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# PREVALENCE OF PARAMPHISTOMIASIS AMONG SHEEP SLAUGHTERED IN SOME SELECTED ABATTOIRS IN IMO STATE, NIGERIA.

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**ABSTRACT**
**A total of 367 sheep (Ovis sp) were randomly sampled in Okigwe, Orlu, Obowo, Ihitte Uboma and Mbaise areas of Imo State between Sept. 2004 to Sept. 2005 aimed at establishing the prevalence of *Paramphistomum cervi* Of the 367 animals examined, 96(26.2%) had serious infection. Infection was highest in Okigwe (34.5%), followed by Afor-Ogbe (30.0%), Orlu (20.4%), Orieagu (18.4%) and Achingali (16.7%). Sex showed no significant relationship with the infection, however age was found to be highly significant (p<0.01) with older animals having more infection than younger ones. Monthly mean worm load (xWLD) was 144.64 while number of parasites was 126.**

***Keywords***: Paramphistomiasis, worms, slaughter sheep, abattoirs, Nigeria.

**INTRODUCTION**
*Paramphistomum cervi* is a trematode parasite that attack livestock adversely thereby affecting their productivity. The adult trematode is located in the rumen of ruminant and immature trematode in the snail intestine (duodenum) (Datoon, 1978). The definitive host (ruminant) is infected by ingesting the metacercariae attached to the grass blade or floating on the water (Shank, 1976). In heavy infection, the liver may be pale and show a degree of fibrosis (Anosike, 2000). This parasitic infection causes tissue and organ damages leading to poor production of milk, meat, hides and skin and retarded growth (Anosike, 2005). Liver damages caused by Paramphistomiasis have most often been misinterpreted as fascioliasis. It therefore becomes pertinent to study specifically liver damage as a result of Paramphistomiasis as it will update existing information upon which control programe and adequate surveillance will be planned. The objective of the study is therefore to determine the prevalence of paramphistomiasis among slaughtered sheep in some abattoirs in Imo state, Nigeria.

**MATERIALS AND METHODS**
**Study area:** Imo State is one of the South-Eastern states of the federal republic of Nigeria. It is located within 5° 67'N, and longitude 6° 36' and 7° 28'E. The state is bound in the north-west by Anambra state, on the South-West by Rivers State and on the eastern boarders by Abia State. The state has two main geographical regions- the coastal plain, covering the central and southern parts of the state and the Plateau and escapement zones in the northern part of the state. The soil of the coastal plain is sandy/loam and vegetation is typical rainforest, while that of the North-Eastern geographical plain is clay with rich savannah vegetation. There are two distinct seasons, the rainy season and the dry season. The rainy season lasting from March to October with peak rainfall occurring in July and September and a short drier spell in August, popularly known as August break. Annual rainfall ranges from 2,250 to 25,500mm. The mean temperature over most parts of the state is 27°C, while relative humidity is about 70-80% (IMSGN, 1984). Agriculture is the main occupation of the populace.

**Sample collection:** A total of 367 sheep (Capris sp) were examined for Paramphistomiasis in five different abattoirs in Imo State, Nigeria namely, Afor Ogbe, Okigwe, Orieagu,Achingali and Orlu. Five grams of feces were collected from the rectum of these sheep and analysed in the laboratory under 48hrs. Egg count was performed according to Fleck & Moody (1988) after identification of eggs at x10 magnification (WHO, 1984).

Age of sheep was determined by estimation of the dentition (Andrew *et al*., 1990). Prevalence was expressed as the percentage of sheep infected, while intensity was recorded as number of eggs per 5 g of feces. The study lasted for one year (September 2004 to August 2005).

**RESULTS**
Table 1 showed the prevalence of *P. cervi* in selected abattoirs in Imo State, Nigeria. Of the 367 sheep examined, 96(26.2%) were infected. Highest infection was at Okigwe (34.5%) followed by Afor-Ogbe (30.1%), Orlu (20.4%) and Orieagu (18.4%). Out of the 320 male sheep examined, 87(27.2%) were infected, while 9(19.1%) of the 47 females examined were infected (Table 2). Infection varied from one abattoir to another. Age related distribution of *P. cervi* is shown in Table 3. Out of 356 adult sheep (>2yrs) examined, 35

(9.8%) were infected; while only 1(9.1%) out of 11 young sheep (<2yrs) was infected. Table 4 showed the monthly prevalence and mean worm load (xWLD) of *P. cervi* in the slaughter sheep. Total number of parasites was 2181 and mean worm load was 939.21. Infection rose with increase in rainfall with highest level observed at the peak of the rainy season. Sex related egg count is shown in Table 5.

**TABLE 1. PREVALENCE OF *P. cervi* IN SHEEP SLAUGHTERED IN IMO STATE, NIGERIA**

| Abattoir location | No examined | No infected | % age infected |
|---|---|---|---|
| Okigwe | 113 | 39 | 34.5 |
| Orieagu | 38 | 7 | 18.4 |
| Afor Ogbe | 90 | 27 | 30.0 |
| Orlu | 54 | 11 | 20.4 |
| Achingali | 72 | 12 | 16.7 |
| **Total** | **367** | **96** | **26.2** |

