Acta Parasitologica Globalis 5 (2): 115-119, 2014
ISSN 2079-2018

DOI: 10.5829/idosi.apg.2014.5.2.82195

Prevalence of Haemonchosis in Sheep Slaughtered at Abergele Export Abattoir

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Abstract: A cross-sectional study was carried out from November 2010-April 2011 to determine the prevalence of *Haemonchus* (*H*) *contortus* in sheep slaughtered at Abergelle Export Abattoir in Mekelle, Ethiopia. Appropriate procedure was applied for postmortem examination and sample collection. A total of 768 sheep abomasums, collected from randomly selected sheep, were examined on postmortem. The overall prevalence of *H. contortus* was found to be 26.8%. It was noticed that high prevalence was recorded in animals with poor body condition (33.6%), followed by medium body condition (21.7%) and the lowest was recorded in animals with good body condition (19.7 %%). The highest prevalence was recorded during the month of November (45%), followed by December (32.2%) and the lowest prevalence was recorded during the month of January (20.3%). The occurrence of haemonchosis was more frequently recorded in youngest (less than one year) (28.5%) than in older (above one year) sheep (25.9%) but there was no statistically significant difference ($P>0.05$) observed with the risk factor (age) in relation to the prevalence of *H. contortus*. However, there was statistically significant difference ($P<0.05$) observed among the risk factors (body condition and month) in relation to the prevalence of *H. contortus.* Therefore, there should be treatment and strategic control measure.

Key words: *Haemonchus contortus* · Prevalence · Sheep · Abergele Export Abattoir

INTRODUCTION

Endoparasites are responsible for the death of one third of calves, lambs and kids result considerable loss of part of carcasses condemned during meat inspection [1] and are major factors responsible for economic losses through reduction in productivity and increased mortality. *H. contortus*, which is known as ‘’red stomach worm’’ or ‘’wire worm’’, is one of the most prevalent and pathogenic abomasal worms of sheep. [2].

Major impacts of *H. contortus* is associated with the blood sucking activity of the parasites which responsible for extensive loss of blood [2] resulting decrease in erythrocyte, lymphocyte hemoglobin packed cell volume, body weight and wool growth [3].

H. contortus causes retarded growth, low productivity, loss of appetite, decrease in protein, impaired digestive efficiency and poor reproductive performance which can lead to loss of meat and wool production [4, 5]. On global basis *H. controtus* probably causes more losses than any other species of nematode in ruminants [6].

The disease caused by this parasite (haemonchosis) is prevalent wherever sheep and goats are raised, but it exerts the greatest economic losses in temperate and tropical regions [7]. The seasonal trend in the haemonchosis is influenced by a number of abiotic and biotic factors that dictate the development and survival of pre-parasitic stages of *H. contortus* onto the herbage [8]. This situation has highlighted the need to acquire comprehensive epidemiological knowledge of haemonchosis in order to devise appropriate and cost effective strategies to control GIN parasites with timely.

This paper describes the point prevalence of haemonchosis in sheep slaughtered at Abergele export abattoir.

MATERIALS AND METHODS

Across-sectional study was conducted from November 2010-April 2011 to determine the prevalence of *H. contortus* in sheep at Abergelle Export Abattoir, Mekelle. All animals presented for slaughter at Abergelle export abattoir were male. A total of 768 sheep were

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grouped into age groups (<1year and >1 year) based on teeth eruption [9] and body conditions (poor, medium and good) as per Kempster *et al*.[10].

The animals were selected randomly and the abomasums were removed from the abdominal cavity and opened along their greater curvature. Close visualization was made for the presence of adult *H.s contortus*. The worms were collected in normal saline and identified based on the characteristics given by Soulsby [11].

The data collected was analyzed using STATA 7.0 statistical soft ware. Chi - square test was applied to test if statistical significant exist between risk factors such as age, body condition and month. For all analysis performed, $P < 0.05$ was taken as statistical significant [12].

