

Original Research Article

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Detection of Gastrointestinal Helminthic and Protozoan Infections in Diarrhoeic Goats

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ABSTRACT

Keywords

Gastro-intestinal parasitism, Incidence, Diarrhoeic goats, *Eimeria* spp, Mixed infection.

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Clinical parasitism occurs less frequently in goats, however, the parasites of the stomach and intestine could lead to scouring, dehydration, anemia, depression and eventually death. The incidence of gastro-intestinal helminthic and protozoan parasites was identified by coprological survey made in diarrhoeic goats brought to the Teaching Veterinary Clinical Complex (TVCC), Veterinary College and Research Institute, Namakkal. The study revealed the incidence of gastrointestinal parasites predominantly by *Eimeria* spp. and *Strongylus* spp. followed by *Moniezia* spp., *Strongyloides* spp., and *Trichuris* spp. Mixed infections were found for all the above parasites, predominantly with *Strongylus* and *Eimeria*. Prevalence of gastrointestinal parasitism was high in male and in less than 2 months old kids.

Introduction

Parasitic gastro-enteritis leads to a serious health threat with a limitation to the productivity of small ruminants due to the associated morbidity, mortality, cost of treatment and prophylaxis (Nwosu *et al.*, 2007). Parasitic infections are of much economic importance because small ruminants' rearing has become a major source of income particularly to the marginal farmers in the country (Pathak and Pal, 2008). The most important gastro intestinal parasites in goats are coccidia (protozoa), nematodes (roundworms), cestodes (tapeworms), and trematodes (flukes). Amongst these, parasites of Trichostrongylidae family are considered of paramount importance as they cause

significant morbidity and loss of production (Veale, 2002).

In this situation, the control of gastrointestinal trichostrongylosis in goats is found to be severely impaired by the increasing development of anthelmintic resistance (Sangster, 2001) and resistance is found have reported worldwide for three main broad spectrum anthelmintics commonly available for the control of trichostrongyles (Silvestre *et al.*, 2002). Goats have numerous internal parasites and one of the most important are the coccidian species (Dai *et al.*, 2006). This paper reports the incidence of clinical parasitism in the stomach and intestine, of the

diarrhoeic goats brought to the TVCC of this institute.

Materials and Methods

Faecal samples were collected from a cross section of 120 non-descriptive goats in different age groups and both sex brought to the Teaching Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal from December, 2015 to March, 2016, with the history of diarrhoea (Fig 1 and 2) and management under semi-intensive system. Faecal examination was carried out by flotation and centrifugal sedimentation technique and the endoparasitic eggs were identified based on the morphology (Soulsby, 1982).

Results and Discussion

Out of 120 diarrhoeic cases studied, the incidence of helminthic, coccidian and mixed infections (cestode, nematode and coccidian) accounted for 56.6 (68 cases) and 55.0 (66

cases) and 10.0% (12 cases) of the cases, respectively (Fig 3). Out of these 120 diarrhoeic goats, 66 cases (55.0%) harboured *Eimeria* sp., 48 cases (40.0%) *Haemonchus contortus*, 14 cases (11.6%) *Moniezia* sp., 4 cases (3.3%) *Strongyloides papillosus* and 2 cases (1.6%) *Trichuris ovis*. Mixed infections were detected for *H. contortus* and *Eimeria* sp. in 6 cases (5.0%), *Moniezia* and *Eimeria* sp. in 2 cases (1.7%), *S. papillosus*, *H. contortus* and *Eimeria* sp. in 2 cases (1.7%) and *Moniezia* sp. and *H. contortus* in 2 cases (1.7%).

Male goats were found to be highly susceptible in this study with an incidence of 60.0% (72 cases) than females with an incidence of 40.0% (48 cases). The occurrence was also found to be high in the young kids with the age group of less than 2 months with an incidence of 43.3% (52 cases) followed by 2-4 months with 26.7% (32 cases), 4-6 months with 15.0% (18 cases), 6 months to 1 year with 8.3 % (10 cases) and above 1 year with 6.7% (8 cases).

