

## Study On Rumen And Reticulum Foreign Bodies In Slaughtered Cattle At Gondar Elfora Abattoir

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**Abstract:**-A cross-sectional study was conducted from October, 2014 to April, 2015 at Gondar Elfora Abattoir, North Gondar zone, Amhara National Regional State, with the objectives of assessing the prevalence of rumen and reticulum foreign bodies, identify types of foreign bodies and associated risk factors for the occurrences of foreign bodies. Both ante mortem and postmortem examinations were employed to examine the live animal and for the recovery of foreign body from rumen and reticulum after slaughter, respectively. The study animals were selected by using simple random sampling method from the total slaughtered animals. From the total of 500 male animals examined, 74 (14.8%) were found positive for the occurrence of indigestible foreign bodies in rumen and reticulum. From 446 local breed examined 55 (12.33%) and 54 cross breed examined 19 (35.18%) were found positive respectively. The types of foreign bodies detected were nails, wires, plastics, leathers, clothes and ropes. From these plastics 35 (42.3%), rope 21 (28.4%), cloth 18 (24.3%), nail 16 (21.6%), wire 5 (6.7%) and leather 2 (2.7%) were more frequently encountered of the positive cases, respectively. Prevalence of foreign body occurrence recorded comparing with in age young 5 (4.95%), adult 37 (13.5%) and old 32 (25.6%) from the total examined animals 101, 274 and 125 respectively. While the prevalence rate recorded within association of body condition were poor 29 (39.72%), medium 32 (11.47%) and good 13 (8.7%) from total examined animals 73, 279 and 148 respectively, Poor body condition and old animals were more affected. From the total prevalence 74 (14.8%), 51 (68.9%), 14 (18.9%) and 9 (12.2%) were observed from rumen, reticulum and rumen and reticulum respectively and rumen harbored mostly plastic materials while reticulum was the major site for the retention of metallic objects. These aforementioned factors are considered as potential risk factors and found highly significantly associated ( $p < 0.05$ ) with the occurrence of foreign bodies. In conclusion, detection of the foreign bodies in fore stomach suggested as health risk to ruminants and contributes a lot for reduced production. Therefore, appropriate solid waste disposal system need to be implemented in the study area to prevent health risk of ruminants and also to protect the environment.

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**Key words:** Abattoir, Cattle, Foreign body, Gondar, Reticulum, Rumen

### 1. Introduction

Ethiopian's livestock population is often said to be the largest in African. Excluding the Afar and Somali regions there were approximately 45.57 million cattle, 26.1 million sheep, 21.7 million goats, 2.1 million horses and mules, 5.6 million donkeys, 1 million camel and 39.6 million poultry. For the later two regions, estimated numbers vary greatly between conventional and aerial censuses, but total less than 15% of the non nomadic regions (CSA, 2009). Ethiopia has great potential for increased livestock production, both for local use and for export. However, expansion was constrained by inadequate nutrition, disease, lack of support services and inadequate information on how to improve animal breeding, marketing and processing. Thus, the country is not utilizing this huge potential livestock resource and an improvement in this sector. Therefore, has the

potential to contribute significantly to national income and to the welfare of the majority of rural families. The high concentration of animals in the high lands, together with the fact that cattle are often kept for status, reducing the economic potential of Ethiopia livestock (CSA, 2009). Cattle play significant contribution in Ethiopian economy as source of meat, milk, drought prower, income and foreign exchange. However, as other livestock in the country their contribution is below their expected potential due to prevalent livestock diseases, poor management system and poor genetic performance (Abebe, 1995).

Gastrointestinal foreign bodies are among the most common surgical emergency in veterinary medicine. Cattle are more susceptible to foreign body syndrome than small ruminants because they do not use their lips for prehension and are more likely to eat chopped feed; lack of oral discrimination in cattle may

lead to ingestion of foreign bodies would be rejected by other species (Desiyeand Mersha, 2012).

