

SHORT COMMUNICATION

PARASITES IN LOCAL BUFFALOES – INCIDENTAL FINDINGS FROM MORTALITIES IN NILI-RAVI BUFFALOES

JAMNAH O.¹, MARLIAH A.², NORAZURA A. H.¹, MAIZATUL AZLINA A. M.², PREMAALATHA B.¹, ERWANAS A. I.¹, AINANI A.¹, MOHAMAD BOHARI J.¹, MOHD ROSTAN A. A.¹, NORHAFIZA A. H.¹, NAHEED M.¹, CHANDRAWATHANI P.¹ AND RAMLAN M.¹

1 Veterinary Research Institute, 59 Jalan Sultan Azlan Shah, 31400 Ipoh, Perak.

2 Institut Veterinar Malaysia, Km 13, Jalan Batu Pahat Beg Berkunci 520, 86009 Kluang, Johor

* Corresponding author: chandra1959@gmail.com

In early 2013, a farm in Johore experienced high mortalities in imported Nili Ravi and Murrah buffaloes. The adult buffaloes have been in the farm for 3 years and managed extensively as they were fed on Guinea grass and palm kernel effluent. As they have been naturalised to local conditions and climate, a sudden spurt of 40 mortalities from a group of 93 animals, due to multifactorial causes, allowed the post mortem of 15 animals. Prior to death, blood was collected. Upon death, a complete detailed necropsy was done in situ in the farm grounds. Initial examination of all carcasses showed emaciation, anemia and poor body condition. The animals were allowed to graze and wallow freely in the paddock. Skin scrapings, organ samples, blood samples and worms seen grossly were collected. Haematology parameters indicate anemia and variable white cell counts, some depressed and some elevated indicating other probable physiological and pathogen infections.

This paper describes the parasitological information retrieved from post-mortem findings from the buffaloes. Both external and internal parasites are described. Skin scraping from two animals showed the presence of *Psoroptes* sp and *Haematopinus* sp. The Merck Veterinary Manual describes psoroptic mange as caused by the scab mite *Psoroptes ovis* commonly found in cattle, causing extreme itchiness followed by scabbing and crusting. It also increases the susceptibility to other diseases. Lice such as *Haematopinus* sp. can be an important cause of economic loss when cattle are in poor condition or if infestations are heavy. Diseased or nutritionally stressed animals will develop more severe lice infestations than healthy animals (Walker, 2007) .

On examining the abdominal cavity, the filarid *Setaria digitata* was found in four animals. The *Setaria* species are commonly found in the abdominal cavity of cattle and generally considered non-pathogenic but can cause mild peritonitis.

However, observations of the infectious larvae migrating to the central nervous system causing neuropathological disorders have been reported (Soulsby, 1982).

One animal showed the presence of severe Paramphistomiasis caused by *Paramphistomum* sp. The rumen wall was covered in flukes indicating severe infestation. Usually, Paramphistomiasis causes enteritis and anaemia in livestock and results in chronic production and economic losses. Pathological symptoms are produced by immature flukes. When the young flukes start to gather in the intestine, there is a watery and fetid diarrhoea which may be associated with high mortality (even up to 80-90%) in ruminants. It was observed that as many as 30,000 flukes can accumulate, severely attacking the duodenal mucosa to induce acute enteritis. However, adult flukes are relatively harmless. Liver tissue are generally damaged extensively, indicated by swelling, haemorrhage, discolouration, necrosis, bile duct hyperplasia, and fibrosis (Horak, 1971).

Fly trapping done in the animal sheds by hand net showed the presence of local biting flies *Stomoxys* sp. These biting flies can be a nuisance as they irritate the animals causing discomfort and restlessness as well as vectors of pathogenic protozoans such as *Trypanosoma evansi*. However, this protozoa was not recovered on blood examination although it has been previously reported in the cattle herd in the farm. Blood feeding on cattle by even a few stable flies causes irritation and obvious

annoyance. Cattle become restless and spend less time grazing, resulting in lower weight gains and milk yields. Current management practices primarily involve waste sanitation, pesticide application and biological control methods (<http://www.nadsdiptera.org/FFP/stable.html>)

