



E-ISSN: 2320-7078

P-ISSN: 2349-6800

JEZS 2020; 8(1): 1304-1306

© 2020 JEZS

Received: 25-11-2019

Accepted: 27-12-2019

S Saravanan

Associate Professor, Department of Veterinary Medicine, Veterinary College and Research Institute, Tirunelveli, Tamil Nadu, India

T Mohanapriya

Assistant Professor, Department of Veterinary Pathology, Veterinary College and Research Institute, Tirunelveli, Tamil Nadu, India

R Ramprabhu

Professor and Head, Veterinary Clinical Complex, Veterinary College and Research Institute, Tirunelveli, Tamil Nadu, India

KK Ponnuswamy

Professor and Head, Department of Veterinary Medicine, Veterinary College and Research Institute, Tirunelveli, Tamil Nadu, India

RC Sundararajan

Assistant Professor, Department of Veterinary Medicine, Veterinary College and Research Institute, Tirunelveli, Tamil Nadu, India

Corresponding Author:

S Saravanan

Associate Professor, Department of Veterinary Medicine, Veterinary College and Research Institute, Tirunelveli, Tamil Nadu, India

Persistent tymphany secondary to clinical amphistomosis in an adult cow

S Saravanan, T Mohanapriya, R Ramprabhu, KK Ponnuswamy and RC Sundararajan

Abstract

A five years old cross bred Jersey cow was presented with the history of anorexia, distended abdomen, diarrhoea and reduction in milk yield. Rumen fluid examination revealed immature amphistomes. Haematological analysis revealed neutrophilia, reduction in PCV and TEC values. Biochemical analysis revealed reduction in albumin, calcium and magnesium levels. The case was affected with immature amphistomes and treated with oxyclozanide at recommended dosage, however succumbed to the disease due to persistent bloat.

Keywords: Immature amphistomes, diarrhoea, persistent tymphany, hypoproteinemia, neutrophilia

1. Introduction

Among the helminthic infections, trematode infections in domestic ruminants have worldwide distribution and are of zoonotic importance. Among trematodes, amphistomes could account for huge economic loss ^[1] and pose a great concern among parasitic diseases in India due to various reports of its high prevalence. The disease is widely prevalent in India and the economic loss is accounted to several thousand crores per annum ^[2]. The prevalence is influenced by both the abundance of infected ruminants and intermediate hosts (snails). Hence the occurrence and distribution of the disease is determined to a large extent by the availability of the snails and the natural water sources. Amphistomosis in cattle leads to a severe infection by immature flukes in the small intestine of immunologically incompetent hosts, significantly affecting the health and milk production ^[3]. Sporadic epidemics of acute gastroenteritis in young animals leads to diarrhea or dysentery, anaemia, hypoproteinemia and bottle jaw with a mortality as high as 80-90% in domestic animals ^[4]. Outbreaks of clinical amphistomosis is caused by immature flukes often in calves, whereas being subclinical in adult and goes undiagnosed until death occurs ^[2]. In this paper, clinical amphistomosis was recorded in an adult cow with acute and persistent bloat as a complication.

2. Case history and observations

A five years old cross bred Jersey cow was brought to the Veterinary Clinical Complex, Veterinary College and Research Institute, Tirunelveli with the history of anorexia, distended abdomen, diarrhoea and reduction in milk yield for three days. Clinical examination revealed rumen distended with gas (Fig. 1), respiratory distress, pale conjunctival and vaginal mucous membrane and mildly sunken eyeball. Rumen fluid was collected and examined to rule out forestomach disorder. Peripheral blood smears were collected to identify haemoprotozoan infections, and whole blood and serum samples were collected for haemato-biochemical analysis.

3. Results

In this case, the stomach tube when passed to collect rumen fluid examination, an obstruction was felt at cardia of rumen and it was known as a free gas bloat due to the absence of froth in rumen fluid. A large number of live immature amphistomes that appeared conical and pinkish were detected in the rumen fluid (Fig 2). Rumen fluid examination revealed moderate number of active small, medium and large protozoa with a rumen pH of 6.0-7.0, dark green colour and aromatic odour. Microscopic examination of the diarrhoeic faeces revealed no eggs of amphistomes as the diarrhea due to duodenitis is associated with immature flukes only.

The abdominal distension was reduced as the gas was relieved and the case was treated with oxytetracycline @ 18.7 mg/kg bwt^[5] on the first day along with chlorpheniramine maleate @0.5 mg/kg bwt as antihistaminic, supportive intravenous fluid therapy, ruminatorics and oral hematinic and recommended a second dose of oxytetracycline after 48 hours. However, the animal succumbed to death on next day due to recurrent bloat associated with the persistence of amphistomes.

Microscopic examination of Giemsa stained peripheral blood smears revealed no haemoparasites. Haematological examination showed neutrophilia (76.0%) and reduction in packed cell volume (19.7%) and total erythrocyte count ($4.52 \times 10^6/\mu\text{L}$), however, other parameters were within range (haemoglobin-10.6 g/dl, WBC- $5.25 \times 10^3/\mu\text{L}$ and platelets-1.38 lakhs/ μL ; Differential count: lymphocytes-22%, basophils-0, eosinophils-01 and monocytes-03). Serum biochemical analysis showed reduction in albumin (2.3mg/dl), calcium (8.8mg/dl) and magnesium (1.3 mg/dl) levels. Total protein (8.3mg/dl), globulin (6.3mg/dl), blood urea nitrogen (42.06 mg/dl) and glucose (149 mg/dl) levels were found elevated. Whereas, creatinine (0.8mg/dl), aspartate transaminase (87.0 iu/dl), alanine aminotransferase (4.0 iu/dl) and alkaline phosphatase (35.0 iu/dl) levels were found to be within range.