Traumatic reticuloperitonitis, or TRP, is a relatively common disease in adult cattle caused by the ingestion and migration of a foreign body in the reticulum. The typical foreign body is a metallic object, such as a piece of wire or a nail, often greater than 2.5 cm in length. The majority of affected cattle (87%) are dairy cattle and 93% are older than 2 years of age. It has been hypothesized that dairy cattle are more commonly affected than beef cattle since they are more likely to be fed a chopped feed, such as silage or hay (Hailant *et al.*, 1996). A large number of adult dairy cattle have metallic foreign bodies in their reticulum without signs of clinical disease. It is likely that a predisposing factor in otherwise normal cows, such as tenesmus or a gravid uterus, causes migration of the foreign body into the reticular wall (Rebhum *et al.*, 1995).

Ingestion of foreign body in cattle is result a condition of great economic importance and causes severe loss of production and high mortality rate. The ingestion of foreign body is mainly related with nutritional deficiencies and feeding management and cause various problem in different organ of the animal, mainly in rumen and reticulum. The problem that are caused vary with the duration that the foreign body has been present, the location of the foreign body, the degree of obstruction that is caused as well as problems associated with the material of the foreign body. Ruminant are notorious for ingestion of foreign bodies. The disease of rumen and reticulum are great economic importance because of severe losses on productivity of the animals sometimes leading to the death of the animals (Radostits *et al.*, 2007). Entrance and migration of foreign bodies through the body tissues lead to many complications that differ according to the nature of the foreign body and the way of its entrance in to the tissues. TRP relatively common disease in cattle caused by the ingestion of foreign bodies in the reticulum swallowed metallic objects such as nail or pieces of wire fall directly on the reticulum or pass into the rumen and subsequently carried over the rumen-reticular folds in to the cranioventral part of the reticulum (Jones *et al.*, 1997).

Nonmetallic foreign bodies in the reticulo-rumen cause recurrent rumen tympani in adult dairy cattle, over a period of time, these materials, form large tight balls inside the rumen leading to anorexia decreased production and progressive loss of body condition (Jafarazadeh *et al.*, 2004). The presences of foreign bodies in the rumen and reticulum also hamper the absorption of volatile fatty acids (VFA) and consequently reduction in the rate of animal fattening. The perforation of the wall of the reticulum allows leakage of ingesta and bacteria which

contaminates the peritoneal cavity, resulting in local or diffuse peritonitis is the swallowed objects can also penetrate pleural cavity causing pleuritis and pneumonitis and into the pericardial sac causing pericarditis (Caudo *et al.*, 2004). The condition is serious in our country usually in urban and peri-urban areas where extensive building are carried out and proper plastic material disposal is no conditioned and so thrown on roads and near the fence or anywhere and that is way our dairy cattle are dying mainly associated with foreign bodies (Ramaswamy and Sharama, 2011).

In Ethiopia information regarding the magnitude and occurrence of forestomach foreign bodies is very limited. The fact that rumen impaction by these foreign bodies is mainly asymptomatic in nature and only diagnosed in live animals if the material is accumulated in large amount and thus, it can be adequately studied in abattoirs (Desiyeand Mersha, 2012).

Therefore the objectives of this study were:

- To assess the prevalence of rumen and reticulum foreign bodies in cattle slaughtered at Gondar Elfora Abattoir,
- To identify the type of rumen and reticulum foreign bodies and to study the risk factors associated with the ingestion of those foreign bodies in cattle.

## 2. Materials And Methods

### 2.1. Study Area

The study was conducted at Gondar Elfora Abattoir, North Gondar zone, Amhara National Regional State. The Gondar town is located at 750 Km from Addis Ababa at an elevation of 2200 m above sea level. The city situated between a latitude and longitude of 12°36'N and 33°28'E. Rain fall varies from 880-1172mm with the average annual temperature of 19.7°C. The area is characterized by two seasons, the wet season from June to September and dry season from October to May. The farming system in the area is mixed type (crop-livestock production). The livestock population in the area comprises of cattle, 200,135, goat 81,000, sheep 70,000, horse 9,000 and donkey, 12,000 (WARD, 2012).

### 2.2. Study Animals

The study was conducted on 500 male apparently healthy slaughtered cattle at Gondar Elfora Abattoir from October, 2014 to April, 2015. The animals were both local and cross breed, which are originated from various localities. It was difficult to precisely indicate the geographical origin of all animals slaughtered at Gondar Elfora Abattoir and relate the findings to a particular locality. Nevertheless, attempts made in this regard revealed that majority of them were bought from nearby markets. Age, body condition and breed were considered a risk factor for occurrence of foreign

bodies. During the study time the animals were categorized into three based on age  $\leq 5$  year (young), 5-10 year (adult) and  $\geq 10$  year (old) and also grouped based on body condition as poor, medium and good (Desiye and Mersha, 2012). Age and body condition was estimated based on dentition pattern (annex2) and body condition score (annex3) respectively. Out of a total of 1911 cattle slaughtered at Gondar Elfora Abattoir during the study period, 500 animals were selected and examined by using simple random sampling method.

