

Prevalence of Liverfluke in Slaughtered Ruminants (Cattle and Goat) at the Abattoir of Narra, Palawan

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ABSTRACT

This study was conducted to determine if liverfluke is present in the slaughtered ruminants at Narra, Palawan abattoir; determine the species of liverfluke, the degree of infestation, and the percentage ruminants slaughtered that are affected by liverfluke; and identify possible areas in Narra, Palawan that are affected by liverfluke.

All ruminants held at the holding area of Narra, Palawan abattoir from July 23 to August 25, 2007 were subjected to ante-mortem inspection and the liver of these animals were subjected to post-mortem inspection.

Results of the study revealed that liverfluke was not present in the ruminants (cattle and goats) slaughtered in Narra, Palawan abattoir.

Keywords: liverfluke, ruminants, ante-mortem inspection, post-mortem inspection

INTRODUCTION

Liverfluke disease (fascioliasis) is an important disease found worldwide affecting sheep, goats, cattle and buffalo as well as other domestic animals. The common causative agents are *Fasciola hepatica* and *Fasciola gigantica* which requires various species of *Lymnea*, a fresh water snail, as their intermediate host. The epidemiology of the disease and its prevalence in the Philippines is mentioned in Agricultural Journal. The disease causes considerable impact in the economy of the livestock industry which consists of cost of antihelmenthic, drench, labor, liver condemnation, meat inspection, and reduction in growth rate, fertility and draft power.

This study aimed to: 1) determine if liverfluke is present in the slaughtered ruminants of Narra, Palawan abattoir; 2) determine the species of liverfluke that infest the affected ruminants; 3) determine the degree of infestation of the affected

ruminants; 4) determine the percentage of the ruminants slaughtered that are affected by liverfluke in Narra, Palawan and 5) identify the possible areas in Narra, Palawan that are affected by liverfluke.

METHODOLOGY

The samples in the study were 29 slaughtered ruminants at Narra abattoir from July 23 to August 25, 2007. Fifteen of these were cattle while 14 were goats.

Permission protocol. A formal written request asking permission for the conduct of the study to the Municipal Mayor, Municipal Agriculturist, Market Superintendent and Meat Inspector of Narra, Palawan was facilitated prior to the conduct of the study.

Physical examination of goat and cattle prior to slaughter. All cattle and goats at the holding pen of Narra abattoir that are scheduled for slaughter were physically examined by checking if animals are stressed and lame, and by checking for physical disorder while the animal is in motion. The body condition, health, age, weight and breed of the animals were also determined.

Determination of area of origin of slaughtered goat and cattle. The animal owners were asked about the place where the animals were bought. The researcher sought permission to the owner or the record keeper to look into the animal credentials for additional information.

Examination of the appearance of the liver. The weight, color, texture and presence of abnormalities/spots of the livers of the slaughtered cattle and goats were considered in the examination.

Post-mortem examination of the liver for the presence of liverfluke. The livers of the slaughtered cattle and goats were sliced at hepatic vein and bile duct area. The sliced parts were squeezed to extrude adult liverfluke if it is present.

Identification of liverfluke species. The morphology of the shoulders of the liverfluke served as point of comparison to determine the species of the liverfluke that infested the ruminants. *Fasciola hepatica* are pale brown in color and its shoulder vary up to 12 mm in width when mature while *Fasciola gigantica* are grayish in color and its shoulder vary up to 8 mm in width when mature.

The data gathered were: 1) age, weight, breed, place of origin of animals; 2) health status of the animals (animal body conditions whether healthy or emaciated); 3) livers' color, texture, shape, weight and presence of spots; 4) presence of liverfluke; and 5) degree of liverfluke infestation and percent of animals affected with liverfluke (number of animals positive for liverfluke divided by the number of slaughtered animal).

The degree of infestation was assessed using the following scale:

Degree of infestation	Number of liverfluke seen
-	0
+	1-3
++	4-6
+++	7 and more

RESULTS AND DISCUSSION

Information about the ruminants slaughtered

Sixty percent of the cattle slaughtered falls at the age range of 4 years old and up while the rest (40%) falls at the age range of 1-2 years old. Majority (71.42%) of the goats slaughtered falls at the age range of 1-3 years while the rest belong to the age range of 0 to 1 year old (14.29%), 3-4 years old (7.14%) and 4 years old and above (7.14%).

About 67 percent of the cattle are male and the rest are female (33.33%). Likewise, there are more male goats (57.14%) than female goats (42.85%). The average weight of the cattle is 201.3 kg while the goats' average is 22.66 kg. The cattle are hybrid (20%), native (13.13%) or purebred (66.67%). In goats, majority of them are native (85.71%) and the remaining are hybrid (14.25%).

