
ABATTOIR SURVEY OF “PIMPLY GUT” AMONGST SLAUGHTER SMALL RUMINANTS IN DAMATURU, YOBE STATE, NIGERIA

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Abstract: This study was carried out using postmortem examination of sheep and goats slaughtered at the Damaturu abattoir between November, 2009 and January, 2010. Both the small and large intestinal tracts of 400 goats and 105 sheep were examined with a prevalence of 74 (18.5%) and 23 (21.9%) respectively ($p > 0.05$). Female and ages ≥ 6 months of both sheep and goats had a significantly ($p < 0.05$) higher prevalence of 52.2%/71.6% and 91.3%/82.4% respectively compared to the male and ages < 6 months of the same sheep and goats examined 47.8%/28.4% and 8.7%/17.6% respectively). Also, the small intestinal tracts of both sheep and goats were significantly ($p < 0.05$) more infected having prevalence rates of 95.7% and 79.7 % compared to their large intestines with 4.3% and 20.3% respectively. Based on breed, Yankasa of sheep had a significantly higher ($p < 0.05$) prevalence of 47.8% compared to Balami (34.8%) and Ouda (17.4%), also Kano red of goats had a significantly higher (67.6%) prevalence compared to Sahel white with 32.4%. It is concluded, that oesophagostomosis is a disease of the intestinal tracts of small ruminants in Damaturu, Nigeria.

Keywords: Abattoir survey, Pimply gut, Slaughter small ruminants, Nigeria.

INTRODUCTION

Oesophagostomosis, also known as “pimply gut” is a common intestinal condition of sheep, goats, cattle, pigs, monkeys and primates including humans where it is referred as Dapaong’s diseases (Gasser *et al.* 2006). The disease is caused by the nematode *Oesophagostomum*, known for the formation of nodules in the intestinal tract of its affected hosts, with its transmission believed to be faeco-oral causing enormous economic losses to the small ruminant industry through meat condemnation (“runners”) (Okoli *et al.* 2002). Small ruminants, with an estimated population of 34.5×10^6 and 22.1×10^6 for goats and sheep respectively in the ratio of 3:2, has three quarters of the total head count found in Northern Nigeria, and though some seasonal movement of pastoral sheep and goats does take place, the great majority of small ruminants are sedentary village livestock, and their patterns of distribution mirror those of human settlement, with seasonal confinement as the most common production system (Bourn *et al.* 1994, Biu *et al.* 2006) and contribute immensely to the provision of animal protein for human consumption especially in rural areas of Nigeria (Biu and Abdul, 2009). This study was conducted to determine the prevalence of pimply gut amongst sheep and goats in Damaturu, Nigeria.

MATERIALS AND METHODS

Slaughter sheep and goats were examined at post mortem at the Damaturu Municipal abattoir between November, 2009 and January, 2010. The intestinal tracts were palpated so as to determine the presence of nodules, which in some instances were also noticed as pea-shaped swellings visible from the serosal surface. The infected tracts were collected and preserved in 2% formalin and taken to the Parasitological Laboratory, Faculty of Veterinary Medicine, University of Maiduguri, where they were processed for confirmation of infection and

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identification of *Oesophagostomum* larvae as described by Soulsby, (1982) and Kaufmann, (1996) using morphological features of sub globular buccal capsule with a dorsal tooth at its base and a conspicuous cervical groove. The total number of pimply nodules from each intestinal tract was counted to determine nodular density as an index of severity of infection. Data were recorded based on sex, age, and breed of sheep and goats, and predilection site of nodules and reported as prevalence (%) and intensity of infection with association amongst these parameters analyzed using the students “t” test with p-values equal to or less than 0.05 regarded as statistically significant (Graph Pad Instat Software, 2003).

