# PREVALENCE OF FASCIOLIASIS IN COWS AND BUFFALOES IN QUETTA, PAKISTAN

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## SUMMARY

Fascioliasis is a common disease of cattle throughout the World. The classical diagnosis of Fascioliasis relies on examination of liver and finding of adult parasite or presence of its eggs through fecal examination. A total of 288 livers and gall bladder of cows and 201 of buffaloes were selected randomly from various slaughter houses of Quetta city for the presence or absence of *Fasciola* species. Over all prevalence of fascioliasis was 24.6% and 27.3% in cows and buffaloes, respectively. The species found in liver of cows were: *Fasciola hepatica* (15.2%), *Fasciola gigantica* (3.4%) and mixed infections (5.9%). In buffaloes, prevalence of *F. hepatica* was 14.4%, F. *gigantica* 3.9% and mixed infections was 8.9%. No significant difference in prevalence of fascioliasis was found between cows and buffaloes. It was concluded that the prevalence of fascioliasis in buffaloes are higher than cows which may be due to difference in feeding habits and hygienic habitats.

**Key words:** Fascioliasis, Prevalence, Pakistan, Quetta.

## Introduction

Cows and buffaloes are not only main source of animal proteins but their products such as bones, skin and goods made from their fetch are of great importance for the man. Watery diarrhea, weakness, weight loss, decrease in milk production, reduced product quality, mortality and other secondary infections are caused by trematodes parasites. Helminths parasite especially Trematodes caused huge loss to the livestock wealth. In most cattle producing areas of the world, infection by liver parasites are considered to be a primary cause of production loss.

Fascioliasis is an infection of liver caused by *Fasciola* species. Fascioliasis is distributed through out the world. The direct losses caused by liver parasites (particularly fasciolosis) are attributed to acute illness and death, premature slaughter and rejection of some parts at meat inspection. Watery diarrhea, weakness, weight loss, decrease in milk productivity, reduced product quality, mortality and other secondary infections are caused by various species of trematode. [1]

*Fasciola hepatica* and *F. gigantica* are recognized as the two most economically important helminth parasites of production animals. The world wide losses in animal productivity due to fasciolosis were estimated as over US $ 3.2 billion per annum.[2] Economical losses (due to *F. gigantica* alone) in cattle and buffaloes exceed US$ 2.4 billion in Asia. A similar picture has been presented in Africa.[3]

Various workers studied the prevalence of fascioliasis in domestic animals in various parts of the world. The prevalence of fascioliasis in cattle is still a big issue in livestock throughout the world.[3-8]

In Pakistan the prevalence of fascioliasis in domestic animals has been reported by Javed *et al.* (1993)[9]; Nasreen *et al.* (2000)[10], Azam *et al.* (2000)[11], Bhutto *et al.* (2002)[12] and Raza *et al.* (2007)[13] from various parts of the country. In Balochistan, Ahmed (1983)[14], Ahmad (2002)[15] and Kakar and Kakarsulemankhel (2008)[16] studied the fascioliasis in sheep, goats and cattle respectively.

Man is an accidental host for *Fasciola.* The infection in human being is world wide in distribution. Majority of human infection (fasciolosis) have been reported from rural communities.[17-20]

Present study was conducted to assess the prevalence of fascioliasis in cows and buffaloes in Quetta city, Pakistan.

## Materials and Methods

A survey was conducted during May 2008 to December 2008 to screen the prevalence of fascioliasis in the livers of cows and buffaloes in Quetta, Pakistan. Butcher shops were visited to collect liver and gall bladder. A total of 288 livers of cows and 201 of buffaloes were randomly selected. The organs were brought to the Research Laboratory Department of Zoology, University of Balochistan, Quetta, Pakistan. The gall bladders were cut opened to collect the parasites. Similarly, the livers were cut into slices and were put into the saline water for 24 hours. The saline water was then passed through wire mesh and the parasites, if present, were collected with the help of fine brush. Finally, they were preserved in 70% ethyl alcohol.[21] The specimens were stained in borax carmine, dehydrated by increasing concentrations of ethyl alcohol, cleaned with xylol and mounted on glass slides, following the techniques described by Solusby (1982).[1] The trematodes were identified according to the keys erected by Yamaguti (1958)[22] and Solusby (1982)[1].

## Results and Discussion

The over all infestation of fascioliasis was recorded to be 24.6% (71/288) in cows and 27.3% (55/201) in buffaloes (Table 1).

