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## PREVALENCE OF FASCIOSIS AMONG CATTLE SLAUGHTERED AT HADEJIA ABATTOIR

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### ABSTRACT

**A study was carried out to find out the prevalence of Fasciolosis in cattle slaughtered at Hadejia Abattoir. *Fasciola gigantica* is a parasite of liver and bile duct in cattle, sheep and goat. The liver was examined for Fasciola by making length wise incision on the ventral side of the liver in such a way that the Bile duct was cut open. The forcep was used to pick the exposed worms in the bile duct and the Gall bladder. The Flukes recovered from each cattle were placed in label containers and taken to the Laboratory for identification and preservation. A total of 545cattle were examined for the presence or absence of Fasciolosis in Hadejia Abattoir. Out of this number 279 (51.2%) were males and 266 (48.8%) were females. The overall prevalence of Fasciolosis in the study area was 159(28.0%). The prevalence of Fasciolosis in males was found to be 73(26.2%), while the prevalence in females was 79(29.7%). There was no significant relationship ( $P > 0.05$ )between sex of the cattle and prevalence of the infection. The Prevalence of Fasciolosis in adult cattle was 36(40.2%), while in young cattle the prevalence was 123(15.0%). There was significant relationship ( $P < 0.05$ ) between the age of cattle and prevalence of the infection. Fasciolosis is one of the helminths diseases that were found to be prevalent affecting cattle in the study area.**

**Key words: Abattoir, Cattle, Cross-sectional, Fasciolosis, Slaughter,**

### INTRODUCTION

Fasciolosis is defined as the parasitic disease primarily on ruminant particularly cattle, sheep and goat and is found all over the World (Ajayi, 1987). *Fasciola gigantica* is a parasite of liver and bile duct in cattle, sheep, goat and wild ruminant in Africa and Asia. Fasciolosis in cattle, account for considerable economic loss(Ukoli, 1990).

Meat derived from cattle, sheep and goat provide major source of animal protein for the populace of Nigeria. These ruminants incidentally serve as a definitive host to the parasitic helminths, trematode of the family Faciolidae, commonly known as liver flukes. There are various species, but the economically important ones are *F. gigantica* in the tropical region and *F. hepatica* of the temperate region (Ikeme and Obioha, 1973). *F. gigantica* measure 4 to 10cm in length.

The infection is wide spread throughout the world. Fasciolosis is endemic in 61 countries and has becomes a food-borne infection of public health importance in many parts of the world such as Anden Highland of Bolivia, Equador, Peru, Nile Delta of Egypt and Northern Iran. It is estimated that more than 180 million people are at risk of the infection (WHO, 1998). The distribution of species is limited to the

tropic and is also found in African countries, Middle East, Eastern Asia and Eastern Europe (Tgerson, and Cloxton, 1919).Nigeria prevalence of Fasciolosis has been reported from different parts of the country. There are also several reports on the prevalence, regional incidence, and seasonal variation for bovine Fasciolosis (Maurice, 1994). Bui, *et al.* (1989) reported prevalence of 80% from Zaria northwest and prevalence of 65% was reported by Schilborn, *et al.* (1980) in a study conducted to evaluate the number, seasonal variation, of bovine Fasciolosis at Ibadan municipal Abattoir. *Fasciolais* responsible for widespread morbidity in cattle characterized by weight loss, anaemia and hypoproteinemia (Troncy, 1998)). Fasciolosis causes substantial weight reduction in milk yield, condemnation of affected liver, decline production and productive performances, exposure of animal to other diseases due to secondary complications and cost of treatment expenses(Anne and Gray, 2006).Meats infected by these organisms are regularly condemned at inspection in abattoir/slaughter slab. It could be zoonotic, while constituting a major economic problem by lowering quality of affected organs. Human can accidentally ingest the eggs/ larvae and become infected (Bui, *et al.*, 2006).

The present study was aimed at estimating the prevalence of Fasciolosis in cattle slaughtered at Hadejia Abattoir as well as the prevalence of the disease in relation to sex, age and body condition.