RESULTS

Table 1 shows the prevalence and intensity of pimply gut in sheep based on sex, age, and breed and predilection site. An overall prevalence of 23(21.9%) was recorded with male and young sheep having a significantly ($p<0.05$) lower prevalence of 47.8% and 8.7% compared with female (52.2%) and older sheep (91.3%). The *Yankasa* sheep had a significantly ($p<0.05$) higher prevalence (47.8%) compared with *Balami* (34.8%) and *Ouda* sheep (17.4%). The small intestine also had a significantly ($p<0.05$) higher prevalence (95.7%) compared to the large intestine (4.3%). Table 2 shows the prevalence and intensity of pimply gut in goats based on their sex, age and breed and the predilection site. An overall prevalence of 74(18.5%) was recorded with male and young goats having a significantly ($p<0.05$) lower prevalence of 28.4% and 17.6% compared with female (71.6%) and older goats (82.4%). The Kano red had a significantly higher ($p<0.05$) prevalence of 67.6% compared to Sahel white with 32.4%. The small intestine also has a significantly ($p<0.05$) higher prevalence (79.7%) compared with the large intestine (20.3%).

Table 1: Prevalence and Intensity of Pimply Gut Nodules in Sheep Based on Sex, Age and Breed and Predilection Site

	Number (%) Infected	Mean (range) \pm SD of Nodules Encountered
Overall	23(21.9)	3.43(1-7) \pm 4.24
Sex:		
Male	11(47.8)	3.00 (1-6) \pm 1.54
Female	12(52.2)	3.83(1-7) \pm 1.99
Age:		
< 6 months	2(8.7)	2.00(1-3) \pm 1.41
\geq 6 months	21(91.3)	3.70(1-7) \pm 1.84
Breed:		
Yankasa	11(47.8)	3.60(1-7) \pm 1.91
Balami	8(34.8)	3.75(1-6) \pm 1.75
Ouda	4(17.4)	2.25(1-4) \pm 1.50
Predilection site:		
Small intestine	22(95.7)	3.31(1-7) \pm 1.75
Large intestine	1(4.34)	3(0-6) \pm 4.24

NB: N=105= Number of sheep examined

Table 2: Prevalence and Intensity of Pimply Gut Nodules in Goats Based on Sex, Age and Breed and Predilection Site

	Number (%) Infected	Mean (range) \pm SD of Nodules Encountered
Overall	74(18.5)	5.31(1-17) \pm 11.31
Sex:		
Males	21(28.4)	4.42(1-11) \pm 2.69
Females	53(71.6)	5.60(1-17) \pm 3.94
Age:		
<6months	13(17.6)	5.30(1-13) \pm 3.77
\geq 6 months	61(82.4)	5.43(1-17) \pm 3.65
Breed:		
Kano red	50(67.6)	5.40(1-12) \pm 3.68
Sahel	24(32.4)	4.91(1-17) \pm 3.58
Predilection site:		
Small intestine	59(79.7)	4.70(1-17) \pm 3.40
Large intestine	15(20.3)	7.33(2-15) \pm 3.90

NB: N= 400 = number of goats examined

DISCUSSION

This survey on nodular worm disease of slaughter sheep and goats has revealed a prevalence of 21.9 % and 18.5 % respectively. This is consistent to earlier findings by Biu and Abdul, (2009) in neighbouring Borno State. The genus *Oesophagostomum* has been reported to be endemic in Africa, with the adults as commensals in the large intestine, while the larvae are found in the intestinal wall, and prevalence rates depends on climate and ecology with rainfall, temperature and humidity as vital factors for the survival of the infective free living stages, and diseases is common under intensive management systems (Shah-Fischer and Ralph-Say, 1989; Gasser *et al.* 2006). In this study female and adult sheep and goats were significantly more infected compared to their younger and male counterparts ($p < 0.05$). This agrees with Gasser *et al.*, (2006) that age, demographic and gender discrepancies are possibly due to deferential exposure to contaminated environments and strength of immune response, and repeated parasite exposure allows hosts to become immune and are resistant to infective larvae, but local gastrointestinal reactions become granulomatous giving rise to nodules that are not viable in older hosts (Love and Hutchinson, 2003). Breed differences observed in this study could be related to the suggestions by Shah - Fischer and Ralph- Say, (1989) and Biu, *et al.*, (2012) that genetic factors favour or limit parasitic infections, as certain lines of sheep are more resistant or more susceptible than others. In conclusion, the disease nodulosis is prevalent in Yobe State of Northeastern Nigeria, and extension programmes to educate livestock farmers on the correct measures for preventing and controlling intestinal parasites are recommended.

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