

The Prevalence of *faciolahepatica* in Slaughtered Goats and Sheep (A Case Study of Potiskum Abattoir)

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Abstract: An investigation was carried out between the months of May and June 2018, to determine the prevalence of *faciolahepatica* among the breed of sheep and goats slaughtered at Potiskum abattoir. A total of 96 samples of sheep and goats faeces and fresh liver were examined for *faciolahepatica* egg and adult respectively. The result revealed that 41.7% goats and sheep had *faciolahepatica* of which goats had 35.4% and sheep 47.9%. The sheep showed the highest rate of infection by *faciolahepatica* than goats. The health implication of consuming meat contaminated by *faciolahepatica* was discussed and useful the recommendations were made.

Keywords: *Faciolahepatica*. Goat, Slaughter & Sheep

INTRODUCTION

Fascioliasis is a highly pathogenic (Valero *et al*; 2003) disease of clinical and Veterinary importance caused by *Faciolahepatica* and *Fasciola gigantica* (Talukder *et al*, 2010, Shaikh *et al*, 2004 and Ozung *et al*, 2011). Transmission of the fluke and the presence of its infection in any given population is dependent upon and exacerbated by some factors such as; the presence of a substantial reservoir of water parasite and potential host and the presence of the lymneae snail intermediate host, including *Fossaria Cubensis*, *Fossaria bulimoides*, *Fossaria modicella*, *Pseudosuccinea columella* and *Lymneae auricularia*, Others are *Lymneae viatrix*, *Padix auricularia* and *Stagnicola fuscus*.

These snail host which commonly measure about 10mm in size, usually occur in areas with high annual rainfall, large areas of poorly drained pastures and moist soil (Afrakhosravi, 2001 and Keiser *et al*, 2007). Other factors which enhance the spread of fascioliasis are opportunity for water source contamination by human and nonhuman hosts and dietary practices that includes the raw, untreated aquatic vegetation or foliage located around water reservoir (Afrakhosravi, 2001, Keiser *et al*, 2007 and Valero *et al*, 2003).

Fascioliasis is cosmopolitan infection. Incidence of the infection has been reported in many countries including Nigeria, Parkistan, China, United States of America and Iran. (Valero *et al*,

2010 and WHO, 2006). It is commonly reported in ruminants; cattle, goat and sheep. (Okaiyeto *et al*, 2012, Talukder *et al*, 2010 and Ozung *et al*, 2011). Ruminant hosts become infected when forage with metacercarial cyst is ingested. They can also be infected when ingesting cysts suspended in soil and detritus while drinking water. Ingested parasite finds its way to intra hepatic biliary duct or hepatic parenchyma and later to the bile duct where it resides. Infected ruminant liver usually experiences traumatic injury giving rise to diffusely hepatic parenchyma containing haemorrhagic streaks or foci. The animal may experience weight loss, anaemia and general depression. The liver may be enlarged and show abnormal functions. Blood leucocytosis with eosinophilia in response to Cathepsin B (cat 12) antigen secreted by juvenile fluke may be observed (Afrakhosravi, 2011).

Complicated expressions due to synergy with *Clostridium noryi* and *Clostridium haemolyticum* result in black diseases referred to as infectious necrotic hepatitis, this infection makes the liver appear black in color. Fascioliasis is a zoonotic disease of public health importance. Man becomes infected when metacercarial of the fluke is ingested along with water Cress Salad and vegetables are grown along banks of water reservoirs inhabited by potential snail hosts. About 2.4 million people are infected worldwide and 180 million are at risk of the infection (Talukder *et al*, 2010 WHO, 2006). In Africa, the infection has been found to be a serious problem in humid and sub-humid zones (Ogunrinade and Ogunrinade, 1980).

The prevalence of fascioliasis differs in different countries. Afrakhosravi (2011) reported a prevalence range of 6.03% to 11.09% among cattle in the Ilam province of Iran. About 14.8% was recorded among buffaloes in Pakistan by Shaikh *et al*, (2004) and Talukder (2010) reported 21.53% among Black Bengal goats in Bangladesh. A recent report by Ozung *et al*, (2011) reported 1020 (50.52%), 479 (23.72%), and 520 (25.75%) prevalence among cattle, goats, and sheep respectively. Ayana *et al*, (2009) observed a significant difference at $P < 0.05$ in the prevalence of fascioliasis among cattle, goats, and sheep.

