Digestive Tract Problems and Their Therapeutic Management in Gondar University Veterinary Teaching Clinic

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Abstract: The digestive tract is subject to infection by many pathogens, which are a major cause of economic loss due to illness, suboptimal performance and death. Digestive tract diseases constitute a major threat to the health and welfare of animals in Ethiopia. A case study was carried out in University of Gondar veterinary teaching clinic to assess the major digestive tract problem treated and their therapeutic management. More than 2336 cases which were treated at Gondar veterinary teaching clinic from September 2014 to April 2016 were assessed. The study revealed that from 2336 cases treated during the specified period, 222 (9.5%) cases were treated for digestive tract problem. The most frequently diagnosed digestive tract problems identified in the present study was impaction 16.22%, salmonellosis 14.41%, bloat 11.71%, acidosis 9.91%, simple indigestion 8.11%, coccidiosis 7.66%, colic 7.21%, enteritis 5.86%, GIT parasite 5.41% and other digestive tract problem accounts for 13.51%. The most commonly used therapeutic agents used for the treatment of gastro intestinal tract problem in the veterinary teaching clinic were oxytetracycline, indigestion powder, paraffin and sulfamethoxazole which accounts for 19.79%, 18.75%, 17.71% and 15.63%, respectively. This study indicates digestive tract problem to be the major constraint or problem for livestock productivity and agricultural development in the study area. Impaction caused by eating un digestible foreign bodies or accumulation of indigestive materials in the rumen of the animal, diarrhea caused by salmonella, enteritis and coccidiosis, bloat and acidosis caused by highly digestible protein containing legumes plants being the major digestive tract problems. Proper management of digestive tract problems and proper husbandry and feeding management is important to reduce the impact of digestive tract problems.

Key words: Digestivetract • Frequency • Livestock • Problems

INTRODUCTION

Ethiopia is believed to have the largest livestock population in Africa [1-3] contributing 16.5% of the national Gross Domestic Product (GDP) and 35.6% agricultural GDP [4]. The sub sector also contributes 15% of export earnings and 30% of agricultural employment [5]. An estimate indicates that the country is a home for about 54 million cattle, 25.5 million sheep and 24.06 million goats. From the total cattle population 98.95% are local breeds and the remaining are hybrid and exotic breeds [3].

Despite the significant contribution, productivity is constrained by several factors. This is associated with a number of complex and inter-related factors such as inadequate feed and nutrition, widespread diseases, poor genetic potential of local breeds, market problem, inefficiency of livestock development services with respect to credit, extension, marketing and infra-structure [6-8].

Animal diseases continue to constrain livestock productivity, agricultural development, human well-being and poverty alleviation in many regions of the world...
particularly in the developing countries. Its impact stems from direct losses due to mortality and indirect effects through slow growth, low fertility and decreased work output that result from morbidity [9]. Digestive or gastrointestinal intestinal tract diseases constitute a major threat to the health and welfare of animals worldwide. The main functions of the digestive system are digestion, absorption of nutrients, motility (movement through the digestive tract) and elimination of feces [10]. Problems with the digestion system are commonly reported in individuals with psychiatric problems, neurologic dysfunction and developmental disorders [11]. Digestive tract is easy for foreign organisms and other “invaders” to enter the digestive tract through the mouth, this body system is prone to infection by bacteria, viruses, parasites and other organisms known as infectious disease. These infections spread in various ways, but the most common are by direct contact or by contamination of food or water by feces [10].

**Objectives:** The objectives of this research are:

- To identify common digestive tract problem in animals treated in Gondar veterinary teaching clinic
- To identify types of treatment given for the digestive tract problems.

**MATERIALS AND METHODS**

**Study Area:** The study was conducted in University of Gondar veterinary teaching clinic, Gondar town; north Gondar administrative zone of Amhara regional state. Gondar is located in the north western part of Ethiopia, 728 km North West of Addis Ababa. The area is found at 12°40’ N longitude and 37°45’E latitude with an altitudinal range of 1802-2200meter above sea level. The soil type falls into three categories; heavy black soil, loam brown red soil and sandy loam soil. The ranges of maximum and minimum temperature vary between 22-30.7 and 12.3-17.1°c, respectively. The region receives a bimodal rainfall, the average annual precipitation rate being 1000mm. The short rains occur during the months March, April and May while the long rains extend from June up to September [12].

**Study Population:** The study population was animals of any species, breed, sex and age which were brought to University of Gondar veterinary teaching clinic for the treatment of any illness and abnormalities.

**Study Design:** A case study was carried out on case sheet records which were conducted from September 2014 to April 2016 in veterinary teaching clinic to assess the common digestive tract problems and their therapeutic management.