Fig 1: Persistent bloat secondary to amphistomosis in cross bred cow



Fig 2: Immature amphistomes (flesh flukes) collected from the rumen fluid of the affected cow

4. Discussion

The attachment of more number of immature amphistomes around the cardia might be associated with the obstruction of the lumen resulting in bloat and a similar observation was also recorded by Yogeshpriya *et al.*^[6], who however reported a subclinical form of amphistomosis in an adult cow. In terms of life cycle, immature flukes migrate proximally along the duodenum, become adult flukes within 6 weeks to 4 months^[7].

In this case, persistent tympany secondary to acute amphistomosis in addition to enteritis was observed in an older cow, though acute disease is reported to occur in young animals while older animals are capable of withstanding massive infections^[8] and severe enteritis seems to be the only clinical sign^[5]. Heavy infections of paramphistomes in rumen

are mostly insidious and generally do not cause serious damage to the host^[8], however result in significant reduction in feed conversion, body weight gain and milk production^[9, 2].

The haematological findings are in concurrence to that of Cheema^[10] and Chauhan^[2] who observed an increasing amount of inflammatory cell infiltration in the lamina propria, predominantly neutrophils as first line of cellular defense, whereas, Thakur^[11] and Chauhan^[2] reported an elevation in eosinophil count. Similarly, Mavnyengwa^[12] and Biswas^[13] also reported a reduction in total erythrocyte count TEC, Hb, PCV which might be associated with intestinal haemorrhage in acute amphistomosis. The hypoalbuminemia, hypocalcaemia and hypomagnesemia observed in this case could be attributed to protein losing enteropathy^[8] and starvation due to the amphistomosis.

5. Conclusion

Since the amphistomes infections are of subclinical nature, treatment is carried out rarely to control the amphistomosis, however, large animals once infected could carry this trematode throughout rest of their life with reduction in weight gain and milk production and transmission to young ones leading to acute amphistomosis. Hence, periodical anthelmintic treatment of adult cattle against amphistomes in areas of prevalence and fencing of natural water sources to prevent the breeding of transmitting snails should be adopted to prevent acute clinical disease and mortality.

6. Acknowledgement

The authors are thankful to the Dean, Veterinary College and Research Institute, Tirunelveli and Director of Clinics, TANUVAS for all the support and the facilities provided for the study.

7. References

1. Yadav CL, Kumar RR, Vatsya S, Garg R. Prevalence of amphistomosis in ruminants in national capital region, Delhi. *Journal of Veterinary Parasitology*. 2010; 24(2):125-127.
2. Chauhan VD, Patel PV, Hasnani JJ, Pandya SS, Pandey S, Pansuriya DV *et al.* Study on hematological alterations induced by amphistomosis in buffaloes, *Veterinary World*. 2015; 8(3):417-420.
3. Horak IG. Paramphistomiasis of domestic ruminants. *Advances in Parasitology*. 2009; 9:33-70.
4. Juyal PD, Kasur K, Hassa, SS, Paramjit K. Epidemiological status of paramphistomiasis in domestic ruminants in Punjab. *Journal of Parasitic Diseases*, 2003, 231-235.
5. Constable PD, Hinchcliff KW, Done SH, Grunbergh W. In: *Veterinary medicine: A textbook of the diseases of cattle, horses, sheep, pigs, and goats* (11thEdn). Elsevier Publications, China, 2017, 617-618.
6. Yogeshpriya Y, Saravanan M, Krishnakumar S, Veeraselvam M, Selvaraj P. *Clinico-Therapeutic Management of Amphistomiasis in Cattle*. *Bulletin of Environment, Pharmacology and Life Sciences*. 2017; 6(6):92-94.
7. Radostitis OM, Gay CC, Blood DC, Hinchcliff K. *Veterinary Medicine*. 9th ed. WB Saunders, Harcourt Publishers Ltd., London, 2000.
8. Soulsby FJL. *Helminths, Arthropods and Protozoa of Domesticated Animals*, 7th ed. Bailliere Tindall, London,

- 1982, 66-71,
9. Rolfe PF, Boray JC, Nichols P, Collins GH. Epidemiology of paramphistomiasis in cattle. *International Journal of Parasitology*. 1991; 21:813-819.
 10. Cheema M, Khan Q, Chishti, MA. Prevalence and pathology of amphistomosis in buffaloes and cattle in Pakistan. *Pakistan Veterinary Journal*. 1997; 17(1):13-17.
 11. Thakur R, Singh R, Mandial RK, Bala S, Katoch R. Clinico-haematological, biochemical, minerals and therapeutic studies on amphistomiasis in cattle of Himachal Pradesh. *Indian Journal of Veterinary Medicine*. 2007; 26(1):12-15.
 12. Mavenyengwa M, Mukaratirwa S, Monard J. Influence of *Calicophoron microbothrium* amphistomosis on the biochemical and blood cell counts of cattle. *Journal of Helminthology*. 2010; 84(4):322-361.
 13. Biswas A, Phukan A, Baruah CC, Sarma SS, Dutta PR. Haemato- biochemical changes in cattle with naturally acquired paramphistomiasis. *Indian Veterinary Journal*, 2013, 26-28.