
PREVALENCE OF BOVINE PARAMPHISTOMOSIS IN MAIDUGURI METROPOLIS

***Biu, A. A¹, Amina, I.,² Kumshe, H.A.³ and Hussaina, H. D.⁴**

^{1&4}*Department of Veterinary Microbiology & Parasitology,
University of Maiduguri, Maiduguri, Nigeria
E-mail Address: biuвет@yahoo.com*

ABSTRACT

Oesophageal grooves of rumen of cattle slaughtered at the Maiduguri abattoir were examined for paramphistomes. Of the 150 cattle examined, this study revealed an overall prevalence of 52 (34.7%) with *Paramphistomum cervi*, *Colicophoron colicophorum* and *Gastrothylax crumenifer* having 26 (50%), 18 (34.6%) and 8 (15.4%) respectively ($p < 0.05$). The distribution of paramphistomes based on sex and age of the cattle examined showed more infested cows 32 (38.6%) with a mean worm burden of 189 compared to the bulls with 20 (29.9%) and a mean worm burden of 135 ($p > 0.05$). More adults were infested 43 (31.2%) with a mean worm burden of 232 compared to the young 9 (21.9%) with mean worm burden of 92 ($p < 0.05$).

Keywords: *Bovine, Prevalence, Paramphistomosis, Maiduguri, Nigeria*

INTRODUCTION

Paramphistomosis, a common parasitic disease of ruminants worldwide, plays a vital role on their health and productivity, principally causing weight loss, anaemia, and death (Soulsby 1982; Blood and Radostits 1989; Urquhart, *et al.*, 1992). Cattle are most commonly affected; with mortality rates in groups or herds that are heavily infested as high as 96%. There is however, limited information and data on the prevalence of paramphistomosis of cattle of Borno State with an estimated herd population of about 15.3 million (Bourn, *et al.*).

MATERIALS AND METHODS

The oesophageal grooves of the rumen of cattle slaughtered at the Maiduguri Metropolitan abattoir were grossly examined for paramphistome species. All worms collected were taken to the parasitology laboratory of the University of Maiduguri for further study.

Staining of worms: The parasites were measured using the Vernier's calipers, and thoroughly washed in water to remove debris. They were then placed in between glass slides which were then tied with a thread to flatten the worms. 5% formalin was used to fix the worms in an extended state for 24 hours. They were then removed and washed in distilled water for 3 days. Samples were later dehydrated using ascending grades of alcohol (50%, 70%, 90% and 100% respectively at hourly intervals), stained in 2% borax carmine, cleared in xylene for 30 minutes, mounted onto glass slides using DPX, air dried and examined under the stereoscopic microscope for identification. Size and disposition of suckers, testes, ovaries and alimentary canal were used as keys for identification (Suresh and Srivastava 1977).

Statistical analysis:- Data collected on the sex, age, and mean parasitic worm burden of cattle examined were analyzed using the student "t" test with P" values equal to or less than 0.05 regarded as significant (Compell, 1986).

RESULTS

Paramphistomum cervi, *Colicophoron colicophorum*, and *Gastrothylax crumenifer* were recorded with prevalence rates of 26 (50%), 18 (34.6%) and 8 (15.4%) respectively, with a total of 52 (34.7%) infested cattle out of the 150 cattle examined (Table 1). Table 2 shows the prevalence of paramphistome species based on the age, sex, and mean parasitic worm burden of the cattle examined. The female cattle had a higher prevalence of infestation 32 (38.6%) with a mean worm burden of 189 compared to the male cattle 20 (29.9%) with a mean worm burden of 135 ($p > 0.05$). Adult cattle (≥ 2 years) were more infested 43 (31.2%) with a mean worm burden of 232 compared to younger ones (< 2 years) which had 9 (21.9%) with a mean worm burden of 92 ($p < 0.05$).

