



Prevalence of Fascioliasis in Cattle in District Bhimber Azad Kashmir

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Abstract

A study investigating prevalence of fascioliasis was carried out in district Bhimber Azad Jammu Kashmir including tehsils (Bhimber, Barnala and Samahni). Fecal samples of cattle were collected and examined at laboratory of Govt veterinary hospital Bhimber AJK and in department of Parasitology Laboratory, Faculty of Animal Husbandry and Veterinary Sciences, Sindh Agriculture University Tando Jam. A total of 100 samples were examined. The total prevalence of fascioliasis was found as 70.41% in cattle. Age wise prevalence was recorded as 76.53% (<01 year (35.71%), 1-5 year (23.18%) and >5 year (17.64%). And sex wise prevalence was recorded as 45.83% (male 17.50% and female 28.33%). During present study only *Fasciola hepatica* was observed.

Key words: *Fasciola Hepatica*; Cattle; District Bhimber

Introduction

The livestock sector represents a significant part of the global economy particularly in the developing world. Thus livestock provides energy, food and raw material and manure for crops. It is therefore not surprising that the livestock sector, especially the dairy sector has merged as an important economic source for a vast majority of the rural population and a target for agribusiness in the dairy, meat and various other products in the processed foods sector [1].

The great importance of cattle in the country that was only a considerable amount of attention was given to cattle breeding in some countries. There had apparently been little organized effort to improve the cattle of the country [2].

Fascioliasis in parasitic condition affecting most of the animal species pet and wild fed on stalls or pastures irrespective of sex and age. The economic loss in terms of milk and meat production, weight gain and working capabilities due to this disease have been reported in animals. The liver flukes are commonly known as *fasciola* comprising two species viz *Fasciola hepatica* and *Fasciola gigantica* which are recognized in Pakistan. The *Fasciola hepatica* is most important flukes of sheep and cattle particularly both in temperate and cooler areas where as *Fasciola gigantica* occurs in goats and buffaloes only in

tropical areas. All the species of *Fasciola* causes morbidity, mortality in ruminants and are associated with weight loss, anemia and hypo-proteinaemia [3].

Fascioliasis caused by trematodes *Fasciola hepatica* is a worldwide parasitic disease common in ruminants, especially cattle, buffaloes, sheep, goats, the liver is damaged and condemned and subclinical and chronic disease usually results in decreased production of meat, milk and wool, secondary bacterial infections, fertility problems, and great expense with anthelmintics [4]

Fascioliasis is common parasitic disease of sheep and cattle in many countries worldwide caused by *fasciola hepatica*. Infection is more commonly encountered in beef cows grazing poor wet pasture but disease can be seen in dairy cattle [5]

Infection by members of genus *fasciola*, commonly known as liver flukes, may be responsible for morbidity and mortality in most mammal species but are of particular importance in sheep and cattle to livestock producers. The two species of greater veterinary importance are *Fasciola hepatica* and *Fasciola gigantica* and amphibious snails are their immediate hosts. Adult parasites are found in the bile ducts and the immature flukes in the liver parenchyma of infected final hosts [6].

Liver disease can be acute, subacute or chronic, depending on the size of the infection and how quickly it is acquired. Disease is due to haemorrhage and tissue damage from migrating immature fluke, and from damage to bile and blood loss due to adult fluke.

Objectives

- To evaluate the overall prevalence of fascioliasis in cattle in district Bhimber AJK
- To evaluate age wise prevalence of fascioliasis in cattle
- To evaluate the sex wise prevalence of fascioliasis in cattle

Materials and Methods

A study was conducted at the laboratory of Govt vet hospital district Bhimber AJK and department of Parasitology Lab, Faculty of Animal Husbandry and Veterinary Sciences, Sindh Agriculture University Tando Jam during the year 2010, to evaluate the prevalence of fascioliasis in cattle. Total number of 100 fecal samples from cattle were collected randomly from different tehsils (Bhimber, Barnala and Samahni) of district Bhimber AJK.

Samples were analysed by direct smear method, floatation method and sedimentation methods used for investigation.

Direct Smear Method

A small amount of water drop plus equivalent amount of feces were thoroughly mixed on a microscopic slide to obtain a relatively homogenous and sufficiently transparent preparation.

