, anorexia, high fever (105°F), tachycardia, laboured -

breathing, pale mucus membrane and moderate tick infestation.

Clinical examination

Faecal sample was examined both by direct smear and sedimentation method (Soulsby, 1982). Thin blood smear (TBS) was made and examined. Faecal sample was found to be devoid of any kind of parasitic ova/egg/oocyst. TBS showed peculiar dot forms of Anaplasma marginale (Soulsby, 1982) at the margin of stained RBCs. Parasitemia was found to be 9%. Blood picture revealed decreased RBC count, Hb, PCV and MCHC (Table 1) with DLC of 62% neutrophils, 35% lymphocytes, 2% eosinophils and 1% monocytes.

Diagnosis

Faecal sample was found to be devoid of any kind of parasitic ova/egg/oocyst. TBS showed peculiar dot forms of Anaplasma marginale (Soulsby, 1982) at the margin of stained RBCs. Parasitemia was found to be 9%. Blood picture revealed decreased RBC count, Hb, PCV and MCHC (Table 1) with DLC of 62% neutrophils, 35% lymphocytes, 2% eosinophils and 1% monocytes.

Treatment
The buffalo was administered oxytetracycline (Terramycin (50mg/ml), Pfizer Ltd, Mumbai) at 20 mg/kg body weight slow I/V daily for 5 days, Haematinc preparartion (Ferratia, Intas Pharmaceuticals Ltd., Ahmedabad) to cope up with anaemia at 10ml IM for 3 consecutive days and liver extract with multivitamins (Belamyl, Zydus AHL, Ahmedabad) at 10 ml IM for 3 alternate days.

**Results and Discussion**

Clinical signs started to subside 3 days post treatment. The blood examination revealed a parasitaemia of 6%, <1%, 0% and 0% at the end of first, second, third and fourth week post treatment. Complete recovery from parasitemia and symptoms were achieved 4 weeks post treatment. Ashuma et al. (2013) recorded 5.90±2.70% parasitaemia of *Anaplasma* in clinically positive dairy cattle of Punjab (India). However, they observed no parasitaemia in buffaloes found positive with PCR based diagnosis thus emphasizing the role of buffaloes as carriers of the organism.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Weeks post treatment</th>
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<tbody>
<tr>
<td>Hb (g/dl)</td>
<td>6.00 8.00 9.50 11.00 12.00</td>
</tr>
<tr>
<td>PCV (%)</td>
<td>18.20 24.0 28.50 31.00 34.00</td>
</tr>
<tr>
<td>RBC (106/µl)</td>
<td>3.20 4.00 4.90 5.30 7.50</td>
</tr>
<tr>
<td>MCV (fl)</td>
<td>56.80 60.0 58.20 58.50 45.30</td>
</tr>
<tr>
<td>MCHC (g/dl)</td>
<td>32.97 33.33 33.33 35.48 35.30</td>
</tr>
<tr>
<td>MCH (pg/dl)</td>
<td>18.75 20.00 19.39 20.75 16.00</td>
</tr>
</tbody>
</table>

**Conclusion**

Anaplasmosis can be successfully treated in buffaloes with intra venous administration of oxytetracycline. Although clinical signs are rare in buffaloes, their treatment is essential as they may act as carriers for cattle.

**References**


Ashuma, Sharma A, Singla LD, Kaur P, Bal MS, Batth BK and Juyal PD (2013). Prevalence and haematobiochemical profile of *Anaplasma marginale* infection in dairy cattle of Punjab (India). However, they observed no parasitaemia in buffaloes found positive with PCR based diagnosis thus emphasizing the role of buffaloes as carriers of the organism.


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