

HELMINTHIASIS IN BUFFALOES AS INFLUENCED BY AGE AND SEX

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ABSTRACT

Five hundred faecal samples from adult buffaloes and calves of either sex and different ages were collected randomly. Out of 500 samples examined, 9.2 and 5.4 percent were found infected with nematodes and trematodes, respectively. Mixed infection was observed in 0.6 percent while cestodes could not be detected. The highest percentage of infection was in one-month to one-year old age group (35.2 per cent) while the lowest infection rate was observed in 10 year old and above (2.5 per cent). The males were more susceptible to the helminthiasis as the infection was higher in males as compared to female i. e., 36.9 and 11.0 per cent, respectively.

Keywords: Helminthiasis, buffaloes, age, sex

INTRODUCTION

Parasitism is rife and affects all classes of livestock and wildlife throughout the world. Diseases caused by helminth parasites constitute a major obstacle to the development of profitable livestock industry in the world. These parasites not only affect the health of animals but also adversely affect their productivity, decrease resistance to other diseases and cause severe mortality leading to heavy economic losses (Payne, 1990; Irfan, 1984). Gastro-intestinal helminthiasis is caused by different species of helminthic parasites in the alimentary tract and account for major economic losses (Chaudhry *et al.*, 1984).

Buffaloes are susceptible to a variety of parasitic diseases. According to field reports, over 275 thousand buffaloes are lost annually due to different diseases (Junejo and Qureshi, 1993).

In Pakistan, with relatively low hygienic standards, parasites are responsible for huge economic losses to the livestock industry. Byerly (1977) has estimated that about 50 million cattle and buffaloes die annually due to different diseases world wide. Herlich (1978) postulated that at least 5-10% of mortality and 10-20% of morbidity losses in ruminants were due to helminth infection. Irfan (1984) reported mortality rate of 24-63% in large animals caused by endo-parasites.

MATERIALS AND METHODS

A total of 500 faecal samples were collected

randomly from adult buffaloes and calves of either sex and different ages. Faecal samples were examined by sedimentation method and stoll method.

Sedimentation method

The sedimentation method as described by Lynne and Lawrence (1979) was used for the identification of eggs. Approximately 1.0 g of faeces was taken into test tube containing 10-12 ml of normal saline. The faecal material was emulsified thoroughly in the saline by glass rod. The emulsion was filtered through the mesh sieve into the centrifuge tube and centrifuged at 2000 rpm for 2-3 minutes. The supernatant was discarded and the process was repeated twice. About 7 ml of 10% formalin solution was then added to the sediments and shaken vigorously. Ether (2-3 ml) was added to the test tube and shaken vigorously to get a homogeneous mixture. The mixture was centrifuged again at 2000 rpm for 5 minutes. The contents of the tube were separated into four layers i.e., sediment, formalin layer, debris plug and ether layer. The supernatant was discarded all at once until only the sediment was left. This was diluted with little formalin (2-3 drops) and mixed homogeneously. With a pasteur pipette, a few drops of sediment were removed to object glass and examined under low magnification power of microscope.

Counting of eggs

The samples found positive for helminth infection were subjected to stoll method (Thienpont *et al.*, 1979; Chatterjee, 1987) for quantification of the eggs per gram

(EPG). Five grams of faeces were weighed and mixed with 75 ml of N/10 NaOH solution in a graduate glass tube. The glass beads were added and the contents were shaken vigorously to get a homogeneous suspension. Using a graduated pipette, 0.15 ml of suspension was withdrawn to on object glass and entire preparation was covered with cover slip. The preparation was examined completely and systemically under low magnification. The average number of eggs found were multiplied by 100 to get the number of eggs per gram of the faeces. At least two preparations were examined.

RESULTS AND DISCUSSION

The results of present study revealed an overall prevalence of 15.2 per cent. The prevalence of nematodes and mixed infection was 9.2, 5.4 and 0.6 %, respectively (Table 1).

Table 1: prevalence of Helminthiasis in buffaloes (n=500)

Helminths	No. of samples infected	Percentage of infection
Nematodes	46	9.2
(<i>Toxocara vitulorum</i> <i>Oesophagostomum radiatum</i> <i>Strongyloides papillosus</i> <i>Ostertagia ostertagi</i> <i>Trichuris spp.</i>)		
Trematodes	27	5.4
(<i>Fasciola gigantica</i> <i>Fasciola hepatica</i> <i>Paramphistomum cervi</i>)		
Cestodes	00	0.0
Nematodes & Trematodes	03	0.6
Total	76	15.2

The overall prevalence of helminth infection (15.2%) observed in this study is very low as compared to that reported by Hussain (1985), Iqbal (1987) and Ishtiaq (1995). They reported a prevalence of 76.7, 46.6 and 56.99 per cent, respectively. The variation may be due to the climatic conditions, age of animals, immunity developed by old animals, and the number of samples examined. An other important factor which may have accounted for the lower prevalence of the helminths recorded in this study, may be the fact that the samples were obtained from cattle colony Hyderabad, where animals are kept for commercial purposes, therefore, reasonably well managed and regularly dewormed.

