

**Research Article**

## **INCIDENCE AND TREATMENT OF HAEMONCHOSIS AND IMMATURE AMPHISTOMOSIS IN NATIVE GOAT BREEDS**

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### **ABSTRACT**

Incidence of haemonchosis and immature amphistomosis in native goat breeds of Thiruvarur District, Tamil Nadu irrespective of age and sex is reported. Affected animals passed semisolid and/or diarrhoeic faeces with mucous and digested blood. All affected goats were anaemic. Immature amphistomes were observed on gross examination of faecal samples. Necropsy findings revealed pin point haemorrhages and adult *Haemonchus* spp. worms in the abomasums. Anthelmintics such as mebendazole, albendazole, fenbendazole and oxcylozanide were found to be ineffective in controlling haemonchosis indicating the development of resistance to these anthelmintics in the study area.

**Keywords:** *Goats, Immature Amphistomosis, Haemonchosis, Anthelmintic Resistance*

### **INTRODUCTION**

Goat farming is one of the fastest growing animal husbandry enterprises in India. Parasitism is one of the major hindrances and losses due to parasitic diseases occur in the form of mortality, poor health, retarded growth and poor meat and milk production. Amphistomes and *Haemonchus* spp. are very common in goats and they badly affect the growth and production of goats by causing anaemia. Immature amphistomosis causes high morbidity and mortality. Resistance in *Haemonchus contortus* was first recorded in India by Varshney and Singh (1976). Benzimidazoles and levamisole have been regularly and widely used in India for controlling parasitic gastroenteritis for several years (Gill, 1996). At present goat rearing faces greater threat due to multiple anthelmintic resistances throughout the world (Mortensen *et al.*, 2003) due to indiscriminate and frequent use of anthelmintics. This paper reports the incidence of combined infection of haemonchosis and amphistomosis associated with anthelmintic resistance in native goat breeds in Thiruvarur district, Tamilnadu.

### **MATERIALS AND METHODS**

The study was carried out in native goats irrespective of age and sex brought to the Veterinary Clinician Centre, Tiruvarur, Tamilnadu from December 2011 to February 2012. A total of 240 goats were examined including clinically affected and 25 apparently healthy goats maintained in a farm with known deworming and management practices as control. A detailed history was taken and complete clinical examination was carried out. Dung samples were collected from all clinically affected and randomly from 25 apparently health goats. The collected dung samples were screened for the presence of gastrointestinal nematode eggs by qualitative faecal examination using standard centrifugal sedimentation and salt floatation technique. The presence of parasite eggs with related clinical signs in goats was considered as positive. Status of anaemia was graded using FAMACHA© chart for treatment purpose. Necropsy was also carried out in dead animals. Anthelmintics such as mebendazole, albendazole, fenbendazole and oxcylozanide had been continuously and extensively used for deworming ruminants in that area for several years.

### **RESULTS AND DISCUSSION**

#### **Results**

Among 240 clinically affected goats examined, 54 goats (22.5 per cent) were found to be positive for amphistomosis and 87 goats (36.25 per cent) were found positive for haemonchosis irrespective of age and sex during the monsoon season. In infected animals, the dung was semisolid and/or diarrhoeic mixed

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with mucus and digested blood and gross examination of the dung samples revealed the presence of immature amphistomes. Bottle jaw condition was also observed in the affected goats. Apart from the presence of immature amphistomes, Strongyle eggs were observed in the dung of clinically affected goats. Necropsy findings revealed pin point haemorrhages and presence of adult *Haemonchus* spp. worms in the abomasum. In addition, in spite of routine deworming with mebendazole, albendazole, fenbendazole and oxcylozanide, which were extensively used in ruminants in the study area for several years, these anthelmintics were found to be ineffective in controlling the clinical infections indicating the emergence of anthelmintic resistance to these anthelmintics.

### **Discussion**

Incidence of immature amphistomosis in small ruminants has been reported by Manna *et al.*, (1994). Normally as a routine practice, grazing areas are shared by sheep, goats, cattle and buffaloes, it is said that most of the outbreaks in sheep and goats are due to buffaloes which act as reservoir host (Dunn, 1969). The incidence of immature amphistomosis recorded in the present study during monsoon could be due to the reason that this season is most conducive to the breeding of snails viz; *Indoplanorbis*, *Gyraulus* and *Lymnaea* spp. Clinical signs observed in the present study like profuse foetid diarrhoea, sub-mandibular edema, anaemia, anorexia, weakness, dull and depression are in accordance with earlier reports of Panda and Misra (1980) and Saheb and Hafeez (1995).