**Sampling Technique:** All the cases treated with any illness or abnormalities from September 2014 to April 2016 were considered. Data regarding the disease (i.e. the tentative diagnosis); animals affected by the diseases (species, breed, sex and age groups involved); and the therapeutic management (name of the drug used, dose) were recorded for subsequent elucidation of the disease nature in the study area.

**Data Analysis:** The collected data was entered to Microsoft Excel and analyzed by STATA version 12. Descriptive statistics (frequency and percentage) was used to analyze the data.

**RESULTS**

From the total of 2336 cases of animals treated in University of Gondar Veterinary teaching clinics, 222 (9.5%) animals were treated for gastro-intestinal problems. The predominant gastro-intestinal Problems identified were impaction (16.22%), Salmonellosis (14.41%), bloat (11.71%), acidosis (9.91%) and simple indigestion (8.11%) in Table 1.

**Species of Animal Treated:** GIT problems occurred more frequently in Bovine, Ovine, Equine and Avian at a rate of 46.4%, 22.97%, 16.67% and 9.46%,respectively. Digestive tract problem rarely occurred in Canine species (0.9%). Details are listed in Table.

<table>
<thead>
<tr>
<th>Type of GIT problems</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIT Parasite</td>
<td>12</td>
<td>5.41</td>
</tr>
<tr>
<td>Enteritis</td>
<td>13</td>
<td>5.86</td>
</tr>
<tr>
<td>Colic</td>
<td>16</td>
<td>7.21</td>
</tr>
<tr>
<td>Coccidiosis</td>
<td>17</td>
<td>7.66</td>
</tr>
<tr>
<td>Simple indigestion</td>
<td>18</td>
<td>8.11</td>
</tr>
<tr>
<td>Acidosis</td>
<td>22</td>
<td>9.91</td>
</tr>
<tr>
<td>Bloat</td>
<td>26</td>
<td>11.71</td>
</tr>
<tr>
<td>Salmonellosis/colibacilosis</td>
<td>32</td>
<td>14.41</td>
</tr>
<tr>
<td>Impaction</td>
<td>36</td>
<td>16.22</td>
</tr>
<tr>
<td>Other diseases</td>
<td>30</td>
<td>13.51</td>
</tr>
</tbody>
</table>

Total 222 100

Table 1: Frequency and percentage of digestive problem in animals treated in UoG Veterinary teaching clinic.
Table 2: Frequency and percentage of digestive tract problem in different species

<table>
<thead>
<tr>
<th>Animal species</th>
<th>Frequency of occurrence</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avian</td>
<td>21</td>
<td>9.46</td>
</tr>
<tr>
<td>Bovine</td>
<td>103</td>
<td>46.4</td>
</tr>
<tr>
<td>Canine</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td>Caprine</td>
<td>8</td>
<td>3.6</td>
</tr>
<tr>
<td>Equine</td>
<td>37</td>
<td>16.67</td>
</tr>
<tr>
<td>Ovine</td>
<td>51</td>
<td>22.97</td>
</tr>
<tr>
<td>Total</td>
<td>222</td>
<td>100</td>
</tr>
</tbody>
</table>

Occurrences of Digestive Tract Problems on Breed Category: Gastrointestinal tract problems were assessed on different breed groups to determine the most frequently affected breed. The result indicates that higher numbers of local zebu breeds found affected by GIT problem than crossbreds and exotic breeds in their respective order (82.88%, 12.64% and 4.5%) Figure 1.

Occurrences of Digestive Tract Problems Between Sex Groups: The percentage of gastro-intestinal problem was found to be slightly higher for females (58.11%) compared to male animals (41.89%).

Occurrences of Digestive Tract Problems Between Age Groups of Affected Animals: The percentage of digestive tract problem in adult and young animals was (91.89%) and (8.11%) respectively. The prevalence was higher in adult animals than young ones.

Drugs Used to Treat Digestive Tract Problems in Veterinary Teaching Clinic: Different kinds of treatments were given for the treatment of different gastro-intestinal tract problems. Commonly used therapeutic agents used for the treatment of gastro intestinal tract problem in the veterinary teaching clinic were oxytetracycline, indigestion powder, paraffin and sulfamethoxazole accounting for 19.79%, 18.75, 17.71% and 15.63%, respectively as described in Table 5.

DISCUSSION

The present study confirmed digestive tract problem to be the major livestock production challenge in the study area. Considerably larger numbers of animals (9.5%) were treated for digestive tract problems during the study period in University of Gondar veterinary teaching clinic. Bovine were the most frequently treated species (46.4%) followed by ovine (22.97%) and equine species (16.67%). The common digestive tract problems detected in the present investigation were bloat, diarrhea, colic, impaction, simple indigestion, acidosis and constipation.