One third (33.33%) of the cattle slaughtered came from Barangay. Panacan; 20 percent from Barangay. Antipuluan; and around seven percent (6.67%) from Barangay. Malinao. Only one cattle each from Barangays. Tinagong Dagat, Taritein and Abo-abo, Sofronio Espanola was slaughtered. About 43 percent of the goats came from Barangay. Aramaywan. Some of the goats came from Barangay. Panitian, Sofronio, Espanola (21.43%), Barangay. Antipuluan and Barangay. Panacan (14.29% each) and Barangay. Maranan (7.14%).

Table 1. Information about the slaughtered animals.

	CATTLE		GOATS	
	Frequency n=15	Percentage (%)	Frequency n=14	Percentage (%)
Age				
0-1			2	14.29
1-2	6	40.0	5	35.71
2-3			5	35.71
3-4			1	7.14
4 up	9	60.0	1	7.14
Mean age	5 years old		1.9 years old	
Sex				
Male	10	66.67	8	57.14
Female	5	33.33	6	28.85
Weight (kg)				
11-20			8	57.14
21-30			5	35.71
31-40			1	7.14
51-100	1	6.67		
101-150	4	26.67		
151-200	6	40		
201-250				
251-300	2	13.33		
301-350	2	13.33		
Average weight	201.33 kg		22.36 kg	
Breed				
Purebreed	10	66.67		
Hybrid	3	20	2	14.28
Native	2	13.33	12	85.71

One of the 15 cattle slaughtered was emaciated due to poor management of the owner. The rest of the cattle slaughtered were relatively healthy. All goats were in good condition which appears to be healthy.

Appearance of the liver

The description of slaughtered ruminants' liver is shown in Table 2. One of the 15 livers of the slaughtered cattle was rough, pale with milk spots. This came from animal number 14 which has relatively healthy body condition. Even though there were milk spots evident in the liver, no adult liverfluke were observed upon inspection. All other livers had no milk spots, pinkish in color and appeared to be apparently normal. These healthy livers include the liver of the cattle

diagnosed to be emaciated during ante-mortem inspection. On the other hand, all goats' liver had no milk spots, reddish in color, smooth in texture and also appears to be relatively normal.

Table 2. Appearance of the liver.

Appearance	CATTLE		GOATS	
	Frequency n=15	Percentage (15%)	Frequency n=14	Percentage (%)
Color				
Pinkish/Reddish (Normal)	14	93.33	14	100
Pale (Abnormal)	1	6.67		
Texture				
Smooth	14	93.33	14	100
Rough	1	6.67		
Presence of abnormalities/ milk spots				
Negative for milk spots	14	93.33	14	100
Positive for milk spots	1	6.67		

Presence of liverfluke

Incisions were made at the liver tissues, hepatic vein and at the bile duct to check for adult liverfluke. All livers of cattle and goat were found to be negative of liverfluke. This indicates that liverfluke was not present in slaughtered ruminants in Narra abattoir from July 23 to August 25, 2007.

Table 3. Presence of liverfluke.

	CATTLE		GOATS	
	Frequency n=15	Percentage (%)	Frequency n=15	Percentage (%)
Positive				
Negative	15	100%	14	100

Possible Factors Affecting the Absence of Liverfluke in Slaughtered Cattle and Goats at Narra Abattoir

1. *Selection of animals for slaughter.* The middlemen who brought the animals to the abattoir for slaughter are very careful in selecting the animals they bought. According to these middlemen, they only buy animals that are relatively healthy to avoid condemnation of the carcass.

Emaciated animals are possible suspect for diseases such as liverfluke that are harmful for public health and may be condemned upon inspection.

2. *Regular deworming of animals by owners.* Some animal farmers in Narra, Palawan are aware of the different parasites that infest their livestock. These farmers have regular year-round deworming to control possible infestation of parasites such as liverfluke. Also, the Municipal Agriculture Office of Narra, Palawan has a regular health program in the municipality including deworming of ruminants. Most often, this is done in the month of October in line with their Farm Family Month or the Anihan Festival (now Palay Festival). Barangay schedules for the visit and monitoring of the animal technician of the said office are also conducted.
3. *Few areas with stagnant water.* The middlemen-owner of the ruminants also assumes that one of the reasons for the absence of liverfluke is the negligible source of stagnant water in Narra, Palawan. Although Hall (1997) mentioned that the Philippines is very much prone to the presence of liverfluke due to several areas badly drained water sources, this might not be true for Narra, Palawan.
4. *Rice farm practices.* Most farmers in Narra, Palawan use molluscicide to control snail (from genus *Lymnea*) infestation in the rice paddies. Georgi (1980) said that aquatic snails as an intermediate host of fascioliasis can be controlled by broadcasting molluscicides. This will, in a way, prevent or control liverfluke infestation to ruminants.

Conclusion

In conclusion, liverfluke was not present in the ruminants slaughtered (cattle and goats) in Narra, Palawan abattoir from July 23 to August 25, 2007.

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