MATERIALS AND METHOD

THE STUDY AREA

Potiskum abattoir is located in the southern part of town near the river of Nahunta with an average temperature of 102 F/38.9 C along latitude 11.709 and longitude 1 1.07. Potiskum abattoir is listed among the largest abattoir in the northeast region of the nation with the largest capacity of an animal slaughtered per day.

MATERIALS USED

The following materials were used to analyze the sample of the infected liver: —

- i. Fresh liver sample
- ii. Hand lens
- iii. Surgical blade
- iv. Forceps
- v. Dissecting board
- vi. Slides and cotton wool

- vii. Specimen bottle
- viii. Petridishes and beaker
- ix. Applicator stick
- x. Microscope
- xi. Hand gloves Stool sample

Reagents Used

Formaldehyde
Soap
Water
Normal saline

METHOD

SAMPLING TECHNIQUE

A total 96 liver samples made up of 48 sheep and 118 were sampled randomly for fasciola hepatica in the Potiskum) the abattoir at a rate of 6 liver pec week, from the months of May to June 2018. The liver sample where brought to the laboratory for parasitological examination for liver flukes in glass specimen bottle containing 10% 'formaldehyde.

LABORATORY IDENTIFICATION OF THE FLUKES

The fresh liver samples collected were discussed using a surgical blade. The liver flukes were extracted from the liver using forceps. The extracted flukes are observed under the microscope using x10 and x40 objective. Flukes where identified based on the morphological characteristic as described by Groove and Newel (1974); the characteristic are:

- i. Leaf like creature
- ii. Palabroumen colour
- iii. Flattened an oval in shape in a thick layer (cuticle)
- iv.

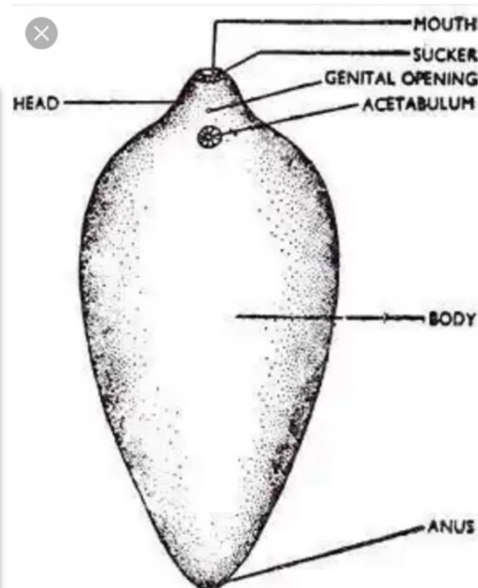


Fig. 185 FACIOLA HEPATICA,

STOOL ANALYSIS FOR FASCIOLA EGGS

Feaces samples collected from the rectum of slaughtered goats and sheep where analyzed by using direct smear methods which is follow;

- i. A clean grease-free-slide was placed on a slide holder
- ii. Two to three drops of normal saline were placed on the slide. Using the applicator, the feaces was emulsified in to the normal saline on the slide.
- iii. It was then placed on the microscope stage for examination blade was dissected using a surgical
- iv. It was then examined using x 10 and x40 objectives lens for final identification.

RESULT

PREVALENCE of *fasciola hepatica* in sheep and goats

Throughout the eight (8) weeks period of study 48 goats and 48 sheep have examined for *fasciola hepatica* from the months of May to June 2018. Eggs of *fasciola hepatica* were identified. The feces and fresh liver were examined out of the 96 samples it was discovered that sheep have the higher rate of *fasciola hepatica* as compared to goats. The results were summarized in Table 1, 2, 3, and respectively.

Table 1: Incidence of *fasciola hepatica* among sheep in the months of May 2018

Date of Sampling	No. of Observed	No. of Infected	Condemnation Partially	Level Totally	Condemnation Percentage
04/05/2018	06	03	01	02	50%
11/05/2018	06	04	01	03	66.7%
18/05/2018	06	02	02	-	33.0%
25/05/2018	06	03	01	02	50%
Total	24	12	05	07	50%

Table 2: Incidence of *fasciola hepatica* among sheep in the months of June, 2018

Date of Sampling	No. of Observed	No. of Infected	Condemnation Partially	Level Totally	Condemnation Percentage
05/05/2018	06	02	02	-	33%
12/05/2018	06	03	01	02	50%
19/05/2018	06	02	01	01	33%
27/05/2018	06	04	01	03	66.7%
Total	24	12	05	07	45.8%

