

CHAPTER I: INTRODUCTION

Helminth parasites are potential health hazard to livestock population and produce enormous losses. Watery diarrhoea, weakness, weight loss, decrease in milk Production, reduced product quality, mortality and other secondary infections are caused by Trematodal parasites (Soulsby, 1982). Fascioliasis is distributed throughout the world (Blood et al., 1990). It is caused by the flukes like *Fasciola hepatica* and *Fasciola gigantica*. Fascioliasis an economically important disease of livestock, is largely caused by *Fasciola hepatica* in temperate climates and by *Fasciola gigantica* in tropical regions. Fascioliasis is an infection caused by flukes of the class Trematoda, most often characterized by fever, eosinophilia and abdominal pain, although as many as one half of patients may be asymptomatic. Human are incidental hosts for *Fasciola hepatica*, commonly known as sheep liver fluke. *Fasciola gigantica* cause similar illnesses in patients who become infected by ingested contaminated water. The illness occurs worldwide, particularly in regions with intensive sheep or cattle production. Outbreak occurs more commonly in drier months, immediately after heavy rains or flood when pastures are heavily contaminated with encysted cercariae. Planorbid snails are the intermediate hosts which multiply very rapidly in warm and watery environments. The animals are attracted by lush, green grasses around the ponds, streams and other water sources full of snails and get themselves infected. All ages of cattle, sheep, goats and wild ruminants grazing near water or land liable to flooding may be affected but younger animals are more susceptible than older ones. Previously many research was done to identify the prevalence of Fascioliasis. As far my knowledge previously there is no work on Fascioliasis in Nangolkot Upazilla.

Objectives:

1. To determine the prevalence of *Fasciola* infection in cattle.
2. To study the *Fasciola* infection related with different age, sex, breed, grazing pattern of cattle.

CHAPTER II: MATERIALS AND METHODS

2.1. Place of Study

The study was conducted at Upazilla Veterinary Hospital, Nangolkot, Cumilla.

2.2. Study period

The duration of study about 8 weeks from February 1 to March 29, 2018.

2.3. Study population

A total number of 28 cattle of different age and sex were registered for examining the feces. The animals were brought to the Veterinary Hospital by their owners.

2.4. Collection of sample

The fecal sample of all the registered animals were collected directly from the rectum in small poly bag separately. Then transferred to the diagnostic laboratory of the Veterinary Hospital & examined carefully. The suspected Fasciola infected cattle were separated from better thorough check-up and for confirmatory diagnosis.

2.5. Criteria of diagnosis

Collected samples were processed and smears were made on glass slide and observed under microscope. After this test the negative samples were processed for sedimentation, supernatants were discarded and the sediments were used to make smear on glass slide and The eggs of suspected parasites were identified on the basis of their morphological features.

2.6. Morphology of Fasciola egg

The eggs were ellipsoidal with a small barely yellow shell with distinct operculum. These were larger than any other egg like things under microscope. The embryonic masses were hazy that can be distinctly identified (Urquhart , 2000).

2.7. Examination techniques

2.7.1. Physical examination

A presumptive diagnosis of Fascioliasis in cattle can be made on history of enzootic area and most of the suspected cattle were showed following signs (Amin et al.,1988)

Clinical sings

- Dullness, Depression, roughened coat and inappetance
- Pale and oedema of the mucosa and conjunctiva
- Sub mandibular oedema (Bottle jaw)
- Loss of body Weight
- Diarrhoea with characteristic foul odour

2.7.2. Microscopic examination

2.7.2.1. Direct smear method

A drop of fecal sample was taken on a glass slide, thoroughly diluted with few drop of water, covered with cover slip and examined under microscope using both low and high power of magnification(10x and 40x) for the identification of Fasciola egg.

2.7.2.2. Sedimentation method

5gm of fecal sample was diluted with 20ml of water in a cylinder, after which the cylinder was kept standing for one hour. After this, supernatant fluid was decanted off, examined under microscope for the presence of Fasciola egg. The fasciola eggs were identified on the basis of their morphological feature as described by (Soulsby , 1982).

Limitation of this study

1. The time was too short to conduct this study.
2. No sufficient laboratory facilities.
3. Owners were not so co-operative.

CHAPTER III: RESULT AND DISCUSSION:

The study was conducted among the population of 28 cattle taken from the Nangolkot Upazilla. Among which 18 number of cattle is Fasciola positive and 10 is Fasciola negative where 54.54% were male and 70.58% were female.

Table 1: Sex & Age wise incidence of Fascioliasis:

Sex	Total case N=28	Total positive case(n=18)	6mon-24 mon age group	24 mon-48 mon age group	> 48 mon age group
Male	11	6(54.54%)	2(18%)	3(27.27%)	1(9.09%)
Female	17	12(70.58%)	4(23.52%)	6(35.29%)	2(11.16%)
Total	28	18(64.28%)	6(21.32%)	9(32.14%)	3(10.71%)

It has been observed that the infestation rate in female aged group 24-48 month is more and less in male more the 48 months .

(Chowdhury ,1991) conducted study on Fascioliasis among cattle population of savar, Dhaka. The study was carried out with a view to find out the prevalence and load of Fasciola in village cattle and slaughtered cattle.

(Sharma and Lal, 1983) reported 15% infestation rate with *Fasciola gigantica* in buffaloes of India. The highest incidence was recorded in rainy season.