### 2.3. Study Design

A cross sectional study was conducted from October, 2014 to April, 2015 to assess the prevalence of the rumen and reticulum foreign bodies and to identify the types of foreign bodies and their associated risk factors.

### 2.4. Sampling Technique and Sample Size Determination

Simple random sampling technique was employed to select the study animals and rumen and reticulum of individual animals were examined. The total number of cattle required for the study was calculated based on the formula given by Thrusfield (2005). By rule of thumb where there is no information for an area, it is possible to take 50% prevalence. In this study 50% prevalence with 5% desired level of precision and 95% of confidence interval are used to calculate the sample size using the following formula.

$$n = (1.96)^2 p_{\text{expected}} (1 - p_{\text{expected}}) / d^2$$

Where:

n = required sample size

$p_{\text{exp}}$  = expected prevalence

d = desired absolute precision

Therefore, the minimum sample size of the present study was 384. However, to maximize the precision 500 animals were examined.

### 2.5. Study Methodology

#### 2.5.1. Antemortem examination

Antemortem examination on individual animals was done for assessment of age, breed and body condition. Age was categorized into young, adult and old based on dentition pattern and body condition also poor, medium and good with breed differentiation (cross and local). Each animal selected for the study was further identified by providing a unique identification number that could be used for both antemortem and post-mortem examinations of the animal and each animal's mark for the identification by writing a code on its gluteal muscle by using ink.

#### 2.5.2. Postmortem examination

In the postmortem examination rumen and reticulum was examined immediately after slaughter in the evisceration stage, the stomach was carefully

removed from the abdominal cavity and rumen and reticulum were thoroughly examined by visual inspection and palpation with open and explore for the prevalence of any foreign non dietary material by visualization and palpation. All the contents were examined thoroughly for the presence of foreign bodies. Any foreign bodies were obtained during inspection washed with water to remove adhering feed material and identify type of foreign bodies. When the finding was positive, the location and type of the foreign bodies was recorded otherwise recorded as negative in postmortem record sheet.

### 2.6. Data Analysis

The data obtained was coded in Microsoft excel and subjected to descriptive statistics and chi square in order to assess the magnitude of the difference of comparable variables using SPSS version 20.0 software. Pearson chi square ( $\chi^2$ ) test was employed to assess the existence of association between prevalence of the foreign bodies and different potential risk factors considered. For ( $\chi^2$ ) test, p-value  $< 0.05$  were considered significant whereas p-value  $> 0.05$  considered non significant. Descriptive statistical analysis such as table was used to summarize and present the data collected. The total prevalence of rumen and reticulum foreign bodies was calculated as percentage by dividing total number of positive cattle for foreign bodies to the total number of cattle examined.

## 3. Results

### 3.1. Occurrence

From the total of 500 cattle examined for the presence of any foreign bodies in their rumen and reticulum, 14.8% (74/500) of them were found positive. From 74 positive cases of foreign body, 51 (68.9%) occurred in rumen while 14 (18.9%) in reticulum and 9 (12.2%) in rumen and reticulum. The types of foreign bodies detected were nails, wires, plastics, leathers, clothes and ropes. From this plastics 35 (42.3%), rope 21 (28.4%), cloth 18 (24.3%), nail 16 (21.6%), wire 5 (6.7%) and leather 2 (2.7%) were more frequently encountered of the positive cases, respectively.

### 3.2. Prevalence of Foreign Body Regarding to Age

The study animals were grouped into three as ( $\leq 5$  years), (5-10 years) and ( $\geq 10$  years), from 101, 274 and 125 animals were examined with age in these age groups, 5 (4.95%), 37 (13.5%) and 32 (25.6%) were found positive, respectively. Foreign bodies were more frequently encountered in old animals than other two groups. The statistical analysis also showed that there exist highly significant differences among the three age groups ( $p=0.000$ ) which is  $P < 0.05$  in the occurrences of foreign bodies as shown in table 1.