Table 3: Incidence of *fasciola hepatica* among goat in the months of May, 2018

Date of Sampling	No. of Observed	No. of Infected	Condemnation Partially	Level Totally	Condemnation Percentage
04/05/2018	06	01	01	-	16.7%
12/05/2018	06	02	02	-	33.3%
19/05/2018	06	01	01	02	16.7%
27/05/2018	06	03	01	-	50%
Total	24	07	05	02	29.2%

Table 4: Incidence of fasciola *hepatica* among goats in the months of June, 2018

Date of Sampling	No. of Observed	No. of Infected	Condemnation Partially	Level Totally	Condemnation Percentage
05/05/2018	06	02	01	-	33.3%
12/05/2018	06	03	02	-	50%
19/05/2018	06	01	01	02	16.7%
27/05/2018	06	04	01	03	66.7%
Total	24	10	05	05	41.7%

DISCUSSION

Results of the survey revealed that between the month’s May and June 2018 a tot number of 96 animal livers were sampled, which is made up of 48 sheep and goats from the Potiskum abattoir.

From table 1 incidence of fasciola *hepatica* among sheep in the month of May 2018. Samples collected and observed on the 11/05/2018 has the highest number of infections with a condemnation percentage of 66.7%; then samples collected and observed on 04/05/2018 and 25/05/2018 have the same number of infections having a 50% condemnation percentage, while sample collected and observed on the 18/05/2018 has the lowest condemnation percentage of 33%. Finally table I shows 12 liver samples were infected with 7 samples totally condemned and having a condemnation percentage of 50%.

Table 2: incidence of fasciola *hepatica* among sheep in the month of June 2018: Samples collected and observed on the 27/06/2018 has the highest number of infection with a condemnation percentage of 66.7%. The samples collected and observed on 12/06/2018 have 50%. Sample collection and observed on 05/06/2018 and 19/06/2018 have the same condemnation percentage of 33%: respectively therefore table 2 shows 11 liver samples were infected with 06 totally condemned and has a condemnation percentage of 45.8%.

Table 3: Incidence of fasciola *hepatica* among goats in the month of May 2018. Samples collected and observed on 25/05/2018 has the highest number of infection and has a condemnation percentage of 50%. Samples collected and observed on 11/05/2018 have a low infection with a condemnation percentage of 33%. Samples collected and observed on 04/05/2018 and 18/05/2018 have the least infection and have condemnation percentage of 16.7% respectively. Therefore, table III shows that samples are infected having 02 totally condemned and has a condemnation percentage of 29.2%.

Table iv: incidence offasciola *hepatica* among goats in the month of June 2018. Sample collected and observed on 27/06/2018 has the highest number of infections and condemnation in the percentage of 66.7%. Samples collected and observed on 12/06/2018 have 3 infected livers with a condemnation percentage of 50%.

Samples collected and observed on 05/06/2018 have 02 infected livers with a condemnation percentage of 33%, while samples collected and observed on 19/06/2018 have only 1 affected liver and a condemnation percentage of 16.7%.

Therefore, Table 4 shows that a total of 10 samples were infected with only 5 totally condemned and has a condemnation percentage of 41.7%. It would be deducted from the table I and II which shows the incidence of *fasciola hepatica* in sheep has the highest condemnation percentage of 50% and 45.8% from their total respectively, while table III and IV shows the incidence of *fasciola hepatica* in goats has low condemnation percentage of 29.2% and 41.79 from the total respectively.

Therefore, from the above tables, it shows that sheep appear to be more susceptible to *fasciola hepatica* disease than goats, this finding is similar to the report of the hall (1988), in which he reported a higher percentage incidence of *fasciola hepatica* in sheep than that of goats. A similar observation was made by Ibrahim et al (1989) in the Maiduguri Borno State of Nigeria.

CONCLUSION

This study revealed that liver fluke's infestation in goats and sheep had a negative effect on both state and the national economy because of the condemnation of liver and carcass at times, it is therefore become necessary to advise that a policy on grazing reserve should go beyond the one existing in the country. If such as done, the rate of animal consumption of infected grass on Madama and ponds would be drastically reduced, thereby reducing, the incidence of the disease.

RECOMMENDATIONS

- Infected liver and condemned carcass should be properly discarded either through burning or burying.
- Regular meat inspection by qualified veterinary doctors to destroy infected liver unfit for human consumption.
- Animal Should be dewormed regularly at a specific interval to prevent *fasciola hepatica* infection.
- Regular infection of the grazing area of these animals to ensure that the intermediates host (snail) are not breeding there.
- Liver should be thoroughly cooked before its consumption

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