

PREVALENCE OF GASTRO-INTESTINAL PARASITES IN SHEEP AND GOATS SLAUGHTERED AT LAHORE ABATTOIR

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Abstract: The prevalence of Gastro-intestinal parasites of both sheep and goats brought for slaughtering at Lahore abattoir was studied. The overall prevalence was recorded to be 92.35% including 28.13% infected with one species while 64.22% infected with more than one species of parasites. During this study *Haemonchus contortus* (39.41%), *Trichostrongylus* spp. (22.94%) and *Fasciola hepatica* (14.11%) were found major parasites in these animals. The effect on various blood parameters showed a decrease in total leukocytic count, haemoglobin level and increase in erythrocyte sedimentation rate values in infected sheep and goats.

Key words: GIT infection, parasites, haematology, caprine.

INTRODUCTION

Pakistan is an agricultural country and most of the population is dependent on agriculture and animals along with their allied industries, to which sheep and goats have a significantly important portion. Sheep and goats are not only main source of protein but their products such as bones, skin, hides, hair and goods made from them fetch more than 4 billion rupees annually in the form of foreign exchange having sizable contribution in GNP. In Pakistan, the sheep population was 28.3 million and goats population was 34.2 million (Durrani and Khan, 1993). About 90% of livestock population in our country has various parasitic diseases (Rauf, 1984). Very little attention has been paid towards their health and production status. The monetary losses due to sheep and goat mortality caused by parasitic diseases were estimated about Rs.80,000 in Punjab only (Choudhry and Khan, 1984). These parasites caused watery diarrhoea, weakness, weight loss, damage to wool production and leads to other secondary infections. The most important factor affecting the sheep health in the country is the parasitic infection (Sarwar, 1963). In Australia, the losses caused by parasites to sheep industry were over 7,000 Australian dollars per farm and half of these losses were due to internal parasites, causing damage to wool production (Beck *et al.*, 1985). These parasites are responsible for decrease in total leukocytic count, haemoglobin and packed cell volume in infected animals (Singh *et al.*, 1984). No study seen to have been undertaken to assess the magnitude of this problem in Lahore area. This article showed the prevalence of gastro-intestinal parasites and haematological studies of both infected and non-infected sheep and goats slaughtered at Lahore abattoir.

MATERIALS AND METHODS

This study was conducted on 170 animals of both sheep and goats irrespective of age and sex brought for slaughtering at Lahore abattoir. Faecal samples from 170 sheep and goats were collected directly from the rectum. All the samples were subjected to salt floatation method (Soulsby, 1982) and examined carefully under the low power of the microscope for the presence/ absence of parasites eggs. Identification of parasites ova was done following Thiepont *et al.* (1979). For haematological study 5 ml of blood was collected directly from the jugular vein before slaughtering and put into a test-tube containing a few drops of 1% EDTA. Total leukocyte count (TLC) was determined according to the method suggested by Benjamin (1978). Haemoglobin (Hb) estimation was conducted by using Kit method (Cyanmethemoglobin method). Erythrocyte sedimentation rate (ESR) was determined according to Wintrobe's method.

RESULTS AND DISCUSSION

A total of 170 faecal samples were studied for the prevalence of gastro-intestinal tract (GIT) parasites and 157 were found positive with parasitic infestation. The overall prevalence of GIT parasites were recorded 92.35%. During this study, 7 species of GIT parasites were found. Name of the different species with their relative prevalence was presented in Table I. Amongst the nematodes the prevalence of *Haemonchus contortus* was recorded to be the highest (39.41%) followed by *Trichostrongylus* spp. (22.94%). Amongst the cestodes, prevalence of *Moniezia expansa* (6.47%) was the highest. The results are not in agreement with Durrani *et al.* (1981) who recorded an overall incidence of 73.33% and 60.29% in sheep and goats, respectively in NWFP province. Khan (1993) found ten species of GIT parasites and recorded 88.47% overall incidence in both species in Rawalpindi area. The difference in prevalence might be due to variation in the geo-climatic conditions of these areas of study. The results of haematological studies are presented in Table II in both infected and non-infected animals. The result revealed that these parasites caused decrease in TLC, Hb and increase in ESR values in infected sheep and goats. The results are in agreement with

Table I: Prevalence of different species of GIT parasites in sheep and goats slaughtered at Lahore abattoir

| Species of parasites | Infected samples (n = 157) | Infection incidence (%) |
|------------------------------|-------------------------------|----------------------------|
| <i>Haemonchus contortus</i> | 67 | 39.41 |
| <i>Trichostrongylus</i> spp. | 39 | 22.94 |
| <i>Fasciola hepatica</i> | 24 | 14.11 |
| <i>Chabertial ovina</i> | 13 | 7.64 |
| <i>Moniezia expansa</i> | 11 | 6.47 |
| <i>Dictyocaulus filaria</i> | 3 | 1.76 |

Rowlands and Clampitt (1979) and Hawkins (1984) who found drop in concentration of Hb in infected sheep and goats. Furnage *et al.* (1975) studied white cell system in the course of experimental fascioliasis in rabbit and sheep and recorded increase in number of eosinophilic and neutrophilic leukocytes while drop in lymphocytes. Ajaz (1993) studied decrease in TLC, Hb and PCV values in parasitic infection.

