Prevalence of Gastrointestinal Helminths of Horses (Equus Caballus) in the Southern Guinea Savannah Zone of Northern Nigeria

Wosu M. I. and Udobi S. O.

Prevalence of Gastrointestinal Helminths of Horses (Equus Caballus) in the Southern Guinea Savannah Zone of Northern Nigeria

*1Wosu M. I. and 2Udobi S. O.

1 Department of Veterinary Parasitology and Microbiology, College of Veterinary Medicine, Micheal Okpara University of Agriculture, Umudike, Nigeria.
2 Guards Brigade Medical Centre, Asokoro, Abuja, Nigeria.

Abstract

The study was carried out to determine the prevalence and significance of Gastrointestinal (GI) helminth parasites of horses in the southern guinea savannah zone of northern Nigeria. Faecal samples were collected from 159 randomly selected horses of varied sexes for the study. One hundred and twenty-one (121) (76.1%) horses were infected with GI helminth parasites. The helminth parasites detected include Strongylus spp (55.3%), Oxyuris spp (30.2%) and Strongyloides spp (10.7%). Twenty-eight (28) (17.6%) horses showed infection with more than one of the observed parasite species. Female animals were found to be more infected (80.8%) than their male counterparts (58.8%). The findings show that parasitism is a problem in the stables examined and calls for proper stable hygiene, improved management practices and regular and strategic parasite monitoring and deworming programmes in order to achieve improved health and performance.

Keywords: Gastrointestinal, helminths, horses, Northern Nigeria.
Introduction

Gastrointestinal helminth parasite infection is a major militating factor against profitable animal production the world over (Fabiyi, 1979; Chiejina, 1986). Horses among most domestic animals have been reported to be more susceptible to a large number of parasites and may harbor different species at a given time (Wannans et al., 2012). An apparently healthy horse can harbor over half a million gastrointestinal parasites such as protozoa, trematodes, cestodes and nematodes (Stoltenow and Purdy, 2003; Martins et al., 2009). This is because the gastrointestinal tract provides a suitable environment for the survival and proliferation of many of these parasites (Umar et al., 2013). Horses are important animals in Northern Nigeria and indeed, other parts of the country. Parasitic diseases have been reported to be the most prevalent disease of horses in Zaria, an area in the derived savannah zone of Northern Nigeria, accounting for 82.3% of the cases presented in a Veterinary clinic over a period of 28 years (Useh et al., 2005). Despite this, there is still a paucity of information on the gastrointestinal heminth parasites of horses in the North Central part of Nigeria. Several cases of subacute or chronic endoparasitic infection have led to massive economic losses in livestock establishments, either due to decreased productivity in affected animals or increased mortality in affected flocks. This study was therefore designed to determine the prevalence and significance of parasitic infections of horses in the southern guinea savannah zone of Northern Nigeria.

Materials and Methods

Experimental Animals

One hundred and fifty-nine (159) horses of varied sexes were randomly selected for the study. The horses used in this study were stabled and maintained by Guards Brigade Polo Club, Asokoro, Abuja in the Southern Guinea Savannah Zone of North–Central Nigeria. The horses were usually stabled and fed with hand cut grasses and crop residues but occasionally grazed in open fields.

Sample Collection and Analysis

Under proper restraints, faecal material was collected directly from the rectum of each individual animal using transparent polythene hand gloves. The tails of the restrained horses were raised gently and the gloved fingers were inserted into the anal opening from which a small quantity of faeces was collected, tied and labeled appropriately (Stoltenow and Purdy, 2003). Collected samples were transported to the Guards’ Brigade Medical Centre Pathology laboratory where the samples were processed by direct smear and simple floatation technique employing saturated sodium chloride solution as the floating medium (MAFF, 1977). Processed samples were examined under the light microscope where parasite eggs seen were identified based on morphological characteristics as described by Soulsby (1982).

Ethical Consideration

The provisions of the European Convention for the protection of Vertebrate animals used for experimental and other scientific purposes were followed in this study.

Results

The results show that the observed overall prevalence of infection in the examined horses in the study area is 76.1% (Table 1). Ninety-three (93) horses (58.5%) showed infection with a single gastrointestinal nematode parasite species while 28 (17.6%) horses were infected with more than one species of gastrointestinal parasite. It was also observed that female animals were more infected (80.8%) than male animals (58.8%). Also, the occurrence of multiple infection with different parasite species in the same animal was seen more in the female than in the male animals examined (Table 2). Three different gastrointestinal nematode parasite species were observed in the animals studied (Table 3), with Strongylus spp showing highest prevalence (55.3%), followed by Oxyuris spp (30.2%) and Strongyloides spp with the least prevalence of 10.7%.
Table 1: Overall Prevalence of helminth parasite infections among horses examined in North-central Nigeria (percentage positive in parenthesis).

