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NATURAL INFECTION OF HELMINTHS IN LIVERS AND LUNGS OF SHEEP AND GOATS

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Four hundred livers and four hundred lungs comprising two hundred each from sheep and goats were examined for the presence of helminthic infections. The results showed that overall incidence of parasitic infection in livers was 34% in sheep and 11% in goats. In lungs, the parasitic infection was recorded as 21% in sheep and 8% in goats. Hydatidosis observed in sheep and goats 24 was 24 and 8%, respectively. Fascioliasis in sheep and goats was recorded as 18 and 10% respectively involving two species viz. *Fasciola gigaatica* and *Fasciola hepatica.* Among lungworms, *Dictyocaulus filaria* was recorded from 3% and *Protostrongylus rufescens* from 2% lungs of sheep only. *Toxocara canis* larvae were found in 4% sheep and 1% goat livers.

INTRODUCTION

Parasitism affects all classes of livestock throughout the world. It has been established that worm infestation is one of the major constraints in the development of profitable livestock industry. In severe outbreaks,helminths cause serious economic losses due to mortaiity. However, in even apparently healthy animals insidous nature of parasits resultes in reduced productive efficiency. This is the reason that inspite of large numbers of sheep and goats, they are unable to meet the demands of the fast growing human population. Among various parasitic diseases of sheep and goats those affecting vital body organs like liver and lungs cause enormous damage. Livers and lungs being vital organs play crucial role in productive efficiency of the animals and have therefore been examined for parasites in the present study.

MATERIALS AND METHODS

Four hundred livers and four hundred lungs comprising two hundred each from sheep and goats were collected from Faisalabad abattoir. Livers and lungs were incised through biliary tree and trachea, bronchi, bronchioles respec-

tively with a pair of scissors, needles and forceps. The helminths, thus recovered were preserved and stained following the methods of Galigher (1939) and Hayat (1965). The taxonomy of the helminths was studied by using the keys given by Whitlock (1960) and Anonymous (1979). The migratory larvae in tissues of these two organs were isolated by using Baermann's technique as followed by Hayat & Hayat (1984).

RESULTS AND DISCUSSION

The overall incidence of natural parasitic infection in lungs was recorded to be 21% in sheep and 8% in goats. The liver infection was found to be 34 % in sheep and 11% in goats (Table 1). Of the total 200 livers and 200 lungs of sheep examined,24% were found to be infected with hydatidosis. These results are in conformity with those of Ashraf (1985) who reported the same incidence of hydatidosis in sheep. However, these findings disagree with Arru *et al.* (1982) and Islam (1985) who reported higher incidence of hydatidosis which was found to be 63% and 54.98% , respectively. The fluctuation in the incidence was probably due to the difference in hygienic standards and climatic variations of different places.

Table 1. *Incidence of helminths in livers and lungs of sheep and goats*

Organ	Infection rate					
	Sheep			Goat		
	Animals examined	Animals infected	Percent infection	Animals examined	Animals infected	Percent infection
Liver	200	68	34	200	22	11
Lung	200	42	21	200	16	8

The incidence of the disease in goats was 8% as recorded in this study. These results are in agreement with those of Mathur and Khanna (1977) and Islam (1985) who reported that prevalence of hydatidosis in goats was 5.8 and 8.29% respectively.

In the present study the prevalence of hydatidosis in sheep was found higher than in goats. These findings are in line with those of Dada (1977), Arru *et al.* (1982), Islam (1985) and Ashraf (1985) who have recorded the same pattern of hydatidosis in both the species of animals. The lower rate of infection in

goats is attributed to selective grazing nature of caprines. Regarding organ specificity in hydatidosis lungs were recorded to be the main focus of infection in both sheep and goats. The reasons for variation in organ specificity are unknown.