## MATERIALS AND METHODS

### Study Area

Hadejia Local Government is located in the north eastern corner of Jigawa State. It lies between 9°37' E and 10° 35' E Longitude and 13°02' N Latitude. The climate of the region is wet and dry type, rainfall spread between June to September with mean Annual rainfall of 315mm. The soil in the study area is sandy in nature except in Fadama area that has clay soil (Wikipedia, 2000).

River Hadejia provide water for irrigation and fish production. People in the area are farmers that grow both rain fed and irrigated crops and some are animal rearers. Hadejia is a big city with many traders and business men and thus large numbers of cattle were slaughtered daily. Data from the Abattoir is useful for the identification of problems and may be used to reveal the prevalence, seasonal variation and economic importance of the parasite that infect the slaughtered animals. Even though it does not avail any information regarding the development of the disease in live animal (Ekwenife, *et al.*, 2006).

### Study Population

A total of 545 cattle were examined for the presence or absence of Fasciolosis. The cattle are both young < 5 years and adult ≥ 5 years of both sexes. In this study 305 were young and 240 were adult and were all indigenous.

### Parasitological Identification

The study was carried out between January to March, 2013 in Hadejia Abattoir. The slaughter house was visited for two months, twice in every week. This was

done between 6.00 am to 10.00 am. This is the period when cattle are slaughtered in this area. The work involved actual post-mortem inspection of the liver on the cattle. The liver was examined for *Fasciola* by making length wise incision on the ventral side of the liver in such a way that the Bile duct was cut open. The Forcep was used to pick the exposed worms in the bile duct and the gall bladder. The Flukes recovered from each cattle were placed in labelled containers and taken to the Laboratory for identification and preservation (Yesmirach and Mekonen, 2012, Olusegun, *et al.*, 2011).

### Statistical Analysis

Chi square ( $X^2$ ) test was used to determine association between variables (prevalence, sex and age) and their degree of significance at 95% confidence interval.

## RESULTS

Five hundred and forty five (545) cattle were examined in Hadejia Abattoir. Out of this number 279(51.2%) were males and 266 (48.8%) were females (Table 1).

Table 2 shows prevalence of Fasciolosis affecting cattle in relation to sex. Prevalence of the infection in males was found to be 73(26.2%), while prevalence of the infection in females was found to be 79(34.9%). There was no significant relationship ( $p > 0.05$ ) between the sex of cattle and prevalence of the infection. The overall prevalence of Fasciolosis was found to be 28.0%.

Table-3 shows prevalence of Fasciolosis affecting cattle in relation to age. Prevalence of the infection in Adult was found to be 116(40.3%), while in young cattle prevalence of Fasciolosis was found to be 36(15%). There was significant relationship ( $p < 0.05$ ) between the age of cattle and prevalence of the infection.

**Table 1: Sex structure of the study population**

SEX	NO. EXAMINED	PERCENTAGE (%)
MALE	279	51.2
FEMALE	266	48.8
TOTAL	545	100

**KEY:** Values in parenthesis (%) are percentage.

**Table 2: Prevalence of Fasciolosis in cattle in relation to sex**

SEX	NO. EXAMINED	NO. INFECTED	PERCENTAGE (%)
MALE	279	73	26.2
FEMALE	226	79	34.9
OVERALL	545	152	28.0

There was no significant relationship ( $p > 0.05$ ) between the sex of cattle and prevalence of the infection.

**Table-3: Prevalence of Fasciolosis affecting Cattle in relation to age**

SEX	NO. EXAMINED	NO. INFECTED	PERCENTAGE
ADULT	305	116	40.3
YOUNG	240	36	15.0
TOTAL	545	152	28.0

There was significant relationship ( $p < 0.05$ ) between the age of cattle and prevalence of the infection.