Table1-A. Prevalence of rumen and reticulum foreign bodies in male cattle slaughtered at Gondar Elfora abattoir in association with age

Age	Result		Total	Prevalence of foreign body with in age
	Positive	Negative		
≤5 year	5	96	101	4.95%
5-10 year	37	237	274	13.5%
≥10 year	32	93	125	25.6%
<b>Total</b>	<b>74</b>	<b>426</b>	<b>500</b>	<b>14.8%</b>

$\chi^2=19.698$ ;  $p=0.00$

Table 1- B. Prevalence and frequency of rumen and reticulum foreign bodies in male cattle slaughtered at Gondar Elfora abattoir in association with age

Foreign body	Age			Total
	≤5 year	5-10 year	≥10 year	
Nail	1 (1%)	7 (2.6%)	1 (0.8%)	9
Wire	-	3 (1.1%)	-	3
Plastic	1(1%)	10 (3.6%)	12(9.6%)	23
Leather	-	1(0.4%)	-	1
Cloth	-	3(1.1%)	6(4.8%)	9
Rope	2(2%)	8(2.9)	-	10
Wire and cloth	-	-	1(0.8%)	1
Plastic and cloth	-	-	3(2.4%)	3
Nail and leather	-	-	1(0.8%)	1
Plastic and rope	-	1(0.4%)	2(0.4%)	3
Cloth and rope	-	-	1(0.8%)	1
Wire and rope	-	-	1(0.8%)	1
Plastic, cloth and rope	-	1(0.4%)	2(1.6%)	3
Nail and plastic	-	1(0.4%)	1(0.8%)	2
Nail, plastic and rope	1(1%)	-	1(0.8%)	2
Nail, plastic and cloth	-	1(0.4%)	-	1
Nail and rope	-	1(0.4%)	-	1
No foreign body	96(95%)	237(86.5%)	93(74.4%)	476(85.2%)
<b>Total</b>	<b>101</b>	<b>274</b>	<b>125</b>	<b>500</b>

$\chi^2=62.741$ ;  $p=0.000$

### 3.3. Prevalence of Foreign Body with Regard to Body Condition Score

From total of 500 cattle 73,279 and 148 animals were examined with poor, medium and good body condition, 29 (39.72%), 32 (11.47%) and 13 (8.7%)

were positive for foreign body, respectively. The statically analysis also showed that there exist highly significant differences among the three body condition score groups ( $p=0.000$ ) which is  $P < 0.05$  in the occurrences of foreign bodies (Table-2).

Table 2-A. Prevalence of rumen and reticulum foreign bodies in male cattle slaughtered at Gondar Elfora abattoir in association with body condition.

Body condition	Result		Total	Prevalence of foreign body with in body condition
	Positive	Negative		
Poor	29	44	73	39.72%
Medium	32	247	279	11.47%
Good	13	135	148	8.7%
<b>Total</b>	<b>74</b>	<b>426</b>	<b>426</b>	<b>14.8%</b>

$\chi^2=24.671$ ;  $p=0.000$

Table 2- B. Prevalence and frequency of rumen and reticulum foreign bodies in male cattle slaughtered at Gondar Elfora abattoir in association with body condition.

Foreign body	Body condition score			Total
	Poor	Medium	Good	
Nail	3(4.1%)	6(2.2%)	-	9
Wire	-	2(0.7%)	1(0.7%)	3
Plastic	9(12.3%)	9(3.2%)	5(3.4%)	23
Leather	1(1.4%)	-	-	1
Cloth	4(5.5%)	3(2.2%)	2(1.4%)	9
Rope	1(1.4%)	6(2.2%)	3(2%)	10
Wire and cloth	1(1.4%)	-	-	1
Plastic and cloth	2(2.7%)	1(0.4%)	-	3
Nail and leather	-	-	1(0.7%)	1
Plastic and rope	2(2.7%)	1(0.4%)	-	3
Cloth and rope	-	-	1(0.7%)	1
Wire and rope	1(1.4%)	-	-	1
Plastic, cloth and rope	1(1.4%)	2(0.7%)	-	3
Nail and plastic	2(2.7%)	-	-	2
Nail, plastic and rope	1(1.4%)	1(0.4%)	-	2
Nail, plastic and cloth	1(1.4%)	-	-	1
Nail and rope	-	1(0.4%)	-	1
No foreign body	44	247	135	426
<b>Total</b>	<b>73</b>	<b>279</b>	<b>148</b>	<b>500</b>