Table 2: Intensity of helminth infection in buffaloes

Eggs per gram (EPG)	No. of positive samples	Percentage of infection
100-400	20	26.32
401-800	14	18.42
801-1200	10	13.16
1201-1600	09	11.84
1601 and above	23	30.26

Table 3: The effect of age on distribution of helminthiasis in buffaloes

Age of animal	Samples Examined	Positive	
		No.	%
Calves (1 month-1year)	88	31	35.23
Young stock (1 year-3 year)	106	23	21.70
Adult (above 3 years)	306	22	07.20
Total	500	76	15.20

The egg count per gram (E.P.G) of faeces was used as a basis for the estimation of the intensity of a helminthiasis (rate of infection). As depicted in (Table 2) 26.3 % of the samples, the E.P.G was 100-400 eggs per gram of faeces while 401-800, 801-1200, 1201-1600 and above 1601 was counted in 18.42, 13.16, 11.84 and 30.26 % samples, respectively. Soulsby (1982) suggested that the presence of 300-600 eggs per gram of nematodes and 100-200 eggs per gram of trematode in cattle indicate infection. In view of the above statement, all the animals detected as positive in the present study will be regarded as clinically infected. The age of animal is considered a major factor in the prevalence of helminth infection. During the present study, the highest infection rate (35.23%) was recorded in the one month-one year old age group (Table 3). The higher prevalence of helminthiasis in young animals observed in this study accords with similar findings reported by others in young animals (Barbosa and Corea, 1989; Sukhapensa, 1983; Baruah *et al.*, 1981; Sahoo *et al.*, 1991; Sakhid, 1993). The exact percentage, however, vary and ranged from 14-100 per cent.

The prevalence of helminth infection in the present study was higher in males than in females i.e., 36.9 and 11.00 per cent, respectively. This accords with Salim and Tawfic (1966) and Hussain (1985) who also observed higher incidence of infection in male calves. This may be due to negligence and improper care of male animals in commercial dairy farms.

REFERENCES

- Barbosa, M.A. and F.M.A. Corea, 1989. Natural parasitism of *Toxocara vitulorum* in buffaloes, Brazil J. Vet. Med., 41 (6): 511-525.
- Baruah, P.K; R.P. Singh, M.K. Bali and M.S. Vashistha, 1981. Studies on the Prevalence of *Neoscaris vitulorum* and another infection in buffalo-calves in Hissar. Indian Vet. J., 5(2): 74-75.
- Byerly, T.C., 1977. Ruminant Livestock Research and Development. Science J., 195: 450-456.
- Chatterjee, K.D., 1987. Protozoology and helminthology, 13th Ed., Calcutta, India.
- Chaudhary, N.I; M.S. Durrani and T. Aziz, 1984. The incidence of gastro-intestinal parasites in buffaloes of cattle in Azad Kashmir. Pakistan Vet. J., 4: 60-61.
- Herlich, H., 1978. The importance of helminth infection in ruminant, World Anim. Rev. , 26: 22-26.
- Hussain, Q., 1985. Studies on the incidence of gastro-intestinal parasites and efficacy of Banminth II against nematodes in buffalo-calves, M.Sc. Thesis, Univ. Agri. Faisalabad, Pakistan.
- Iqbal, M.M., 1987. A survey of gastro-intestinal parasites of buffaloes in Faisalabad and evaluation of efficacy of Albendazole against these infections, M.Sc. Thesis, Univ. Agri., Faisalabad, Pakistan.
- Irfan, M., 1984. Key note address on effect of parasitism in lowering livestock production. Proceedings of the National Seminar on Important Parasitic Problems of Livestock in Pakistan. Oct. 19-20, 1983. Pakistan Vet. J., 4(1): 25-27.
- Ishtiaq, A., 1995. A study of gastro-intestinal helminthiasis and the effects of natural infection on various blood parameters. M.Sc. Thesis, College Vet. Sci, Lahore, Pakistan.
- Junejo, B.M and A. Qureshi, 1993. Importance of disease diagnosis in livestock, Souvenir, Sindh Vet. Student Organization, Tandojam.
- Lynne, S.G.A.B, and R.A. Lawrence, 1979. Diagnostic Parasitology, Parasite identification. 2nd Ed., The C.V. Mosby Co. Missauri, U.S.A.
- Payne, W.J.A., 1990. An introduction to Animal Husbandry in the tropic, 4th. Ed. ELBS with Longman, London, U.K.
- Sahoo, N; A. Misra and P.C. Dey, 1991. A note on the incidence of helminthiasis in buffalo-calves with particular reference to ascariasis, Orissa Vet. J., 16(1): 52.
- Salim, M.K and M.A. Tawfic, 1966. The relation between age and rate of parasitic infection among buffaloes, Vet. Med. J. (Giaza), 13: 125-131.
- Shahid, J.R; A. Rashid, A. Rubina and R. Saeed, 1993. Prevalence of endo-Parasites in buffaloes and cattle in Okara, Pakistan Vet. J., 13 (2): 88-89.
- Soulsby, E.J.L., 1982. Helminth. Arthropods and Protozoa of the Domesticated Animals, 7th. Ed., ELBS and Bailliere Tindall, London, Great Britain.
- Sukhapensa, V., 1983. Parasites in Swamp buffalo calves. Thai Buff. Bull., 2 (1): 12-13.
- Thienpant, D., F. Rochette and O.F.J. Vanparijs, 1979. Diagnosing helminthiasis through coprological examination. Janssen Research Foundation, Beerse, Belgium.