## DISCUSSION

The result of this study indicates that Fasciolosis was prevalent in the study area. The reason for this prevalence could be due to increase in irrigated land masses in the study area and tendency for animal rearers and farmers to feed the animals in these marshy and damp areas because of feed scarcity. Since intermediate host prefers swampy areas with slowly moving water and small streams which also allow sufficient moisture for the survival of the infective metacercariae (Magaji, *et al.*, 2014).

The result of this study is in close agreement with the finding of Yesmirach and Mekonen (2012), who reported prevalence of Fasciolosis in cattle as 28.6%. Similarly this work closely agrees with the work of Abebe, *et al.* (2011), who reported prevalence of Fasciolosis to be 29.1%. Oladeleke and Odetokun (2014) reported 37.8% prevalence of bovine Fasciolosis at Ibadan Municipal abattoir; this value is higher than the value reported in the present work. Biniam, *et al.* (2012) reported 41.41% prevalence in a study of bovine Fasciolosis in and around Woreta, Northwestern Ethiopia, which is higher than the value of the present work. Ekwenife, *et al.* (2006), in Onitsha Abattoir reported prevalence of 10.51%, which is much lower than the value obtained in the present study, also Kasseye and Yehualashet (2012), reported prevalence of 20.3%. This value is lower than the value obtained in the present study. The differences among the geographical locations could be attributed mainly due to the variation in the climatic and ecological conditions such as altitude, rainfall and temperature. The ecological condition is favourable for the survival and development of the snail intermediate host for species of Fasciola (Kasseye and Yehualashet, 2012).

The prevalence of Fasciolosis among both sexes did not differ significantly in males (26.2%) and in females (29.7%). This value shows that Fasciolosis is not gender specific disease, rather it occurs due to exposure of the animal to the contaminated pasture. The work in the present study is in conformity with the work of Mebrahtu and Beka (2013) that worked on prevalence and economic significance of Fasciolosis in cattle slaughtered at Dire Municipal abattoir, Ethiopia which reported higher prevalence in female (25.27%) than male (23.9%). The work in the present study disagrees with the work of Magaji, *et al.* (2014) that worked on prevalence of Fasciolosis in cattle slaughtered at Sokoto metropolitan abattoir, who reported higher prevalence in males 27 (28.42%) than female 35 (27.13%). Similarly the work of Biniam, *et al.* (2012) also disagrees with the present work,

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which reported higher prevalence in males (41.43%) than female (41.38%).

The prevalence of Fasciolosis in adult cattle was found to be greatly higher (40.3%) than young ones (15.0%). This assertion is in conformity with the work of Yesmirach and Mekonen (2012), in their finding the prevalence was significantly higher in adult cattle (39.8%) than in young cattle (23.3%). The present report contradicts the work of Mebrahtu and Beka (2013) that reported higher prevalence in young (19.63%) than adult (25.95%). This could be explained by the fact that younger animals are usually kept in door or around home and are not allowed to go far with adult animals for grazing so that they have reduced chance of exposure to infective pasture when compared with adult Yesmirach and Mekonen, (2012).

## CONCLUSION

Fasciolosis is a helminths disease that was found to be prevalent affecting cattle in the study area. The prevalence of Fasciolosis did not differ in males and females. Therefore, the disease has no gender sensitivity but was found to affect mostly adult, because of exposure to contaminated herbage.

## Authors Contribution

Abubakar, S. and Yunusa, I. designed the study and are involved in statistical analysis. Ahmed, M. K. and Abdullahi, M. K. assisted in data collection, Abubakar, S. and Ibrahim, I. were involved in data analysis. Abubakar, S. and Zakariya, M. were involved in writing up the manuscript.

## Conflict of Interests

The authors of this study declare that there was no conflict of interest related to the present work.

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## Recommendations

- Government should improve services of veterinary personnel in order to improve health of the animal.
- Veterinary inspectors should improve meat inspection and government should pay compensation of condemned meat.
- Nomadic education should be improved in order to enlighten pastoralist, to learn advantage of intensive or semi intensive farming rather than the traditional extensive farming.

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