$\chi^2=87.699; p=0.000$

### 3.3 Prevalence of Foreign Body Regard with Breed

From the total 500 animals 446 local breeds and 54 cross breeds were examined and 55 (12.33%) and 19 (35.18%) of foreign bodies were detected in both breeds respectively. So the prevalence of rumen and reticulum foreign bodies was higher in cross breedcattle. The statically analysis also showed that there exist highly significant differences among different breed ( $p=0.000$ ) which is  $P < 0.05$  in the occurrences of foreign bodies (Table-3).

Table 3-A. Prevalence of rumen and reticulum foreign bodies in male cattle slaughtered at Gondar Elfora abattoir in association with breed

Breed	Result		Total	Prevalence of foreign body with in breed
	Positive	Negative		
Local	55	391	446	12.33%
Cross	19	35	54	35.18%
<b>Total</b>	<b>74</b>	<b>426</b>	<b>500</b>	<b>14.8%</b>

$\chi^2=19.95; p=0.000$

Table 3-B. Prevalence and frequency of rumen and reticulum foreign bodies in male cattle slaughtered at Gondar Elfora abattoir in association with breed

Foreign body	Breed		Total
	Cross	Local	
Nail	4(7.4%)	5(1.1%)	9
Wire	2(3.7%)	1(0.2%)	3
Plastic	1(1.9%)	22(4.9%)	23
Leather	-	1(0.2%)	1
Cloth	1(0.9%)	8(1.8%)	9
Rope	6(11.1%)	4(0.9%)	10
Wire and cloth	-	1(0.2%)	1
Plastic and cloth	-	3(0.7%)	3
Nail and leather	1(1.9%)	-	1
Plastic and rope	1(1.9%)	2(0.4%)	3
Cloth and rope	-	1(0.2%)	1
Wire and rope	-	1(0.1%)	1
Plastic, cloth and rope	-	3(0.7%)	3
Nail and plastic	1(1.9%)	1(0.2%)	2
Nail, plastic and rope	1(1.9%)	1(0.2%)	2
Nail, plastic and cloth	-	1(0.2%)	1
Nail and rope	1(1.9%)	-	1
No foreign body	35(64.8%)	391(87.7%)	426
<b>Total</b>	<b>54</b>	<b>446</b>	<b>500</b>

$\chi^2=75.18; p=0.000$

### 3.4 Prevalence of Foreign Bodies with Regard to Location Site

From total 74 positive cases of foreign body, 51 (68.9%) were occurred in rumen while 14 (18.9%) in reticulum and 9 (12.2%) in rumen and reticulum and rumen harbored mostly plastic materials while

reticulum was the major site for the retention of metallic objects. The statically analysis also showed that there exist highly significant differences among different stomach compartment ( $p=0.000$ ) which is  $P < 0.05$  in the occurrences of foreign bodies (Table-4).

Table 4. Frequency of occurrence of rumen and reticulum foreign body in male cattle slaughtered at Gondar Elfora abattoir in association with related to location site

Foreign body	Location site				Total
	No	Rumen	Reticulum	Rumen and Reticulum	
Nail	-	-	9(64.9%)	-	9
Wire	-	-	3(21.4%)	-	3
Plastic	-	21(41.2%)	2(14.3%)	-	23
Leather	-	1(2%)	-	-	1
Cloth	-	9(17.6%)	-	-	9
Rope	-	10(19.6%)	-	-	10
Wire and cloth	-	-	-	1(11.1%)	1
Plastic and cloth	-	3(5.9%)	-	-	3
Nail and leather	-	-	-	1(11.1%)	1
Plastic and rope	-	3(5.9%)	-	-	3
Cloth and rope	-	1(2%)	-	-	1
Wire and rope	-	-	-	1(11.1%)	1
Plastic, cloth and rope	-	3(5.9%)	-	-	3
Nail and plastic	-	-	-	2(22.2%)	2
Nail, plastic and rope	-	-	-	2(22.2%)	1
Nail, plastic and cloth	-	-	-	1(11.1%)	1
Nail and rope	-	-	-	1(11.1%)	1
No foreign body	426	-	-	-	426
<b>Total</b>	<b>426</b>	<b>51</b>	<b>14</b>	<b>9</b>	<b>500</b>

