

Prevalence of Ovine Dicrocoeliosis in Maiduguri, Nigeria

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Abstract: A prevalence study on ovine dicrocoeliosis in Maiduguri was conducted between July and August 2007 using the bile sedimentation method (BSM). Out of the 100 gall bladders of sheep examined a prevalence of 5(5.0%) with a mean bile egg count (MBEC) of 16250 was recorded, with female sheep having 4 (6.7%) and MBEC of 15750; male with 1 (2.5%) and MBEC of 500. Also the Ouda breed of sheep had 3 (20.0%) with MBEC of 15000 compared to the Yankasa and Balami bile samples with 1 (3.3%) (750 MBEC) and 1(1.8%) (500 MBEC) respectively ($p < 0.05$). There was a higher MBEC in younger sheep ($p < 0.05$) than in older sheep.

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Introduction

Dicrocoeliosis is widespread among grazing ruminants especially sheep which has a population of about 45.3 million (Biu and Babagana 2004) in Nigeria, and causes severe economic losses in terms of milk and meat production due to liver function impairment and can be fatal on rare occasions (Otranto and Traversa 2002).

Transhumance, a common practice by livestock farmers in Nigeria predisposes livestock to dicrocoeliosis through exposing them to intermediate hosts and inducing stress that leads to immune depression (Duchacek and Lamka, 2003).

However, there is a dearth of information on dicrocoeliosis in this study area, and it is necessary to have accurate and reliable data on its distribution in this study area with a high concentration of pastured sheep.

Materials and Methods

Sample collection:

Ligated gall bladders of 100 randomly selected sheep slaughtered at the Maiduguri abattoir were collected into white polythene bags appropriately labeled according to the sex, age and breed of the sheep.

Sample examination:

Each gall bladder was split open into a large beaker, which was filled to the brim with clean water

and allowed to sediment. The supernatant was decanted and the process repeated until all the bile was completely washed. The sediment was then examined at x10 magnification of the light microscope for *Dicrocoelium* eggs as described by Olupinyo and Ajanusi (2005) and identified using the keys of Soulsby, (1982) that eggs are small, oval, yellowish brown, thick walled, slightly flattened on one side and typically operculate containing a miracidium. Bile egg count (BEC) was done using the MacMaster technique, by mixing the sediment with potassium iodomercurate a floatation medium of high specific density at 1:15 dilution. Using a pipette, the fluid was added to the 2 sides of MacMaster slide and the eggs counted under the light microscope at x10. The students't' test was used to evaluate the level of significance between sexes, age and breeds of sheep examined at 5% confidence interval (Compell, 1986).

Results

The results of this study as shown in Table 1 indicate that an overall prevalence of 5.0% was obtained for ovine dicrocoeliosis. Females were more infected 4 (6.7%) compared to males with 1 (2.5%), while the Ouda breed had 3 (20.0%) compared to Yankasa with 1 (3.3%) and Balami with 1 (1.8%) prevalence.

Table 1: Prevalence of *Dicrocoelium sp.* in sheep examined in Maiduguri

	Number examined	Number (%) infected	Mean Bile Egg Count (MBEC)
Overall	100	5(5.0)	16250
Sex:			
Male	40	1 (2.5)	500
Female	60	4 (6.7)	15750
Age (years)			
1.0	20	2 (10.0)	6500
1.5	11	- (0.0)	-
2.0	35	1 (2.9)	3000
2.5	09	1 (11.1)	3500
3.0	25	1 (4.0)	3250
Breed			
Yankasa	30	1 (3.3)	750
Balami	55	1 (1.8)	500
Ouda	15	3 (20.0)	15000

Discussion

This study on ovine dicrocoeliosis in Maiduguri has revealed a prevalence of 5% despite the short period of rainy season (July to October) with no tangled bush and scanty undergrowth to provide a hospitable environment for esogenous stages of *Dicrocoelium* (Cringoli *et. al.*, 2002). Olupinyo and Ajanusi (2005) in Zaria pointed out that parasitic diseases especially helminthosis pose the biggest problem in livestock development with high mortality annually. More ewes were infected in this study compared to the ram which could be attributed to the findings by Olupinyo and Ajanusi (2005) that it could be due to the immunosuppressive effects of reproductive hormones of the ewes. Sex has also been correlated to the sensitivity of animals to the "small liver fluke" with higher rates in ewes which graze for several seasons acquiring infection, while rams spend considerable period of their lives in fattening units or sheds (Ducommun and Pfister 1991).

In this study younger sheep has been found to express a higher mean bile egg count than older sheep which agrees with the findings by Otranto and Traversa (2002) that age might influence egg output with a higher mean egg count in lambs than adults probably attributed to development of resistance with increasing host age (Gonzalez- Lanza *et. al.*, 1993). Due to significance of dicrocoeliosis to the health of livestock and the nomadic practice which could predispose sheep to infection through exposing them to intermediate hosts and inducing stress, that leads to immune depression (Duchacek and Lamka, 2003), it

is recommended that shepherds should be enlightened on the need for periodic prophylactic dosing of their animals to ensure a healthy flock.

References

1. Biu, A. A. and Babagana, M. (2004). Fascioliasis: Postmortem worm count and faecal analysis in cattle of Borno State, Nigeria. *Journal of Science and Technology Research* 3(3): 4-6.
2. Compell, R.C. (1986). *Statistics for Biologists*. Cambridge University Press. 86pp.
3. Cringolii, G., Rinaldi, L., Veneziano, V., Capelli, G. and Malone, J.B. (2002). A cross-sectional coprological survey of liver flukes in cattle and sheep from an area of the southern Italian Apennines. *Vet. Parasitol.* 108:137-143
4. Duchacek, L. and Lamka, J. (2003). *Dicrocoeliosis- the present state of knowledge with respect to wild life species*. *ACTA Vet. BRNO* 72:613-626.
5. Ducommun, D. and Pfister, K. (1991). Prevalence and distribution of *Dicrocoelium dendriticum* and *Fasciola hepatica* infections in cattle in Switzerland. *Parasitol. Res.* 77: 364-366.
6. Gonzalez-Lanza, C., manga-Gonzalez, M.Y. and Del-Pozo-Canero, P. (1993). Coprological study of the *Dicrocoelium dendriticum* (Digenea) egg elimination by cattle in highland areas in Leon Province, Northwest Spain. *Parasitol. Res.* 79:488-491.

1. Olupinyo, K.C. and Ajanusi, J.O. (2005). Prevalence of *Fasciola* and *Dicrocoelium* species in sheep and goats slaughtered at Zaria abattoir. Nig. Vet. Journ. 26 (2): 73 – 75.
7. Otranto, D. and Traversa, D. (2002). Review of dicrocoeliosis of ruminants including recent advances in the diagnosis and treatment. Vet. Parasitol. 107:317-335.
8. Soulsby, E.J.L. (1982). Helminths, Arthropods and Protozoans of Domesticated Animals. 6th ed. Bailliere Tindall, London 24-26.

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