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Prevalence and Assessment of Herd Owner's Knowledge on Strongylosis in Cattle in Kaduna State, Nigeria

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ABSTRACT

Helminthosis caused by gastrointestinal parasites is one of the major causes of gastroenteritis in cattle. Among the various helminth infections, strongyles appear to be the most common presenting various pathologies resulting to serious economic loss to the cattle industry. This study was carried out inorder to investigate the occurrence of strongylosis in cattle and also assess herd owner's knowledge on helminthic infection and control measures among cases reported to Veterinary Teaching Hospital Ahmadu Bello University, Zaria (between May to November 2018). A total of 22 cases with history of helminth infection were presented to the Teaching Hospital. During the study period a total of 200 feacal samples were collected randomly from 22 herds which were spread across Kaduna State. The samples collected were subjected to coproscopy (flotation and sedimentation methods) and coproculture inorder to determine the occurrence of strongyles and other concurrent gastrointestinal parasites in cattle. Herd owner's knowledge about strongylosis, its health impact and control measures was assessed through focus group discussion. Out of the 200 feacal samples examined an overall occurrence of 26% indicated Stronglye infection. Occurrences of other gastrointestinal parasites include Coccidia (8%) and Moniezia (1.5%). Detection and identification of stronglye larvae using coproculture showed Trichostrongylus specie (12%) Haemonchusspecie (7%) and Cooperia (1%).Assessment of herd owner's knowledge on helminthic infection indicated that(100%) of the herd owner's interviewed knew the infection with local name (Tsutsaor Masatsaku), (60%) can identify it based on rough hair coat while 40% can identify it based on diarrhea. Majority of the herd owner's (90%) have knowledge on ways of transmission through ingestion while (10%) consider it to be through aerosol. Among the respondents (40%) have the knowledge of use of anthelmintic to treat while (60%) don't have that knowledge. In conclusion the study has indicated that stronglye infection is common among the herds sampled with subclinical presentation although it may pose some negative impact on the health of the animal and that could affect productivity. It is hereby recommended thatherd owner's should be educated on helminth infection as well as sensitize them on the various strategies for the control and prevention

Key words: Herd Owner's, Cattle, Strongylosis, Coproscopy, Coproculture,

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INTRODUCTION

Helminth infection is a problem that occurs worldwide and it brings a huge economic loss to the cattle industry. Infection can cause reduction in feed utilization and this can affect weight gain, reduction in milk production or even mortality in extreme cases [1]. The most common intestinal helminth of cattle include the *Trichostrongylus* specie, *Haemonchus* specie, *Oestergia* specie, *Oesophagostumum* specie, *Bunostomum* specie, *Trichuris* specie..Helminthosis due to intestinal helminth occurs when the larvae of intestinal helminth is released after the host ingests the eggs. The larvae penetrate the interior part of small intestine for about 2-10 days before moving to the caecum where it moults to adult [2]. Documented reports have shown that the occurrence of parasitic gastroenteritis is related to the agroclimatic conditions like quantity and quality of pasture, temperature, humidity and grazing behaviour of the host and also, that susceptibility to infestation is influenced by factor of age [3] breed [4] species[5] health status, physiological factors of pregnancy and previous exposure to parasite. Evidences have also [6] shown that nomadic herds seems to present higher infection with helminth parasites most especially in cattle, which are kept under the traditional management system [7]. This study was carried out in order to determine the occurrence of strongylosis and other concurrent gastrointestinal parasites in cattle presented to the ambulatory unit of Veterinary Teaching Hospital, Ahmadu Bello University, Zaria between May to November 2018 and also to assess the knowledge of herd owner's about the disease and its various control measures.

MATERIALS AND METHODS

Two hundred faecal samples were collected directly from the rectum of individual cattle in to individual polythene bags that were labelled for examination. The samples were collected from herds that reported suspected cases of Helminthosis to the ambulatory unit of Veterinary Teaching Hospital Ahmadu Bello University Zaria for a period of seven months from May to November 2018. The faecal samples were processed in the laboratory by simple floatation technique using saturated salt solution for detection of nematode and cestode eggs and sedimentation techniques for trematode eggs [8]. Samples that could not be processed on the same day were refrigerated at 4^{o}C until the following day. Furthermore all the faecal samples were coprocultured using modified Veglia's method [9]. Individual samples were cultured in clean dry glass bottles measuring 10 cm in height and 5.0 cm in diameter. About 20gmseach of the individual faecal samples was weighed and using a spatula it was transferred into culture bottles with care not to soil the sides. The individual bottles were closed and kept in the dark for 7-10 days at room temperature. The bottles were examined in light and observations were made on the sides of the bottles inorder to detect the larvae after 7-10 days culture. Focus group discussion using an open ended questionnaire was administered in each herd where faecal samples were collected

RESULTS

In this study an overall occurrence of *Strongyle* infection was found to be 26% with concurrent infections with *coccidia* (8%) and *Moniezia* (1.5%) (Table1).