$\chi^2=29.95; p=0.000$

### 4. Discussions

Ingestion of indigestible foreign materials by ruminants is a common worldwide problem previously reported from Nigeria (Remi-Adewumi *et al.*, 2004, Igbokwe *et al.*, 2003), Jordan (Hailat *et al.*, 1998) and Sudan (Ghurashi *et al.*, 2009; Bakhiet, 2008; Mohammed *et al.*, 2006). This study revealed an overall prevalence of 14.8% (n= 74) of rumen and reticulum foreign body in male cattle slaughtered at Gondar Elfora abattoir. The present prevalence rate of foreign bodies is almost similar with Desiye and Mersha (2012) 13.22 % of rumen and reticulum foreign body in cattle slaughtered at Jimma Municipal Abattoir and slightly lower than the report of Rahel (2011) 17.07% of prevalence of fore stomach foreign bodies in Hawasa Municipal Abattoir, Ethiopia and Dawit *et.al* (2012) who conducted on cattle at Hirna municipal abattoir from November 2011 to March 2012 also report from the total of 384 cattle examined, 92 (23.9%) were found positive for different types of foreign bodies in their rumen and/or reticulum.

Similarly, significantly lower than the higher prevalence of (77.41%) was reported by (Ismael *et al.*, 2007) of adult dairy cattle cases having indigestible foreign bodies suffering from recurrent rumen tympani in Jordan and also Jagos (1969) reported higher over all prevalence of foreign body in adult cows (51%) where 63% and 15% of the foreign bodies was observed in rumen and reticulum, respectively. The variation in the prevalence of studies could due to differences in the waste management systems between the study areas. Moreover, the time of the study also could play a role for the differences where in recent times the rate of intensification of animal management is increasing and as a result the probability of animals to be exposed to foreign materials might be declined as the animals are staying in a limited confinement for longer time.

The highest frequency of occurrence of rumen and reticulum foreign bodies were detected in animal's  $\geq 10$  year (25.6%) followed by 5-10 years (13.5%) and  $\leq 5$  years (4.95%) age group of animals. Highest

prevalence (25.6%) of foreign bodies was detected in cattle greater than 10 year than other age group. This finding is in agreement with Desiye and Mersha (2012) who recover (81.25%) of foreign bodies in cattle greater than 10 year age and also significant prevalence rate of 59.14% was reported in old achai cattle by (Hailat *et al.*, 1998). Rahel (2011) also reported (17.85%) of the animals had higher frequency of foreign bodies in rumen and reticulum in the old age. Radostitis *et al.* (2007) reported old dairy cattle are the most commonly affected group.

Ismae *et al.* (2007) from Jordan also reported the metallic foreign bodies were found in 10 (32.25%) of the cows from medical records of 31 old dairy cows suffering from the recurrent rumen tympany. This might be associated with increase of exposure through life and many were found accumulate and lead the undead animals to be positive.

The highest frequency of occurrence of rumen and reticulum foreign bodies were detected in these study animals of poor, medium and good body condition 39.72%, 11.4% and 8.7% respectively. The highest frequency of occurrence of rumen and reticulum foreign bodies was detected in poor body condition animals. These findings are in agreement with Desiye and Mersha (2012) who found poor 72.72% followed by medium 35.95% and good 7.33% body condition score animals. Rahel (2011) and Tesfaye *et al.* (2012) also reported higher frequency of foreign body occurrence in animals having poor body condition than in good body conditioned animals. Poor body condition by itself might be due to the contribution of the foreign body that is the animal loss weight after it has been exposed or it might be due to the interference of foreign body with the absorption of volatile fatty acid (VFA) and thus causes reduced weight gain reported by (Rahel, 2011; ismael *et al.*, 2007; Remi-Adewunmi *et al.*, 2004). Hairball sometimes occur in ruminant in forestomachs and abomasums Maxie, (2007) and long period of time, these materials form large tight balls over inside the rumen leading to anorexia, decreased production and loss of body condition (Tyagi, and Singh, 1993) as such foreign bodies hinders the process of fermentation and mixing of contents leadings to poor body condition.