Four hundred livers comprising two hundred each from sheep and goats were examined. Of the total sheep livers, 8% were found infected with *Fasciola gigantica* and 4% with *Fasciola hepatica*. Six percent sheep were found infected with both *Fasciola gigantica* and *Fasciola hepatica*. In goats the incidence of *Fasciola gigantica* and *Fasciola hepatica* was recorded as 4 and 3%, respectively. Mixed infection with both *Fasciola gigantica* and *Fasciola hepatica* was recorded in 3% animals. The present findings are in line with those of Kendall (1954) who reported *Fasciola gigantica* and *Fasciola hepatica* to be the major cause of Fascioliasis in Pakistan. In the current study, the incidence of *Fasciola gigantica* was higher than that of *Fasciola hepatica*. Other workers (Sarwar, 1962 and Shaikh and Haq, 1983) have also recorded *Fasciola gigantica* to be the most prevalent fluke among sheep and goats. The higher incidence of *Fasciola gigantica* could be due to the differences in biotic potential of these flukes and more availability of *Limnaea auricularia*, the intermediate host of *Fasciola gigantica*.

Of the total of 200 sheep lungs examined, 3% were found to be infected with *Dictyocaulus filaria* and 2% with *Protostrongylus rufescens*. While none of the goat lungs had lungworm infection. The record of species in the present study is in line with Gerichter (1951) and Korthals and Shenman (1960). The incidence of lungworms recorded in this study is not in conformity with Hayat (1965) and Ramachandran (1967) who have recorded higher incidence of these parasites. A third species i. e., *Muellerius capillaris* was also recorded from nodules of lungs by Hayat (1965). This variation in the incidence and species recorded could be due to difference in climatic conditions of various places which are favourable for the developmental stages of these lungworms. The lower incidence of lungworms recorded in the present study may also be due to more awareness and increased use of anthelmintics during these days.

Among 400 livers comprising two hundred each from sheep and goats, migratory stages of ascarid larvae were found in 4 and 1% sheep and goats, respectively. The lesions recorded in ascarid infected livers in current study were in line with those recorded by Harcourt and Costema (1973) and Hayat &

Hayat (1984). These lesions were focal areas of necrosis, whitish specking of the parenchyma and white spots on the surface of liver.

In current study, hydatidosis was recorded having the highest incidence in both sheep (24%) and goats (8%). The second higher incidence was that of *Fasciola* species, *Fasciola gigantica* was recorded in 8% sheep and 4% goats, while *Fasciola hepatica* in 4% sheep and 3% goats. Six percent sheep and three percent goat livers had mixed infection of both of these species of flukes. Lungworm disease was recorded in sheep only. The species of lungworms found were *Dictyocaulus filaria* (3%) and *Protostrongylus rufescens* (2%). Migratory larvae of *Toxocara canis* were recorded in 4% sheep and 1% goats. Comparative incidence of all recorded parasites infecting livers and lungs is shown in Table 2.

Table 2. *Comparative incidence of parasites naturally infecting livers and lungs in sheep and goats*

Parasitic species	Infection rate					
	Sheep			Goat		
	Animals examined	Animals infected	Percent infection	Animals examined	Animals infected	Percent infection
Echinococcus granulosus	200	48	24	200	16	8
Fasciola gigantica	200	16	8	200	8	4
Fasciola hepatica	200	8	4	200	6	3
Mixed species of *Fasciola*	200	12	6	200	6	3
Dictyocaulus filaria	200	6	3	200	—	—
Protostrongylus rufescens	200	4	2	200	—	—
Ascariasis	200	8	4	200	2	1

The highest incidence of hydatidosis in sheep and goats could be due to more frequent contact of intermediate and final host. This may also be attributed to lack of education and unhygienic disposal of infected carcarsses to which final host can get access very easily. Fascioliasis was also found affecting a considerable population of sheep and goats. The higher incidence of *Fasciola*

species could be due to abundance of snails and favourable climatic conditions necessary for the development of ova of the parasites. The lower incidence of lungworms and migratory ascarid larvae recorded in the present study can better be explained on the basis of local geo-climatic conditions which probably are not as favourable for the development of lungworms and ascarids.

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