In the present study, the overall frequency of GIT parasite was 5.4%. This result contradicts with the findings of [13, 14] who reported the overall prevalence of 20.9% in Dugda Bora town and 77.4% in Bako town respectively. The low frequency of GIT parasitoccurrence in our study might be due to the availability of less conducive environment for parasitic multiplication and causing disease when compared with western Ethiopia environmental situations. The difference may also due to the difference in study design used. In this study used a case study design and cross sectional study design was used in referenced studies.
The frequency of bloat in all species of animals in this study was 11.71%, slightly lower than similar study conducted in Gondar university veterinary clinic by [15] who reported 15.61%. The low frequency of bloat in our study might be seasonal factor or climatic factor. The frequency of occurrence of salmonella that causes diarrhea in the current study was 14.41% higher than previous report from Haramaya University, Ethiopia 1.04% [16] was reported. The high frequency of occurrence of diarrhea caused by salmonella in our study might be because of availability of most favorable environmental condition, species susceptibility or poor management condition of animals in our study area.

The frequency of colic in the present study in Gondar veterinary teaching clinic was 7.21%. This result was lower than the other study conducted in Addis Ababa, Ethiopia 27% [17]. The low frequency of colic in our study area might be due to study design difference. The frequency of impaction in the current study was 16.22% strongly disagreed with other findings of 41.8% [18] in Amhara region and 23.2% [19] in Addis Ababa and higher than the result reported from Gondar town 8.6% [20]. The frequency of impaction was different in different study areas this was might be due to environmental condition and animal management practice.

The frequency of acidosis in different species of animals in the present study was 9.91% this result is much lower than the study conducted in Germany 20% [21]. This might be due to poor feed management, breed or species factor, environmental factor compared with Ethiopia and also it might be the study design difference. Our study design was case study but comparable study use retrospective study design.

The frequency of occurrence of digestive tract problem in different species of animals treated in Gondar veterinary teaching clinic in bovine species was 46.4% and also in ovine and equine 22.97% and 16.67% respectively. Avian also share high frequency rate of 9.46% of digestive tract problem. The digestive tract problem was highly occurred in bovine species because of highly occurrence of bloating and impaction. Bloat occurs frequently in bovine species due to consumption of excess roughage low in both digestible protein and energy. In general the highly occurrence of impaction in bovine are due to the nature of non-selective feeding habit.

The digestive tract problem also highly occurred in ovine, equine and avian species because of in ovine highly occurrence of diarrhea cause by salmonellosis, in equine highly occurrence of GIT parasite and colic and in avian highly occurrence of diarrhea caused by coccidiosis greater in compare with other species of animals.

The frequency of digestive tract problem was highly occurred in local zebu breeds than cross and exotic breeds, this is due to high number of local breeds were treated in UOG veterinary clinic than both cross and exotic breeds. The frequency of digestive tract problem was slightly higher in female animals (58.11%) than in males (41.89%). Might be related to pregnancy and other factors like lactation. These factors decrease immunity and increase susceptibility to digestive tract problem.

Digestive tract problem was more common in adult animals (91.89%) than in young animals (8.11%), hence the immunity of adult is lower than young this increase the susceptibility of adults for digestive tract problems and feeding behavior of adult was more susceptible to foreign bodies and GIT parasites than young.

Mostly used drugs to treat digestive tract problems are oxytetracycline, indigestion powder, paraffin and sulfamethoxazol (19.79%, 18.75%, 17, 71% and 15.63%) respectively. Other drugs used for treating digestive tract problems such as penisstrip, ivermectin, albendazol and others.

**CONCLUSION**

The present study indicated the importance of digestive tract problem in the study area. The major digestive tract problems observed were impaction, diarrhea due to salmonellosis and coccidiosis, bloat and acidosis. The digestive tract problem affected all species, age and breed of animals. Different types of drugs used to treat different digestive tract problems in the study area. The important risk factors for the occurrence of digestive tract problems could be; poor husbandry and feed management, lack of appropriate grazing land, lack of animal care system, the owner of animals have lack of awareness about digestive tract problem causes and symptoms. The high frequency of digestive tract problem indicates the abundance of this problem in the study area and the high impact of digestive tract problem in the study area such as reduces productivity of animals and also induces death in animals.

Based on the above conclusion the following recommendations are forwarded.
• The husbandry and feeding management and animal care system should be improved.
• The owner of the animal should prepare appropriate and clean grazing area
• The community should develop awareness on digestive tract problems causes and pre disposing factors.
• The veterinarians should follow appropriate diagnosis and treatment based on definitive diagnosis.
• The veterinarian should prescribe appropriate drug and dose to manage digestive tract problems.

REFERENCES