A cover slip was placed on fluids and the preparation was allowed settle for few minutes.

The preparation was then systemically examined under low power of microscopic for the presence of egg.

Floation method

The basis of any floation method is that the worm eggs are suspended in a liquid whose specific gravity is higher than that of eggs. The concentration solutions were prepared by mixing a weighed amount of anhydrous substance (Sodium chloride and Zinc sulphate) with water.

Procedure

A small amount of feces (2g) was added to 10 ml of the floation solution.

The mixture was stirred with rod to get homogeneous suspension.

The mixture was strained through mesh sieve into test tube.

More floation solution was added to fill the tube to the top.

A cover glass was then placed on the top of the test tube touching the meniscus of liquid.

Tube and cover slip was left standing for 10 to 15 minutes.

The cover slip was then removed vertically, placed on a slide and examined under low power of microscope.

The data was analysed to examine the age and sex wise prevalence of fascioliasis. The collected data was calculated by using Thrusfield formula.

Prevalence % = No. of infected animals / Total no. of animals x 100

Sedimentation method

A small amount of feces (3 g) mixed with water to homogenize the suspension and pass the suspension through a coarse mesh sieve.

Thoroughly washed the material retained on this screen using a fine water jet and discard the debris.

Transferred the filtrate to a conical flask and allowed to stand for 2 minutes.

Removed the supernatant and transferred the remainder to a flat bottomed tube.

After the sedimentation for a further 2 minutes, the supernatant was again drawn off, a few drops of 5% methylene blue added and the sediment screened using a low power microscope.

Results

100 fecal samples of cattle were observed during this study. The overall prevalence was observed and only Fasciola hepatica was prevailed in the area. Prevalence of fascioliasis in cattle in different tehsils of district Bhimber AJK is presented in Figure 1. It shows high prevalence of fascioliasis, 31.11% in Tehsil Bhimber followed by 23.52% in tehsil Samahni and 15.78% in tehsil Barnala. The overall prevalence was observed as 70.41% in cattle in different tehsils of district Bhimber.

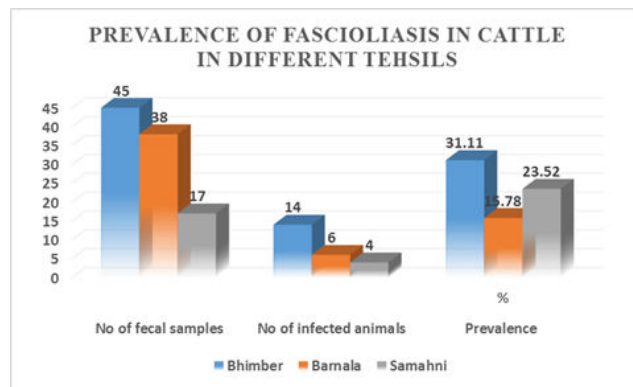


Figure 1: Prevalence of fascioliasis in cattle in different tehsils.

Age wise prevalence of fascioliasis in cattle is presented in Figure 2. It shows that high prevalence %age of fascioliasis was 35.71% in the age of less than one year of cattle followed by 23.18% in the age of 1-5 years and 17.64% in the age more than 5 years. The overall age wise prevalence was observed as 76.53% in cattle.

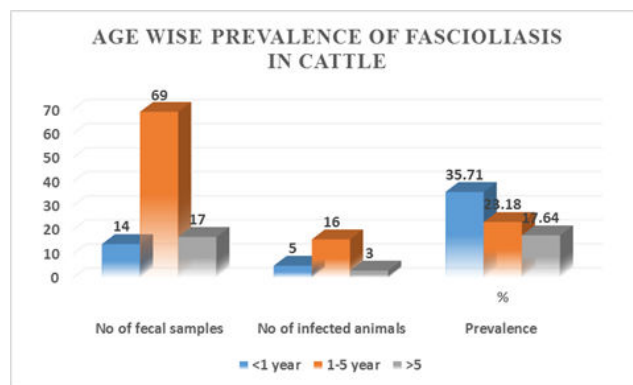


Figure 2: Age wise prevalence of fascioliasis in cattle.

Sex wise prevalence of fascioliasis in cattle is presented in Figure 3. It shows that high prevalence %age of fascioliasis in female is 28.33% is higher than that of males 17.50%. The overall sex wise prevalence was observed as 45.83% in cattle.

