Prevalence and Burden of Fascioliasis in Sheep: A Neglected Tropical Parasitic Disease in Maiduguri, Borno State, Nigeria

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Abstract
The study aims to record the prevalence and burden of some zoonotic parasites that served as etiologic agents to some Neglected Tropical parasitic Diseases (NTs) (Fascialiosis) in Maiduguri, Borno State during the period from January, 2017 to April, 2019. A total of 100 Sheeps were slaughtered in the Abattoir, and were examined for the presence of Fasciola species based on morphological and morphometric parameters. The physical inspection of the liver indicated that 46(46%) of the sheep were infected with fluke burden of 456. The result of this study is higher than the findings of Ademola (2003) and Mbaya et al, (2010) who reported higher prevalence during raining season and this could be

Introduction
Fascioliasis is a zoonotic parasitic disease that occurred in all domesticated ruminant worldwide (Reagh, et al, 2016). The aetiologic agents are Fasciola hepatica and Fasciola gigantica which are widely distributed globally particularly in Nigeria (Rokni. Et al, 2014). Fascioliasis, caused by the trematodes of the genus Fasciola, is a zoonotic parasitic disease belonging to the group of neglected tropical diseases (NTDs) and one of the 17 NTDs as reported by WHO, 2014. According to Mas-Coma, et al, 2015 Fascioliasis infection in ruminants including small and large are the major causes of economic losses worldwide. Despite the significant to similarities between Fasciola species, the specific Species of helminths were identified based on their morphology and morphometry characters, using a microscope, equipped with camera for measuring various location of the internal organs (El-Rahimy, et al, 2012, MasComa, et al, 2009).

Results and Discussion
The study aims to record the prevalence and burden of some zoonotic parasites that served as etiologic agents to some Neglected tropical diseases (NTDs) as shown in figure 1. &2 (WHO 2019) particularly Fascioliasis in Maiduguri, Borno state during the period from January, 2017 to April, 2019. A total of 100 Sheep were slaughtered in the Abattoir, and were examined for the presence of fasciola species based on morphological and morphometric parameters. A physical inspection of the liver indicated that 46 (46%) of the sheep were infected with fluke burden of 456. The result of this study is higher than the findings of Ademola (2003) and Mbaya et al, (2010) who reported higher prevalence during raining season and this could be
attributed to high influx sheep from the neighboring countries during festive periods. Among the 63 males examined 29 (46.0%) had fluke burden of 356, whereas, 37 of the females examined 14 (37.8%) had fluke 100. whereas among the breeds, 27 Uda were examined with 11 (40.7%) infected had a fluke burden of 186, while 33 Balami breeds examined with 22 (66.7%) infected had a fluke burden of 204 and 40 Yankasa examined with 10 (25%) infected had a fluke burden 66 respectively. The identification of the Fasciola species was based on their morphometric sizes and predilection site revealed that Fasciola hepatica was identified as having a mean size of 2.0 X 3.0 mm with the liver as predilection site. While Fasciola Gigantica has 3.5 X 4.0 mm after well pressed between two slides prior to measurement.

**Recommendation**

Fascioliasis is a zoonotic disease and neglected tropical diseases that required urgent public health attention. Thus, control measure should be intensified by destruction of intermediate host (snail) and periodical administration anthelmintic to ruminants.

**Results and Discussion**

**Table 1:** prevalence of fascioliasis infection in sheep based on sex and breeds

<table>
<thead>
<tr>
<th>Sex</th>
<th>Uda</th>
<th>Balami</th>
<th>Yankasa</th>
<th>SEM</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>19</td>
<td>20</td>
<td>24</td>
<td>1.5275</td>
<td>2.6458</td>
</tr>
<tr>
<td>Female</td>
<td>11</td>
<td>16</td>
<td>10</td>
<td>1.8559</td>
<td>3.2146</td>
</tr>
</tbody>
</table>

**SEM:** Standard error of mean  
**SD:** Standard Deviation

**Table 2:** Infestation rate (%) in sheep across different age groups

<table>
<thead>
<tr>
<th>Breeds of sheep</th>
<th>Age Group</th>
<th>Uda</th>
<th>Balami</th>
<th>Yankasa</th>
<th>SEM</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uda</td>
<td>Adult</td>
<td>27</td>
<td>11</td>
<td>22</td>
<td>5.5678</td>
<td>9.6437</td>
</tr>
<tr>
<td></td>
<td>Young</td>
<td>20</td>
<td>11</td>
<td>10</td>
<td>4.096</td>
<td>7.0946</td>
</tr>
</tbody>
</table>

**Reference**

5. FAO/WHO. Multicriteria-based ranking for risk management of food-borne parasites. 2014, 287
9. Mbaya AW, Shingu P, Luka J. A retrospective study on the prevalence of Fasciola infection in sheep and Goats at slaughter and associated economic loses from condemnation of infected liver in Maiduguri Abbatoir, Nigeria, 2010