Fig.1 A Goat positive for *Eimeria* species showing watery diarrhoea with tenesmus

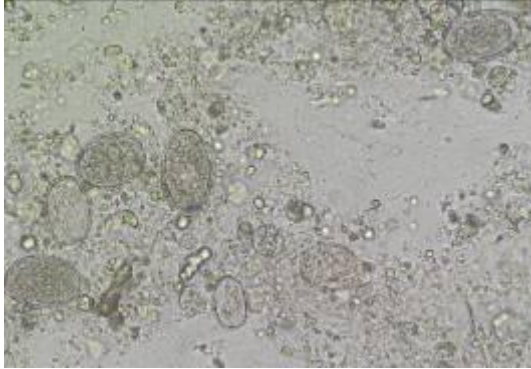


Fig.2 Diarrhoeic faeces showing the mature proglottids of *Moniezia* species



Fig.3 Gastro intestinal parasitic eggs and coccidian parasites from the faecal samples of diarrhoeic goats

a) Unsporulated oocysts of *Eimeris* sp (40x)



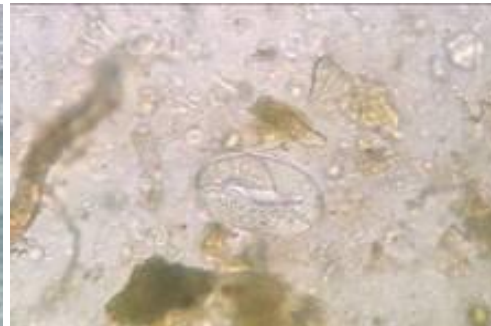
b) Ova of *Moniezia* sp (40x)



c) Egg of *Strongyle* sp (40x)



d) Egg of *Strongyloides* sp (40x)



e) Egg of *Trichuris* sp (40x)



In this study, coccidian sp. was found to be the most commonly found parasite followed by strongyles, *Moniezia*, *Strongyloides* sp. and *Trichuris* sp. in diarrhoeic goats and this finding is in accordance with that of Velusamy *et al.*, (2015) who also recorded the

highest prevalence for coccidia, followed by strongyles, *Moniezia*, *Trichuris* and least with amphistome in both the sheep and goats in North-western part of India. In contrast, Singh *et al.*, (2013) observed the bursate worms to be most prevalent in goats in Madura, India

with a higher prevalence of *Haemonchus* (53.34%), a lower prevalence of coccidian (23.34%) and mixed parasitic infections (23.34%) in goats than that observed in this study. In contrast to this study, Sutar *et al.*, (2010) also recorded a high prevalence of *Trichuris sp.* (18%) and *Strongyloides sp.* (21.25%), however a low prevalence of *Moniezia sp.* (5.5%) in Maharashtra of India. Previous workers reported high and varying rates of parasitic infestation throughout the year in goats and the variation in prevalence depends upon difference in agro-climatic conditions and availability of susceptible hosts (Pandey *et al.*, 1994). The high incidence of coccidian species in this study could be attributed to the high relative humidity and ambient temperature available during this rainy (North-east) and winter season for the sporulation of the oocysts in the unhygienic pens where the animals are overcrowded. This conducive climate could also favor the development and survival of eggs and infective larval stages of the strongyles.

In this study, mixed infections were detected for strongyles (*Haemonchus sp.*) with *Eimeria sp.*, *Strongyloides sp.* and *Moniezia sp.*, as previous studies also reported *Moniezia* infection along with bursate worm infections in goats and sheep in India and abroad (Katoch *et al.*, 1998 and Singh *et al.*, 2013). The occurrence of gastrointestinal parasitism was high in males than females in this study, where as Sutar *et al.*, (2010) recorded a higher prevalence in females (69.05%) than in males (54.80%).

In the present study, the coccidia were the commonly encountered parasites in the diarrhoeic goats followed by strongyles during the North-east monsoon and winter. With this view, sanitation of the animal house, periodical faecal examination and timely treatment with anthelmintics or

anticoagulants would help in halting the spread of these parasites and thereby improving the economy of the marginal farmers.

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