However, an extraordinary finding in the thin blood smears stained with Giemsa was the presence of the blood protozoan *Eperythrozoon wenyonii* in three animals. It is a genus of nonmotile parasitic pathogenic microorganisms whose members lack a true cell wall and are classified as gram-negative. As such, penicillin and similar antibiotics do not affect eperythrozoon because those antibiotics attack bacteria by destroying the cell wall that is absent in mycoplasma bacteria. Due to this, streptomycin or other similar antibiotics are the only effective choice. All diagnostic techniques as in smears and staining, were conducted according to Ministry of Agriculture, Fisheries and Food (1986). The organisms are procaryotic forms occurring on the surface of erythrocytes. On Giemsa-stained blood smears, it appears as a pleomorphic coccoid or vesicular organism on the surface of the erythrocytes. Smith *et al.*, (1990) reported that 10 out of 100 young heifers that had recently delivered their first calf had a syndrome of swollen teats and distal portions of the hind limbs, prefemoral lymphadenopathy, transient fever, rough coat, decreased milk production, and subsequent weight loss and reproductive inefficiency. When large

numbers of *E. wenyonii* are seen on blood smears, acute clinical signs as described are observed. To date, McAuliffea *et al.* (2007) has determined that *Eperythrozoon wenyonii* is in fact *Mycoplasma wenyonii* based on reports that the red cell parasites formerly known as *Haemobartonella* and *Eperythrozoon* spp have been reclassified as hemotrophic mycoplasmas (hemoplasmas) based on strong phylogenetic evidence and 16S ribosomal RNA gene sequences. Although studies on eperythrozoon are few, in Malaysia, Ershaduzzaman (2001) has reported *Eperythrozoon ovis* in local goats and sheep.

Studies in buffaloes in Punjab, (Khalil *et al.*, 2009) showed that there was heavy worm load present in buffaloes causing huge economic loss to the farmers by reducing milk production and retarded growth. The worm load can be minimized through better housing and husbandry practices besides use of proper anthelmintics. Overall, the findings on parasitic infections in buffaloes in the farm described, indicates the need for better control either through management interventions or anthelmintic therapy.

REFERENCES

1. Ministry of Agriculture, Fisheries and Food (1986). Manual of Veterinary Parasitological Laboratory Techniques. Her Majesty's Stationery Office, London, pp 160.
2. Smith, J. A.; Thrall, M. A.; Smith, J. L.; Salman, M. D.; Ching, S. V.; Collins, J. K. (1990)
3. *Eperythrozoon wenyonii* infection in dairy cattle. Journal of the American Veterinary Medical Association 1990 Vol. 196 No. 8 pp. 1244-1250 .ISSN0003-1488
4. The detection of Mycoplasma (formerly Eperythrozoon) wenyonii by 16S rDNA PCR and denaturing gradient gel electrophoresis
5. McAuliffea, L., Lawesa, J., Bellb, S., Barlowb A., Aylinga R. & Nicholas, R.(2006). The detection of Mycoplasma (formerly Eperythrozoon) wenyonii by 16S rDNA PCR and denaturing gradient gel electrophoresis. Vet Microbiology 117:2-4 (292-296).
6. Ershaduzzaman Md. (2001). Characterization of *E. ovis* isolated from sheep and goats in Malaysia. PhD Thesis UPM.
7. Soulsby E.J.L. (1982): Helminths, Arthropods and Protozoa of Domesticated Animals. 7th ed. Bailliere Tindall, London. 316-319.
8. The Merck Veterinary manual. <http://www.merckmanuals.com/vet/index.html>
9. B. Walker (2007). NSW DPI Newsletter. <http://www.dpi.nsw.gov.au/>
10. Horak IG (1971). "Paramphistomiasis of domestic ruminants". Advances in Parasitology 9 (1): 33–72.
11. <http://www.nadsdiptera.org/FFP/stable.htm>
12. Khalil-ur-Rehman; Javed, K.; Tunio, M. T.; Kuthu, Z. H.(2009). Passive surveillance of gastrointestinal parasites in buffaloes of Mandi Bahauddin and Gujrat Districts of the Punjab. Journal of Animal and Plant Sciences 2009 Vol. 19 No. 1 pp. 17-19 .ISSN1018-7081.