The faecal samples were subjected to coproculture for recovering the strongyle larvae and the occurrence of the following strongyles were recorded as follows; *Trichostrongylus* species was found to be (12%), the species of *Trichostrongylus* larvae had a conical sheath tail extension without filament and tapered sharply and it resembled the point of a wooden pencil. This was followed by *Haemonchus* specie (7%), and the species of *Haemonchus* were identified by the presence of

a sharp kink in the tail sheath just posterior to the end of the tail. Lastly *Cooperia* specie (1%) and the infective larvae of *Cooperia* specie had two unique oval refractile bodies in the head which was the most striking feature from those of other genera (Table 2).

Focus group discussion with the herd owner's indicated that100% of them knew strongyle infection with local name (Tsutsa or Masatsaku) (60%) of the herd owners can identify it based on rough hair coat while 40% can identify based on diarrhea. Majority of the herd owner's (90%) have knowledge on ways of transmission through ingestion while (10%) consider it to be through aerosol. Among the respondents (40%) have the knowledge of use of anthelmintic to treat while (60%) use local herbs for treatment (Table 3).

Table1: Prevalence of Strongyles with concurrent infection with Coccidia and Moniezia

Location	Number of samples Analyzed	Strongyles	Coccidia	Moniezia
Gubuci	30	12	2	0
Marabar Danja	27	6	0	0
Kangime	49	9	4	0
Goron Maje	58	17	7	3
Garu	36	8	3	0
Total	200	52(26%)	16(8%)	3(1.5%)

Table 2: Occurrence of Strongyles larvae by Coproculture in the analyzed samples

Location	Number of samples Analyzed	Trichostrongylus	Haemonchus	Cooperia
Gubuci	30	1	0	0
Mararaba Danja	27	2	0	0
Kangime	49	3	4	0
Goron Maje	58	12	8	2
Garu	36	6	2	0
Total	200	24(12%)	14(7%)	2(1%)

Table3 Herd owner's Knowledge on Strongylosis

Variable	Proportion	Percentage (%)
Name of disease		
(Tsutsa or Masatsaku)	22	100
Clinical sign		
(rough hair coat)	12	60
Others signs(diarrhea)	10	40
Transmission		
Ingestion	20	90
Aerosol	2	10
Anthelmintic use		
Anthelmintic	9	40
Herbs	13	60

DISCUSSION

In this study out of the 200 feacal samples analyzed, strongyles represent 26% of the parasites seen and this was followed by *Coccidia* (8%) and *Moniezia* (1.5%). The high prevalence of strongyles recorded could be attributed to the grazing habit of the animals (cattle) most especially around the month of June and July where they stand high chances of acquiring the infection since the ambient temperature and high humidity are favourable for hatching the eggs to the infective stage. Thus cattle become infected when they consume the infective larvae with the grass. Similar findings were reported by [10] and [11].

In determining the different larvae of the strongyles, occurrence of *Trichostrongylus* was higher than *Haemonchus* and *Cooperia*. Coproculture technique is still one of the most useful techniques for recovering different species of strongyle larvae and hence the different specific species identification was possible. This present work concurs with the work of [12] and [13]. Analysis of focus group discussion with the herd owner's indicated that they use the local name (Tsutsa or Masatsaku) for helminth irrespective of either nematode trematode or cestode. However they refer to helminth infection caused by Fasciola with the local name (Hanta). Majority of the herd owner's knew the infection can be acquired through ingestion and majority of them do not use anthelmintic for treatment or control of the infection rather they use local herbs

CONCLUSION

In conclusion this study has shown the occurrence of strongyles with other concurrent helminth infection in cattle and it comes sub clinically which if left unchecked can affect feed utilization which subsequently can result to loss of body weight, reduction in milk production or even mortality in extreme cases. This could be attributed to the unhygienic herd premises free range grazing system and early morning grazing on pastures during the raining season and lack of strategic deworming of animals at the right time. It is herby recommended that cattle should be routinely dewormed, early morning grazing during the wet season should be avoided and herd owner's should be educated on significance of preventive treatment using anthelmintic.

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