Table 2: Prevalence of Fascioliasis on the basis of different factors like-Breed,sex Body condition, grazing pattern and anthelmintics treatment.

Level of data			Percentage(%) of Fasciola affected animal	
			Fecal egg (negative)	Fecal egg (Positive)
Animal related data	Breed	Local	3(30%)	7(38.88%)
		Cross	7(70%)	11(61.11%)
	Sex	Male	5(50%)	6(33.33%)
		Female	5(50%)	12(66.66%)
	Body condition	Cache tic	2(20%)	10(55.55%)
		Normal	8(80%)	8(44.44%)
Manage mental data	Anthelmentics practice	Yes	7(70%)	15(83.35%)
		No	3(30%)	03(16.66%)
	Grazing pattern	Posture land grazing	5(50%)	12(66.66%)
		Stall feeding	5(50%)	6(33.33%)

It has been observed from the following data that the crossbred animals were highly susceptible then local. The nutrient requirements of crossbreed animals can not fulfill

by the owner. So the chance of morbidity was high. It had also evident that weak & cachectic animals were easily affected by *Fasciola gigantica*. The previous dewormed animals might be infected by Fasciola because of insufficient dose of drug.

Prevalence of gastro intestinal parasitic infestation in the faeces of 180 randomly selected cattle of some villages were: Strongyloides 59.71%, Capillaria 11.5%, Trichuris 9.1%, Strongyloides 3.7% and Ascaris 2.9% (Chowdhury, et al., 1993).

(Garrels, 1975) examined fecal samples of cows of some villages of Tangail and Dhaka District, and reported 22.4% infection rate of Fasciola population.

Table 3: Frequency of Fascioliasis on the basis of different clinical sign:

Fascioliasis	Eye Color	Hair Coat	Feces Consistency	Amount of case	frequency
Sign-1	Normal	Normal	Normal	02	11.11%
Sign -2	Pale	Rough	Slightly watery	11	61.11%
Sign-3	Normal	Rough	Watery	05	27.77%

By observing above table 3 it could be mention that, on the basis of clinical sign highest frequency (61.11%) of Fascioliasis occurred in case of that patient whose eye color was pale, body coat was rough and feces consistency was slightly watery.

Out of 15 cases of Helminthosis in buffalo, fluke infection with *Fasciola gigantica* and amphistomes (Single and/ or mixed) was detected in 67 (58.3%) animals while clinical infection with *Neoscaris vitulorum* and Strongylyde, Haemonchus spp. Trichostrongylus spp. and Mecistocirrus spp. Were diagnosed in 39(33.9%) and 9 (7.8%) cases respectively (Hossain et al., 1994).

In Bangladesh (Bhuyan, 1970) investigated Fascioliasis in which 60% of cattle, 90.9% of buffaloes, 12.92% of goats, 8.4% of sheep were infested with *Fasciola gigantica*. (Rahman et al., 1992) studied cattle disease of Feni and reported 8.3% Fasciolosis among cattle population.

The result of this observation indicates the prevalence of *Fasciola sp.* in Nangolkot Upazilla of Cumilla District. In this study the fecal sample examination revealed that overall prevalence of *Fasciola* 64.28% where (Garrels, 1975) showed that the overall prevalence was 22.41%. (Chawdhury, 1991) showed that 19.72%. In the prevalence of *Fasciola* is higher than that of Garrels and Chawdhury. (Chilardi and Mantovani, 1975) showed that, by fecal examination the overall prevalence of *Fasciola* was 57% which is closely related to my study (61.11%). (Lowcock, 1982) showed that, in Nepal, on Fascioliasis by examining fecal sample the prevalence of cattle 66% which is higher than my study (64.28%).

CHAPTER IV: CONCLUSION

Fasciola in ruminant is a common hepatic fluke and one of the most important disease occurring in cattle which hampers most of the farmer. In this study the total population is of 28 number of cattle among which 18 were Fasciola positive and 10 were negative. The male affected percentage is 54.54% and female affected percentage is 70.58%.The age group percentage was 6 months-2 years (39.52%),2-4 years (62.58%) and more than 4 years age group (20.91%). The infestation is very common in low-lying land and marshy area. Taking advantage of these findings an economic control method may be suggested such as stall feeding and short time grazing on high land, no grazing on low, wet field during rainy season, proper sunlight may give a good result and reduce the occurrence but not always feasible in practice. Reduction of pasture contamination with metacercariae will reduce future risk.

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QUASTIONNAIRE
UPAZILLA VETERINARY HOSPITAL
NANGOLKOT, CUMILLA

Case No. Date:
Owner's Name:
Address: Village: Union:
Animal description:
Species: Breed:
Age: Sex: Male: Female:
Feeding practice:
Rearing system: 1)Open 2) Confined
Anthelmintic practice: Yes: No:
Clinical findings:
1.....
2.....
3.....
4.....
5.....
Feces examination: Method: Positive: Negative:
Tentative diagnosis:
Treatment:
Recovery: Death:

Signature

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Biography

I am Md, Nahid Hasan, from Comilla. I have passed Secondary School Certificate examination in 2009 (G.P.A-4.75) and Higher Secondary Certificate examination in 2011 (G.PA-5.00). I am a student of 18th Batch and now I am an intern student under the Faculty of Veterinary Medicine in Chittagong Veterinary and Animal Sciences University. In future I would like to work in the field of Veterinary Microbiology and Research.