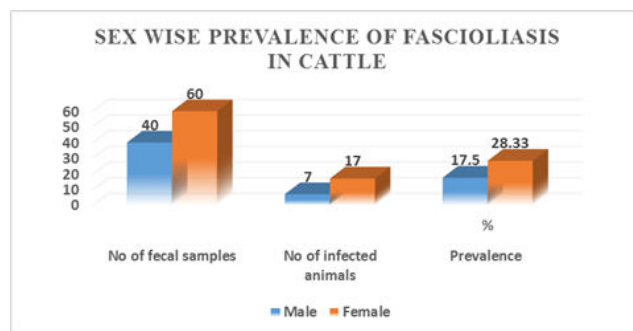


Figure 3: Sex wise prevalence of fascioliasis in cattle.

The total prevalence percentage was found as 70.41% with only one species Fasciola hepatica was identified.

Discussion

A study was conducted at the laboratory of Govt veterinary hospital Bhimber AJK and in department of Parasitology Laboratory, Faculty of Animal Husbandry and Veterinary Sciences, Sindh Agriculture University Tando Jam. The total prevalence percentage was found as 70.41% in cattle. This study also revealed that in younger animals, prevalence of fascioliasis is higher than older animals and also higher in females than in male animals. The species of *Fasciola hepatica* was only observed.

The present study revealed that the fascioliasis was higher in cattle in spring. The present study agreed with who conducted an experiment on epidemiological studies that were undertaken at slaughter houses, livestock farms, veterinary hospitals and on household cattle under the different climatic conditions existing in Punjab province. Overall seasonal prevalence in cattle was recorded as 24% followed by spring (20%), winter (13%) while lowest (9%) was recorded during summer.

The present study revealed that *F. hepatica* is the causative agent of fascioliasis and acute fascioliasis occurred during wet and cold season as told by that the economic importance of fascioliasis in the livestock industry in the state of Rio Grande do Sul was assessed through the federal meat inspection at major slaughter houses. A animal average rates of the liver condemned by *Fasciola hepatica* infection at the houses in the state have been recorded as 12-13% in cattle and 7% in sheep, respectively. Many farms in the provinces of the frontier regions of Barazil with Uruguay are contaminated with *F. hepatica* and acute fascioliasis flocks frequently occurs during the wet and cold winter season in the lowland areas of the regions.

This study is also agreed to the study mentioned below that the prevalence of fascioliasis (*F. hepatica*) was higher in cattle as told by that in Kashmir 85.1% of cattle, 51.3% of sheep and 14.8% of goats were found infected with *Fasciola* species. The prevalence arte varied from 66.6 % to 100%, 25% to 100% and nil to 66% in cattle, sheep and goats respectively in different months of the year.

The present study revealed that prevalence of fascioliasis in female cattle was higher than male and agreed with as they mentioned that the incidence of dicrocoeliasis (61.8%) is higher than that of fascioliasis (25.5%) and their peaks do not occur at the same time of the year. The peak for the former occurs in the dry season while that of the latter occurs in the rainy season. The incidence of fascioliasis in female cattle was found to be higher than that of male.

Summary

Present study was confined to determine the prevalence of fascioliasis in cattle in district Bhimber AJK. A total of 100 samples were examined. The total prevalence of fascioliasis was found as

70.41% in cattle. Age wise prevalence was recorded as 76.53% (<01 year (35.71%), 1-5 year (23.18%) and >5 year (17.64%). And sex wise prevalence was recorded as 45.83% (male 17.50% and female 28.33%). During present study only *Fasciola hepatica* was observed.

Conclusions

The overall prevalence of fascioliasis was 70.41% found in cattle in district Bhimber AJK.

Only *fasciola hepatica* was observed.

The prevalence of fascioliasis in female cattle was higher than male cattle.

Age wise prevalence of fascioliasis was higher in younger animals than older animals.

Suggestions

Allow selected grazing for each group of animals.

Use anti-trematodal drugs to minimize the rate of infections.

It should be necessary to aware the farmers or owner about fascioliasis and hazards produced by the fascioliasis to the animals.

The incentives should be given to the farmers to ensure their cooperation and assistance in eradication of fascioliasis.

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