**Table 1: Over all Prevalence of fasicoliasis in Cows and Buffaloes**

| Host Species | Total No. of Animals Examined | Total No. of Animal Infected | %age of Infected Animals |
|---|---|---|---|
| Cows | 288 | 71 | 24.6 |
| Buffaloes | 201 | 55 | 27.3 |

(p=0.5)

Both species of *Fasciola* (*hepatica* and *gigantica*) were similar but following differences were observed. *F. gigantica* was larger and its body more elongated posteriorly than of *F. hepatica.* The anterior cone of *F. gigantica* was smaller than that of *F. hepatica,* shoulders were not as permanent as in *F. hepatica* and the body of *F. gigantica* was more transparent (Figure 1 & 2).

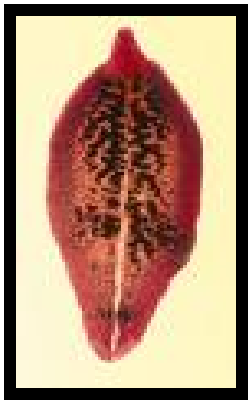

Figure 1: *F. hepatica*

Figure 2: *F. gigantica*

In cows, Specie wise prevalence of fascioliasis was highly significant as (p=0.0001) the prevalence of *F. hepatica* was highest (15.2%); *F. gigantica* was recorded at low rate i.e. 3.4% (10/288) and mixed infection of both the two *Fasciola* species (i.e. F. hepatica *&* F. gigantica) was 5.9%. In buffaloes, the specie wise prevalence of fascioliasis was highly significant as (p=0.001) the prevalence of *F. hepatica* was 14.4%, *F. gigantica* (3.9%) and mixed infection (both F. hepatica *&* F. gigantica) was recorded at the rate of 8.9% (Table 2).

**Table 2: Species wise Prevalence in livers of cows and buffaloes**

| Endo Parasites | No. of Liver Infected in Cows | Infection %age in Cows | No. of Liver infected in Buffaloes | Infection %age in Buffaloes |
|---|---|---|---|---|
| *F. hepatica* | 44 | 15.2 | 29 | 14.4 |
| *F. gigantica* | 10 | 3.4 | 8 | 3.9 |
| *Mixed* | 17 | 5.9 | 18 | 8.9 |

For Cows $X^2$=29.67, (p=0.0001), For Buffaloes $X^2$=13.24, (p=0.001).

Previously, Ahmed (2002)[15] reported 7.6% incidence of this parasite in 20 slaughtered sheep and 6.9% incidence in 3 slaughtered goats in Quetta. Kakar and Kakarsulemankhel (2008)[16] reported prevalence of *F. hepatica* 16.1% in cows and 11.4 % in buffaloes.

Javed *et al.* (1993)[9] divided the animals according to their age into two groups i.e. Group I, under one year and group II under 1-3 years age in Pakistan. They calculated the infection of *F. hepatica* in cows and buffaloes at the rate of 2.4% in group I (less than one year) and 1.5% in group II (1-3 year age). Azam *et al.* (2002)[11] reported 5.9% prevalence of *F. hepatica* from fecal examination in Dir (Pakistan). Raza *et al.* (2007)[13] reported 9% infestation of *F. hepatica* in cattle and 4% in buffaloes from various parts of the country.

In Quetta Kakar and Kakarsulemankhel (2008)[16] reported *F. gigantica* 12.3% in cows and 13.5% in buffaloes. Bilqees and Alam (1991)[23] reported 8.6% fascioliasis in buffaloes and 7.4% in cows in Karachi (Pakistan). Islam *et al.* (1992)[24] reported very high prevalence of *F. gigantica* both from liver and from feacal examination of buffaloes in Bangladesh. They recovered this species from 84 viscera out of 180 (46.6%), while the percentage from the faeces was 18.9%. Jithendran (2000)[4] reported 36% incidence of *Fasciola* species in cattle and 48.7% in buffaloes during 1986-1990, 6.3% in cattle and 20.6% in buffaloes in Palampur (Himachal Pradesh, India) in 1993-1997. But he did not give the prevalence of two species separately. Nasreen *et al.* (2001)[25] reported 3.2% and Bhutto *et al.* (2002)[12] reported 4% *F. gigantica* in buffaloes in Sindh. Waruru *et al.* (2004)[26] reported 31.5% infection of *Fasciola* species from the ruminants of Kenya, but they did not separate the two species. Keyyu *et al.* (2005)[27] recorded 28.4- 63.8% infestation of *F. gigantica* in Tanzania.

During present study, the prevalence of endo-parasites was found to be higher in buffaloes (27.3%) compared to cows (24.6%). Higher prevalence in buffaloes as compared to cows might be due to wallowing habits.

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