<table>
<thead>
<tr>
<th>Total number of animals sampled</th>
<th>159</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number positive</td>
<td></td>
</tr>
<tr>
<td>Endoparasites</td>
<td>93 (58.5%)</td>
</tr>
<tr>
<td>Mixed Infection</td>
<td>28 (17.6%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>121 (76.1%)</td>
</tr>
</tbody>
</table>

Table 2: Prevalence of gastrointestinal parasites among horses examined in North – Central Nigeria in relation to gender (percentage positive in parenthesis).

<table>
<thead>
<tr>
<th>Sex</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Sampled</td>
<td>34</td>
<td>125</td>
</tr>
<tr>
<td>Number positive</td>
<td>16 (47.1%)</td>
<td>77 (61.6%)</td>
</tr>
<tr>
<td>Endoparasites</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed Infection</td>
<td>4 (11.8%)</td>
<td>24 (19.2%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20 (58.8%)</td>
<td>101 (80.8%)</td>
</tr>
</tbody>
</table>

Table 3: Prevalence of helminth parasites observed among horses screened in North – Central Nigeria in relation to observed parasite species.

<table>
<thead>
<tr>
<th>Parasite</th>
<th>Number Positive</th>
<th>Number Negative</th>
<th>Percent Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongylus spp</td>
<td>88</td>
<td>71</td>
<td>55.3%</td>
</tr>
<tr>
<td>Strongyloides spp</td>
<td>17</td>
<td>142</td>
<td>10.7%</td>
</tr>
<tr>
<td>Oxyuris spp</td>
<td>48</td>
<td>111</td>
<td>30.2%</td>
</tr>
</tbody>
</table>

**Discussion**

The prevalence of gastrointestinal nematode parasites in the horses used for the study was high (76.1%). The findings show that despite the attention given to horse management in the Northern part of Nigeria compared with other domestic livestock, parasitism is still a major problem as reflected in the horse stables examined. From the investigation on the management systems practiced in the study area, it was concluded that management system played a major role in the overall prevalence of parasitism in the study area. It is noteworthy that most of the economically important parasites (Strongylus spp, Strongyloides spp and Oxyuris spp) recorded in the present study have direct life cycles, where adult parasites living within the horse sheds ova (eggs) which are excreted in pasture, the larvae develop, hatch and moult to the infective third stage (L3) which serve as a source of contamination of housing facilities, exercise areas, pasture and feedstuff, resulting either in infection or re-infection of susceptible horses. This could lead to the high prevalence recorded in the study, despite veterinary care given to the horses in the study area. Strongylus spp, commonly known as the blood worm, is a common horse parasite which generally lives in the large intestine. It is considered one of the most pathogenic nematode parasites of horses and is widely distributed worldwide wherever there are grasslands as characterize the study area (Johnstone, 2000). Strongyloides spp also called threadworms are a group of parasitic roundworms that affect many domestic and wild vertebrates including horses. They are also found worldwide in regions with warm, humid climates, and also in rural areas with poor sanitation standards (Roberts and Janovy, 2005). The horses in the study, though confined to stables are occasionally allowed to graze in open fields or on hand cut grasses to supplement the feed usually fed to the animals. When contaminated, the pasture environment or hand cut grasses could result in infection or re-infection of susceptible
animals even after a regular treatment regime. It was also observed that during Polo game festivals, horses from stables in other parts of the country are introduced into the existing herd to participate in such games. This could attribute to introduction of parasites from other areas into an otherwise healthy flock, leading to an increased rate of infection of the horses as seen in the study. The high prevalence of infection recorded in the study agrees with the findings of other researchers in similar areas (Useh et al., 2005; Ehizibolo et al., 2012; Umar et al., 2013). Only three GI helminth parasites were recorded in the study. Nwosu and Stephen (2005) recorded only two parasite species in the horses kept by the Mounted troop, Bornu State Command in Northern Nigeria while Ehizibolo et al., (2012) recorded seven GI parasite species in the horses kept by Institutions and private owners studied across three Northern States in Nigeria.

The study showed that infection rates were higher in female than in male animals examined. This agrees with the findings of Francisco et al., (2009). However, in their studies on horses in different areas of Ethiopia, Fikru et al., (2005) and Mezgebu et al., (2013) reported no significant difference in the influence of sex in parasitic infections in horses while Umar et al., (2013) reported a higher prevalence of infection in male than female horses.

Conclusions

From the findings of this study, it is highly recommended that proper screening and monitoring of the horses should be carried out regularly in the stabled horses. Also, regular and strategic deworming programmes with efficacious anthelmintics should be carried out regularly. Furthermore, all newly introduced animals into the herd must be quarantined and properly screened and treated to prevent environmental contamination with harmful helminth parasites.

References


