

## IDENTIFICATION OF SOME PARAMPHISTOMES INFECTING SHEEP IN MAIDUGURI, NIGERIA

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### ABSTRACT

The prevalence of paramphistome infection in sheep slaughtered at Maiduguri abattoir, Nigeria was studied. Of the 100 slaughtered sheep examined, 28.0% were infected, with an overall worm burden of 203. Of 39 males, 23.1% were infested with a worm burden of 63, while of the 61 females examined, 31.1% were infested with a worm burden of 140. Also of the 91 adult sheep, 28.6% were infested with a worm burden of 189, while out of the 9 young sheep, 22.2% were infested, with a worm burden of 14. Among breeds, 50 Balami were examined with 32.0% infested, and a worm burden of 112, while of the 49 and 1 Udda and Yankassa sheep examined 24.5% and 0.0% were infested, respectively. However, the differences in the prevalence of paramphistomes between sexes, age groups and breeds of sheep were non significant. Identification of the paramphistomes of sheep based on their size and predilection site showed *Paramphistome cervi* to inhabit the rumen with a mean size of 8.5 x 3.5 mm, while *Gastrothylax crumenifer* inhabited also the rumen but of the size 13 x 5 mm. The distribution of paramphistome species based on the sex, age and breed of sheep examined showed that more females were infested with *P. cervi* (52.6%) than the males (33.3%), while more males were infested with *G. crumenifer* (66.7%) than the females (47.4%).

**Key words:** Paramphistomes, sheep, Nigeria.

### INTRODUCTION

Paramphistomes play a vital role in ruminant diseases world-wide (Soulsby, 1982), with those commonly associated with diseases in sheep were identified to be *Paramphistomum (P) cervi*, *P. microbothridium*, *P. ichikawai*, *P. gotoi*, *P. hibemiae*, *P. liorchis*, *P. microbiothriodes* and *P. scotiae* (Urquhart *et al.*, 1992). *Cotyphoron cotylophorum*, *Calicophoron calicophorum*, *Ceylonocotyle streptocoelium* and *Gastrothylax crumenifer* principally cause anaemia. Only a limited information is available on the helminth fauna of sheep in Northeastern Nigeria. The present study was designed to report the prevalence of the paramphistomes in sheep of different ages, sexes and breeds in Nigeria.

### MATERIALS AND METHODS

Adult worms were collected from the rumen of sheep slaughtered at the Maiduguri Metropolis abattoir, Maiduguri, Nigeria. The adult worms were measured using vernier callipers. The worms were then stained in order to identify species (Singh and Srivastava, 1977). Data on the sex, age and breeds of sheep were recorded

and analysed statistically using the student paired 't' test (Compell, 1986).

#### Staining procedure

The adult worms were washed in water and placed on a glass slide, while another glass slide was raised to cover them individually. The specimens were left in 10% formalin for 24 hours and then removed and shaken in distilled water for 3 days.

A 2 grams of borax carmine was dissolved in 50 ml of distilled water and heated in a water bath for 60 minutes. It was allowed to cool and 50 ml of absolute alcohol was added to it. Each specimen was shaken in the solution for 4 days. It was removed from the stain and de-stained in 1% hydrochloric acid for 24 hours. The acid was thoroughly washed out from the specimen with water.

The specimens were then dehydrated through 50, 70, 90, 95 and 100% alcohol for 1 hour each, and cleared by using xylene for 30 minutes. The cleared specimens were placed on glass slides while a drop of DPX was added to each glass slide and then covered with a cover slip.

The mounted slides were allowed to air dry and viewed under the stereoscopic microscope to identify the organism (Singh and Srivastava, 1977).

## RESULTS AND DISCUSSION

The prevalence of paramphistome infection in sheep based on the sex, age and breed is presented in Table 1. Of the 100 sheep examined, 28.0% were infested with an overall worm burden of 203.

Among males, 23.1% were infected with a worm burden of 63, while 31.1% females were infected. Of the 91 adult sheep ( $\geq 6$  months), 28.6% were infested with a worm burden of 189, while among young sheep ( $< 6$  months), 22.2% were infected with a worm burden of 14.

Among breeds, 50 Balami were examined with 32.0% infected and a worm burden of 112, while of the 49 and 1 Udda and Yankassa sheep, 24.5% and 0.0% respectively were infected. However, differences due to sex, age and breed were non significant.

On identification of paramphistomes based on their size and predilection site, *Paramphistomum cervi* was identified as having a mean (range) size of 8.5 x 3.5 (5-13 x 2-5) mm with the rumen as the predilection site, while *Gastrothylax crumenifer* has 13 x 5 (9-18x5.0) mm as size, also with the rumen as the predilection site.

Table 2 shows the distribution of Paramphistome species based on the sex, age and breed of sheep examined. More females were infected with *P. cervi* than the males, while more males were infected with *Gastrothylax crumenifer* than the females.

This study revealed a prevalence of 28% for paramphistomiasis of sheep in the semi arid zone of North eastern Nigeria with a worm burden of 203 which is higher than the 5.0% prevalence reported at Ibadan (Nwosu *et al.*, 1996). This could be attributed to the husbandry practice (nomadism) in this study area coupled with the fact that the disease has a definite seasonal pattern with high incidence during rainy season (Chaudhri, 1983).

The finding of *Paramphistomum cervi* and *Gastrothylax crumenifer* as the only two amphistome species of sheep in this study agrees with the reports by Soulsby (1982) and Tibor (1999), who identified them as the commonest amphistomes of ruminants principally inhabiting the rumen causing anaemia and debilitation.

This study has not identified any statistically significant difference in the rate of infection among the age, sex and breeds of sheep. Nwosu *et al* (1996) found paramphistome infections to be more in adult than in young goats Blood and Radostits (1989) has shown that young animals are the usual subjects, especially those that are newly pastured.

The absence of veterinary attention to the Fulani nomads exposes their animals to parasitic hazards. Thus, suggestions are proffered such that enlightenment campaigns on periodic dosing of livestock with anthelmintics prior to sale are done to improve their stock.

**Table 1: Prevalence of paramphistome infection in sheep based on the sex, age and breed**

	No of Animals examined	Number (%) infested	Worm burden
<b>Sex</b>			
Male	39	9 (23.1)	63
Female	61	19 (31.1)	140
<b>Age</b>			
Adult	91	26 (28.6)	189
Young	9	2 (22.2)	14
<b>Breed</b>			
Balami	50	16 (32.0)	112
Udda	49	12 (24.5)	91
Yankassa	1	0 (0.0)	0

Differences due to sex, age and breed were non significant.

**Table 2: Paramphistome species distribution based on sex, age and breeds of the sheep**

Parasite	Number (%) infested						
	Sex		Age		Breed		
	Male	Female	Adults	Young	Udda	Balami	Yankassa
<i>Paramphistomum cervi</i>	3(33.3)	10(52.6)	12(46.2)	1(50)	5(41.7)	8(50)	0(0.0)
<i>Gastrothylax crumenifer</i>	6(66.7)	9(47.4)	14(53.8)	1(50)	7(58.3)	8(50)	0(0.0)

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