In this study the prevalence was higher in the cross breed cattle (35.18%) than local breeds (12.33%). The findings agree with the work of Desiye and Mersha (2012) who found 70% in cross breed and 10.77% in local breed and Rahel (2011) who reported fore stomach foreign bodies with the high prevalence of (58.82%) in crossbreeds. This might be associated with the level of body size which requires high demand of nutrition and hence increase exposure for foreign bodies.

This study indicated that most foreign bodies occurred in the rumen 51(68.9%) than reticulum 14(18.9%) and rumen and reticulum 9 (12.2%) from the total 74 (14.8%) positive cases. This result agreed with Desiye and Mersha (2012) who reported that from 64 positive cases of foreign body, 49 (79.68%) was detected from rumen and Jagos (1969) reported higher over all prevalence of foreign body in adult cows (51%) where 63% and 15% of the foreign bodies was observed in rumen and reticulum, respectively. These results also agree with Remi-Adewunmi *et al.* (2004) who found 58.45% in rumen and 19.32% in reticulum of Achai Cattle. The highest frequency of occurrence of rumen and reticulum foreign bodies was detected at rumen. This may be due to the fact that many ingested feed goes to the rumen. This study also indicated that Metallic foreign bodies were most frequently recovered from reticulum, while non metallic foreign bodies were detected from rumen. Radostits *et al.* (2007) reported that in industrialized countries, metallic foreign bodies present in the reticulum up to 90% of normal animals are in line with our findings but the metallic foreign bodies' ingestion was more in war hit areas. The reason might be due to retention of these foreign bodies by the honey comb structure of the reticular mucosa and their heavy weight give chance to be attracted to the lumen of the reticulum due to gravitational attraction force of these heavy foreign bodies to the ventral part of the fore-stomach.

The types of foreign bodies detected in this study were plastic, rope, leather, cloth, nail and wire. The result of this study indicated that plastics 35 (47.3%) were the most common observed foreign body followed by rope and cloth. This result agree with Desiye and Mersha (2012) reported that plastics were the most common observed 22 (34.37%) of the total 64 positive cases. This may be due to improper disposal of plastics and other ingestible foreign materials with in plastics. Roman and Hiwot (2010), Hailat *et al.*, (1998), Igbokwe *et al.* (2003) and Remi-Adewunmi *et al.* (2004) report plastics were the most common cause of rumen impaction found in 13% of the cases in the rumen. Kahn *et al.*, (1999) also reported that due to relatively large size, plastic materials are preferentially retained in rumen and at certain time may cause impaction of the rumen leading to death of animals. Ismail *et al.*, (2007) also observed that the presence of large amounts of these materials in the reticulo-rumen, this may be due to the impaction of bodies such as plastic bags interfered with flow of ingest a leading to the distention of rumen and consequently impairs the digestion process.

## 5. Conclusion and Recommendations

Ingestion of metallic and non-metallic foreign bodies is the most common problem encountered in cattle not only because of its mortality and morbidity but also it causes decrease in productivity. It is common in developing countries where the standard of animal management is unsatisfactory. Both poor body condition and cross breed cattle are the most affected groups compared to that of good body condition and local breed cattle respectively and also animals have  $\geq 10$  years were more affected. Hence, breed, age, and body condition score of animals are considered risk factors for the occurrence of foreign bodies. Therefore, degree of association is highly statistically significant ( $p < 0.05$ ) for the occurrence of foreign body. The types of foreign bodies detected in this study were plastic, rope, leather, cloth, nail and wire, plastics were the most common observed foreign body followed by rope and cloth. Most of the non metallic foreign bodies lodged in rumen while metallic foreign bodies lodged in reticulum. It was also summarized that the problem is very common in our country, Ethiopia and presents great economic impact. Thus based on the above conclusion the following recommendations are forwarded.

➤ Cattle should be kept away from new construction site and keeping away from old and unclear grazing site.

➤ Awareness creation for animal owners should be done to avoid the risk of foreign body ingestion by their animals.

➤ The general population should be aware to reduce environmental pollution with any foreign body

➤ Since previous studies about foreign bodies in these areas are very few, further research should be made to emphasize the importance of the problem and address the prevention and control measure.

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