Preliminary Assessment of Goat Piroplasmosis in Benadir Region, Somalia

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ABSTRACT

Haemoparasites are major constraints on livestock production in tropical and sub-tropical countries. This study was conducted during 2012-2013 to determine the prevalence of blood parasites in goats of small-holders in Benadir region, Somalia and update epidemiological data that had already lost during the civil war in the country. A total of 100 blood samples were collected from goat in Wadajir (47 goat) and Dharkeynley (53 goat) districts, using venipuncture of jugular vein. The samples were examined for the presence of blood parasites using light microscopy. Some ticks when presented in the sampled animals—were also collected for tick identification. Analysis of blood smears revealed 100% samples positive for blood parasites. Out of these cases, 22 samples (22%) were harboring single infection of Babesia spp. and 14 samples (14%) were having single infection of Theileria spp. Interestingly the Remaining 64 blood samples (64%) showed mixed infection of Babesia spp. with Theileria spp. Rhipicephalus evertsi (72.84%), Rhipicephalus pulchellus (34.57%), Amblyomma lepidum (3.70%) and Hyalomma rufipes (1.23%) were identified from the investigated goats. In conclusion, the findings of this study indicated that the prevalence of tick and tick-borne diseases were considered to be high in Benadir region of Somalia. A further area wide in-depth study is recommended in the country.

Keywords: Piroplasmosis, T&TBDs, Goat, Benadir Region, Somalia

1. Introduction

Haemoproteozoon parasites are the main livestock production constraints all over the world ([1-3]). Causing serious economical losses, tick and tick borne diseases (T & TBDs) still remain to be a major threat to animals in tropical and sub tropical countries ([1,4,5]) including Somalia. In case of these blood parasites infection up to 75% erythrocytes may be destroyed in fatal cases and even in milder infection so many erythrocytes are destroyed, then a severe anaemia result ([1,2]). Babesiosis, Theileriosis and Ehrlichiosis (Cowdriosis and Anaplasmosis) are the major TBDs that cause serious diseases among Central and East African animals including goats ([1,4]). This study was undertaken to know the ubiquity of T&TBDs prevalent in goat in Benadir region, Somalia. This will further pave the way for launching sustainable animal disease controlling/minimizing in Somalia. The livestock sector in Somalia is an important contributor to the overall economy of Somalia, with its vast rangeland grazing area and large animal population. They are adapted to a nomadic way of grazing which may be migrated through borders with Djibouti, Ethiopia and Kenya. This may affect the distribution of such diseases in the country. There is little information on national herd distribution and composition up to date. About 37.5 millions grazing animals were reported ([6,7]). Other data gathered by the Food Security Assessment Unit [8] were a total of 38.9 millions grazing animals. The composition of animals in southern Somalia is shown in the Table 1.

The total collapse of the state and lawlessness resulted in the loss of most animal health services and facilitates scarcity of research projects. Then the spread of livestock diseases in the country is uncontrolled. Therefore this study will contribute on a recent data base of parasitical diseases in Somalia.
2. Materials and Methods

Study Area:
Before the outbreak of the civil war in 1991, the Democratic Republic of Somalia covered an area of 638,000 square kilometres in the Horn of Africa. Somalia's landmass is dominated by arid and semiarid rangelands for which pastoralism is the most appropriate form of land use.

Benadir region is one of the southern regions of Somalia. The Districts of study are Wadjir and Dharkeynley which commonly known as “Medina” (See Figure 1).

Animals: Goats of small-holders in Benadir region, Somalia.

Samples:
Blood samples: A total of 100 goat blood samples were collected aseptically in a sterilized syringe from the jugular vein and transferred into blood containers containing EDTA. A drop of blood was also spotted on filter paper, dried and stored in -20°C until needed for further molecular confirmation. Thin blood smears were prepared and fixed with absolute methanol and stained with Giemsa’s stain. These samples were transported to Sudan for parasitological investigation. The stained blood smears were examined microscopically in Parasitology Lab., College of Veterinary Medicine, Sudan University of Science and Technology (SUST).

Ticks samples: Ticks were collected from some of the sampled animals and preserved in 70% ethanol and transported to Sudan for tick identification. These samples were identified in the Department of Entomology.

Table 1. Livestock population in Southern Somalia [8].

<table>
<thead>
<tr>
<th>Area</th>
<th>Camels</th>
<th>Cattle</th>
<th>Sheep</th>
<th>Goats</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Somalia</td>
<td>1,217,470</td>
<td>1,340,870</td>
<td>707,020</td>
<td>1,860,110</td>
<td>5,125,470</td>
</tr>
</tbody>
</table>

Figure 1. Wadjir and Dharkeynley districts.
3. Results and Discussion

In this study, screening test of 100 blood samples reveals that all blood smears were positive with hyperparasitaemia of Piroplasms (Plate 1). Despite the animal is apparently healthy and this might be due to the unusual acaricidal practice among goat householders or due to host resistant to these parasites, hence there is a hyperparasitaemia as well as mixed infection of Piroplasms. A further investigation using advanced molecular techniques is needed in this aspect.

As shown in Table 2, analysis of stained blood smears revealed 100% samples positive for blood parasites. Out of these cases, 22 samples (22%) were harboring single infection of Babesia spp. and 14 samples (14%) were having single infection of Theileria spp. Interestingly the remaining 64 blood samples (64%) showed mixed infection of Babesia spp. with Theileria spp.

In the present study Rhipicephalus evertsi is found to be the superior (72.84%) among goat ticks in Somalia (Plate 2), followed by Rhipicephalus pulchellus (34.57%), Amblyomma lepidum (03.70%) and Hyalomma rufipes (01.23%). This may reflect the high prevalence of TBDs reported in these goats. Similar tick species were identified in East Africa [1].

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REFERENCES