RESULTS

In this study a total of 768 sheep were examined on post mortem for the presence of *H. contortus*. From these examined sheep, 206 were positive for *H. contortus* with the overall prevalence of 26.8%. An attempt was made to see the influence of age on the prevalence of *H. contortous* infection. There was no statistically significant variation ($p > 0.05$) in prevalence of *H. contortus* among the studied age group. (Table-1)

There was statistically significant variation ($p < 0.005$) in prevalence of *H. contortus* among different body condition. The highest prevalence was seen in poor body conditioned animals (33.06%) while the lowest in good body condition animal (19.7%) (Table. 2).

The effects of season were recorded on the prevalence of *H. contortus* in sheep. Prevalence of *H. contortus* revealed a significant difference ($p < 0.005$) Month-wise. The highest prevalence was recorded during the month of November (45%), followed by December (32.2%), where as the lowest prevalence 20.3% was recorded during the month of January (Table -3).

DISCUSSION

The present study revealed that an overall prevalence of 26.8% reflects the importance of H, contortus in sheep in the studied area. This is still very low compared to the prevalence reported in other countries: 82% in Togo [13], 94% in Middle Guinea [14].and60% in Eastern Ethiopia [15]. The various prevalence rate of *H. contortus* is also reported by different researchers from different parts of the world ranging from 7.9%-94%. 7.9% in Egypt [16], 28.88%from Pakistan [17], 58% from Bangladesh [18], 76.92% from India [19] and 80.21% from Gonder, Ethiopia [20]. The rate of *H. contortus* infection in sheep varies

Table 1: Age wise prevalence of *H. contortus* in sheep

Age	Number of sheep examined	Number of positive	Prevalence	X^2 (p-value)	df
>1 year	498	129	25.9%	0.610(0.435)	1
<1 year	270	77	28.5%		
Total	768	206	26.8%		

Table 2: Prevalence of *H. contortus* in sheep based on body condition

Body condition Score	Number of sheep examined	Number of positive	Prevalence	X^2 (p-value)	df
Good	142	28	19.7%	15.623(0.000)	2
Medium	272	59	21.7%		
Poor	354	119	33.6%		

Table 3: Month wise prevalence of haemonchosis in sheep

Month	Number of sheep examined	Number of positive	Prevalence	X^2(p-value)	df
November	40	18	45%	14.739(0.005)	4
December	177	57	32.2%		
January	232	47	20.3%		
February	106	26	24.5%		
March	213	58	27.2%		

from one part of the world to the other could be accounted on the basis of differential management practices, such as regular deworming, intensification, housing and feeding management practice [21-23], age (young animals are more susceptible than adult animals) [24], sex (female animals are more susceptible than male animal due to cyclic hormonal variation) [25]. breed of the host (there are breads which are resistance to the parasite) [26, 27], local geo-climatic factors [28-30] and nutrition [31-33].

Similarly to the reported data [34], age had no significant influence in the occurrence of infections. Maybe the ages clustering did not allow sufficient variability (just two groups around one year old). During the study period, monthly prevalence of *H.contortus* was corresponds with wet, humid and warm season. It was observed that highest prevalence of haemonohosis was recorded during the month of November and the lowest prevalence was recorded during the month of January. These findings are consistent with those of [35, 36] and [37] reported that the high biotic potential of *H. contortus* result in rapidly assuming dominance at times when environmental conditions on pasture are favorable for the development and survival of free living stages. The prevalence rate of haemonchosis started to decrease steadily from November to January and increase steadily from January to March.

There was statistically significant variation ($p < 0.005$) in prevalence of *H. contortus* among different body condition. The highest prevalence was seen in poor body conditioned animals (33.6%) while the lowest in good body condition animal (19%). Results of the present study revealed that body condition of the host seems to have influence on the prevalence of infection. Similar results have been reported by Gonfa [38]. The highest infection rate recorded in poor body condition may be due to the effect of heavy infection rate of haemonchus parasite and other factors, which lead to significant weight loss.

CONCLUSION

Haemonchus contortus is an important blood sucking parasite of the ovine's and causes loss of production. The result of the present study indicated that *Haemonchus contortus* is an important disease in the area and its prevalence is mostly associated with the epidemiological factors. Thus, the strong influence of the season is a favorable factor to be considered in the prophylactic fight. Animals should be kept in high plane of nutrition (management) especially sheep in poor body condition and young's in order to develop resistance.

ACKNOWLEDGEMENT

The study was funded by Mekelle University. The authors express their gratitude to the University.

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