Table II: Haematological values of sheep and goats suffering from GIT parasites

| Parameters | Infected (n=157) | Non-infected (n=13) |
|---|---------------------|------------------------|
| Total leukocytic count (10 ³ /mm) | 6.25±0.51 | 9.81±0.72 |
| Lymphocytes (%) | 48.62±3.01 | 52.20±2.11 |
| Neutrophils (%) | 41.09±1.29 | 45.96±1.08 |
| Monocytes (%) | 2.13±0.12 | 3.29±0.11 |
| Eosinophils (%) | 9.40±1.30 | 4.17±0.24 |
| Basophils (%) | 1.16±0.02 | 2.13±0.03 |
| Hb (g/dl) | 8.54±1.42 | 14.26±1.04 |
| ESR (mm/hr) | 3.20±0.43 | 1.07±0.08 |

Abbreviations used: Hb, haemoglobin; ESR, erythrocyte sedimentation rate.

REFERENCES

- AJAZ, M., JADOON, J.K., WAHEEDULLAH AND MARWAT, M.Y., 1992. Prevalence of parasitic infestation in migratory sheep and goats in Kaghan Valley. *J. Anim. Hlth. Prod.*, **112-113**: 19-21.
- BENJAMIN, M.M., 1978. *Outline of veterinary and clinical pathology*, 3rd ed. Iowa State Univ. Press, Ames, USA.
- BECK, T., MOIR, B. AND MEPPEN, T., 1985. The cost of parasite to the Australian sheep industry. *Quart. Rev. Rural Econ.*, **7**: 336-343
- CHOUHDRY, N.A. AND KHAN, B.B., 1978. *Estimation of economic losses due to animal diseases in Punjab*. Pakistan Agric. Res. Council. Islamabad.
- DURRANI, M.S., CHOUHDRY, N.I. AND ANWAR, A.H., 1981. The incidence of GIT parasites in sheep and goats of Helium Valley (Azad Kashmir). *Pakistan Vet. J.*, **1**: 164-165.
- DURRANI, N.A. AND KHAN, R.N., 1993. Major diseases and health problems of goats and sheep in Pakistan. *J. Anim. Hlth. Prod.*, **12-13**: 7-13.
- FURMAGA, S., GUNDLACH, J.L. AND SOBIESZEWSKI, K., 1975. White cell system changes in the course of experimental fascioliasis in rabbits and sheep. *Acta Parasitologica Polonica*, **23**: 159-175.

- HAWKINS, C.D., 1984. The use of haemoglobin, packed cell volume and serum sorbitol dehydrogenase as indicator of the development of fascioliasis in sheep. *Vet. Parasitol.*, **15**: 117-123.
- KHAN, M.Q., 1993. Prevalence of GIT parasites in sheep and goats slaughtered at Rawalpindi abattoir. *J. Anim. Hlth Prod.*, **12-13**: 14-16.
- MARWAT, M.Y. AND SIDDIQUE, M.N., 1988. Incidence, taxonomy and seasonal variation of U parasites of economic importance in sheep and goats of NWFP. *Fin. Annual Tec. Rep.*, PARC, Islamabad, pp.33.
- RAUF, A.M., 1984. *Parasitic infection in animals*. The daily Pakistan Times, Jan. 23, 1984, Lahore.
- ROWLANDS, D., AP, T. AND CLAMPITT, R.B., 1979. Plasma enzyme level in ruminants infected with *F. hepatica*. *Vet. Parasitol.*, **5**: 155-175.
- SARWAR, M.M., 1963. Worm parasite control in sheep and goats in West Pakistan. *West Pakistan J. Agric. Res.*, **1**: 3.
- SINGH, R.P., SAHAI, B.N. AND PRASAD, K.D., 1984. Hematological observations in goats experimentally infected with *P. cervi*. *Indian J. Anim. Sci.*, **54**: 132-134.
- SOULSBY, E.J.L., 1982. *Helminths, Arthropods and Protozoa of domesticated animals*. 7th Ed. English Language Book Society and Bailliere Tindall, London, pp.809.
- THIENPONT, D., ROCHETTE, F. AND VANPARIJS, O.F.J., 1979. Diag. Helm. through coprological exam. Janssen Res. Found. Beerse, Belgium, pp.46-48.

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