**TABLE 2. SEX RELATED PREVALENCE OF *P. cervi* IN SHEEP SLAUGHTERED IN SELECTED ABATTOIRS IN IMO STATE, NIGERIA**

| Abattoir location | Male | | | Female | | | Total examined | Total infected |
|---|---|---|---|---|---|---|---|---|
| Afor-Ogbe | 103 | 30 | 29.1 | 10 | 0 | 0 | 133 | 30(13.3) |
| Orieagu | 23 | 10 | 43.5 | 15 | 0 | 0 | 38 | 10(25.0) |
| Okigwe | 78 | 20 | 25.6 | 12 | 5 | 41.7 | 90 | 25(12.2) |
| Orlu | 50 | 13 | 26.0 | 4 | 2 | 50.0 | 54 | 15(3.7) |
| Achingali | 66 | 14 | 21.1 | 6 | 2 | 33.3 | 72 | 16(8.3) |
| **Total** | **320** | **87** | **27.2** | **47** | **9** | **19.1** | **367** | **96(9.8)** |

**TABLE 3. AGE RELATED DISTRIBUTION OF *P. cervi* IN SHEEP IN THE DIFFERENT ABBATOIR**

| Abattoirs | Old sheep (>2yrs) | | | Young sheep (<2yrs) | | |
|---|---|---|---|---|---|---|
| | No examined | No infected | % infected | No examined | No infected | % infected |
| Okigwe | 113 | 35 | 30.9 | 3 | 0 | 0 |
| Achingali | 70 | 16 | 22.9 | 2 | 0 | 0 |
| Afor-ogbe | 88 | 19 | 21.6 | 2 | 1 | 50.0 |
| Orlu | 50 | 11 | 22.0 | 4 | 1 | 25.0 |
| Orieagu | 38 | 12 | 31.6 | 0 | 0 | 0 |
| **Total** | **356** | **93** | **26.1** | **11** | **2** | **18.2%** |

**TABLE 4. THE MONTHLY PREVALENCE OF *P. cervi* IN THE SLAUGHTER SHEEP**

| Year/ months | Rainfall in mm | No examined | No infected | % infected | Total No parasites | Mean worm load |
|---|---|---|---|---|---|---|
| Sep 04 | 309.1 | 10 | - | - | - | - |
| Oct 04 | 322.9 | 12 | - | - | - | - |
| Nov 04 | 37.0 | 13 | - | - | - | - |
| Dec 04 | 0.0 | 10 | - | - | - | - |
| Jan 05 | 38.3 | 10 | - | - | - | - |
| Feb 05 | 84.3 | 21 | - | - | - | - |
| Mar 05 | 103.1 | 38 | - | - | - | - |
| Apr 05 | 182.2 | 78 | 5 | 70.5 | 13 | 26.0 |
| May 05 | 469.8 | 70 | 19 | 27.1 | 33 | 173.7 |
| Jun 05 | 500.7 | 40 | 7 | 42.5 | 32 | 457.1 |
| Jul 05 | 260.0 | 30 | 10 | 33.3 | 24 | 240.0 |
| Aug 05 | 190.5 | 25 | 9 | 36.0 | 12 | 133.3 |
| Sep 05 | 490.6 | 20 | 4 | 20.0 | 12 | 300 |
| **Total** | | **367** | **64** | **17.4** | **126** | **14464.7** |

**TABLE 5. SEX RELATED EGG COUNTS IN *P. cervi* IN SHEEP**

| Egg/5g feces | No ♂ sheep | No ♀ sheep | Total No (%) |
|---|---|---|---|
| 0-49 | 57(65.5) | 7(77.7) | 64(66.6) |
| 50-99 | 24(27.6) | 2(22.2) | 26(27.0) |
| 100-149 | 4(4.6) | 0(0.0) | 4(4.2) |
| 150-199 | 2(2.3) | 0(0.0) | 2(2.1) |
| >200 | 0.0 | 0(0.0) | 0(0.0) |
| **Total** | **87(90.6)** | **9(9.4%)** | **96(24.7)** |

## DISCUSSION

Paramphistomiasis is incriminated as one of the reasons for liver condemnation in Nigeria. The 26.2% prevalence of Paramphistomiasis recorded in this study is in line with the result reported by (Okafor, 1988; Anosike 2001) in Okigwe/Isiukwuato area.

Infection varied from one abattoir to another and may have been contributed by the varying ecological factors that abound in the different locations, since sheep do not travel long distance but usually graze in farms around the homestead (Okafor, 1988)

Highest infection rate was recorded in Okigwe (34.4%). The area is generally known for its land criss-crossed by stagnant and slow flowing water bodies (Njoku-Tony, 2007). These water bodies are surrounded by vegetation that habour snail intermediate hosts that harbour the infecting parasites (Njoku-Tony, 2007).

Infection was higher in males than in females. Even though this tends to corresponds with the work of Njoku-Tony (2007), more male sheep were brought to the abattoir for slaughterwhich made proper assessment of the females slightly difficult. However, the few that were examined had the infection too.

Prevalence of the infection also varies between the adults older than 2 years and the young below 2 years. However generally, more adults were examined than the young sheep. It is known that previous infection and the age of the animal afford some level of protection against reinfection and hence acute diseases are recorded in young animals while older animals seed the pasture with the eggs (Belding, (1969). While working with nematodes and cestodes, Enihiyi *et al.,* (1975) showed that there was always a close association between age and intestinal helminthes.

Monthly distribution, prevalence and mean worm load (xWLD) of *P. cervi* revealed a gradual rise in infection with rainfall. Highest infection was generally reported between April and September (Fabiyi, 1982; Blood *et al.,* 1994, Shar-Fisher and Say, 1989). This manifestation of the infection during the rainy season suggests that the animals must have picked up the infection during the late dry season (LDS), and the early rainy season (ERS) as this seasons have little or no rain and therefore provide a favourable climatic and ecological conditions for snail vectors growth (Anosike, 2001).

Intensity of the disease was significant in the males than the females. The 26.2% prevalence rate recorded in this study is therefore of a public health and calls for adequate control programme.

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