Figure 1 show a gross photograph of Paramphistomes of cattle

Table 1: Prevalence of paramphistomes of cattle examined in Maiduguri

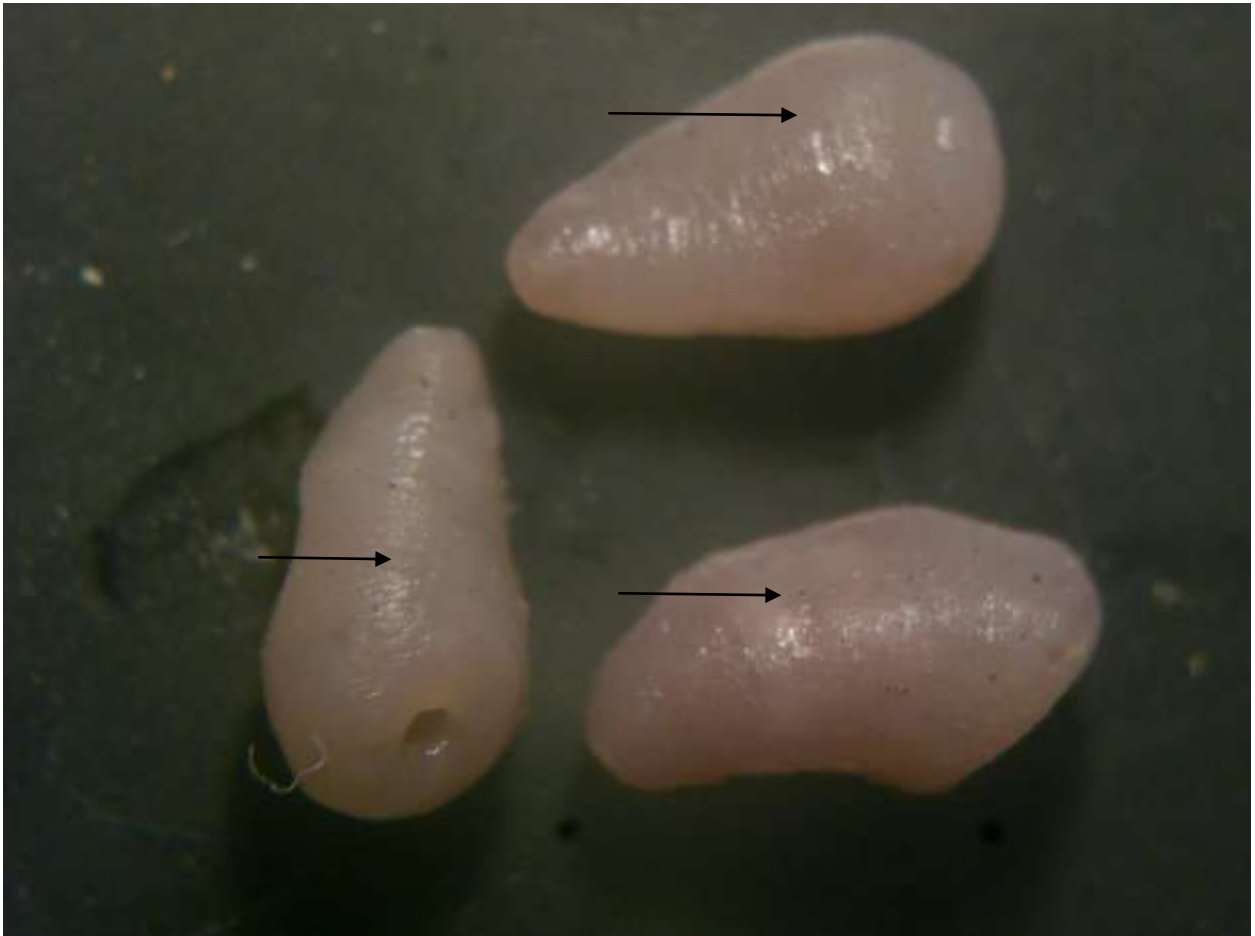
Paramphistome species	No (%) of cattle infested
Overall	52 (34.7)
<i>Paramphistomum cervi</i>	26 (50.0) P < 0.05
<i>Colicophoron colicophorum</i>	18 (34.6)
<i>Gastrothylax crumenifer</i>	8 (15.4)

n= 150

Table 2: Prevalence of Paramphistome species based on the sex, age, and mean parasitic worm burden of the cattle examined.

	No of cattle examined	No (%) infested	Mean parasitic worm burden
All cattle	150	52 (34.7)	324
Sex:			
Male	67	20 (29.9)	135
Female	83	32 (38.6)	189
			P > 0.05
Age:			
Adult	109	43 (31.2)	232
Young	41	9 (21.9)	92
			P < 0.05

Figure 1: Gross photograph of Paramphistomes (indicated with arrows) of cattle



DISCUSSION

This study on bovine paramphistomosis revealed a prevalence of 34.7% in Maiduguri with a mean parasitic worm burden of 324 which was higher than the 5% reported at Ibadan (Nwosu *et al.*, 1996). This could be attributed to the husbandry practice of extensive management with outbreaks usually occurring where snails concentrate around natural water bodies with palatable grazing (Horak, 1971, Soulsby, 1982). Variations in the prevalence of infestation of cattle based on their sex, and age tallies with the findings by Horak, (1971); Blood and Radostits (1989); Urquhart, *et. al.*, (1992); Nwosu, *et al.*, (1996), and Tibor Kassai (1999), that all ages may be affected, but young cattle in the yearling class are the usual subjects (Blood and Radostits 1989), and immunity may develop, while adults are capable of withstanding massive exposure, and may seed the pasture with eggs; and mortalities are due to enormous numbers of immature flukes causing acute enteritis.

Conclusively, the occurrence of severe enteritis, unaccompanied by fever, under environmental conditions where suitable snail hosts can be found should arouse suspicion for the disease, as surrogates to warrant improvement in managerial practices and other preventive measures for the disease.

REFERENCES

- Blood D. C., Radostits, O.M. and GAY, C. C. (1997). *Veterinary Medicine, a text book of the diseases of cattle , sheep, pigs, goats & horses.* 8th ed., W. B. Saunders Co. Ltd.. Pp. 1236.
- Bourn, D., Wint, W., Blench, R. and Woolley, E. (1994). Nigerian Livestock Resources Survey. *World Animal Review (WAR) Quarterly Journal*, FAO 78(1): 49- 58.
- Compell, R. C. (1986). *Statistics for Biologists*, Cambridge University Press, Cambridge. Pp. 576 – 589
- Horak, I.G. (1971). Paramphistomiasis of domestic ruminants. *Advanced Parasitol* 9: 33, 72
- Nwosu, C.O , Ogunrinade, A. F. and Fagbemi, B. O. (1996). Prevalence and seasonal changes in the gastro-intestinal helminths of Nigerian goats .*J. Helminthol* 70: 329-333.
- Soulsby, E. J. L. (1982). *Helminths, Arthropods and Protozoa of Domesticated Animals*, 7th ed. Pp. 66-71 Bailliere Tindall London.
- Suresh, S. K. R. and Srivastava, H. D. (1977). Diagnosis and treatment of helminth infections. Division of Parasitology. Indian Veterinary Research Institute, Izatnagar, Uttar Pradesh. Pp 96.
- Tibor Kassai (1999). *Veterinary Helminthology* Butterworth Heinemann, Oxford. Pp. 13-14.
- Urquhart, G. M., Armour, J., Duncan, F. R., Dunn, A. M. and Lennings, F.W. (1992). *Veterinary Parasitology*. Longman Group Ltd. London, U. K.. Pp. 111-1