Ram *et al.*, (2007) studied comparative efficacy of different anthelmintics and concluded that albendazole and its combination with rafoxanide were ineffective in controlling gastrointestinal parasitism in Pashmina goats at Nainital, Uttaranchal. Singh and Yadav (1997) observed anthelmintic resistance by nematodes on two goat farms in Hisar. Mixed infection with amphistomes and *Haemonchus* spp. has also been observed by several authors. Anthelmintic resistance in *Haemonchus contortus* was reported by several authors (Meena and Satyavir, 2005; Schnydera *et al.*, 2005). Occurrence of haemonchosis in goats was reported by Uppal *et al.*, (1992), whereas Yadav and Tandon (1989) observed the incidence in the sub tropical and humid zones of India and maximum prevalence was observed following heavy rainfall.

Anthelmintic resistance in gastrointestinal nematodes of sheep and goats has become a serious problem warranting measures to delay the spread of anthelmintic resistant nematodes in sheep in India (Eswaran *et al.*, 2009). The present study clearly indicated that haemonchosis alone or in concurrent infection with amphistomes in goats is a major problem in goat farming industry. It necessitates further investigation to formulate sustainable cost effective control strategies against gastrointestinal nematodes and trematode infection in small ruminants.

All affected goats showed anaemia of grade 4 in FAMACHA© chart. Increasing anthelmintic resistance has made it essential to develop alternative ways of worm management for reducing selection for worm resistance, and one of the most promising approaches is to treat only those animals unable to cope with worm challenge, thus favouring unselected worms originating from untreated animals. Only clinical evaluation of anaemia (FAMACHA© system) and the body condition score are regarded as being of practical value for treatment.

The main benefits of the system are the reduction in treatments, its use for discriminating between animals of varying ability to cope with infection (thus allowing genetic selection), and its lowering of selection pressure on *H. contortus* for anthelmintic resistance (Wyk and Bath, 2002).

### **REFERENCES**

- Dunn MA (1969).** *Veterinary Helminthology* (William Heinemann Medical Books Ltd.) London 165.
- Eswaran C et al., (2009).** Multiple anthelmintic resistance in gastrointestinal nematodes of sheep in Southern India. *Veterinarski Arhiv* **79** 611-620.
- Gill BS (1996).** Anthelmintic resistance in India. *Veterinary Parasitology* **63** 173-176.
- Manna AK et al., (1994).** Incidence of paramphistomiasis in West Bengal. *Indian Journal of Animal Health* **33** 87-89.
- Meena Das and Satyavir Singh (2005).** Anthelmintic resistance to nematodes in sheep and goat farms in Hisar. *Journal of Veterinary Parasitology* **19** 103-106.

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**Mortensen LL et al., (2003).** Evaluation of prevalence and clinical implications of anthelmintic resistance in gastrointestinal nematodes in goats. *Journal of the American Veterinary Medical Association* **223** 495-500.

**Panda BK and Misra SC (1980).** Observations on the aetiology, clinical pathology and chemotherapy of immature amphistomiasis in buffalo calves. *Indian Journal of Animal Health* **29** 131-35.

**Ram H et al., (2007).** Comparative efficacy of different anthelmintics against fenbendazole-resistant nematodes of pashmina goats. *Veterinary Research Communications* **31** 719-723.

**Saheb SR and Hafeez M (1995).** Haematological changes in buffaloes infected with amphistomiasis. *Buffalo Bulletin* **14** 55-57.

**Schnydera M et al., (2005).** Multiple anthelmintic resistance in *Haemonchus contortus* isolated from South African Boer goats in Switzerland. *Veterinary Parasitology* **128** 285-290.

**Singh S and Yadav CL (1997).** A survey of anthelmintic resistance by nematodes on three sheep and two goat farms in Hisar (India). *Veterinary Research Communications* **21** 447-451.

**Uppal RP et al., (1992).** Multiple anthelmintic resistance in a field strain of *Haemonchus contortus* in goats. *Veterinary Research Communications* **16** 195-198.

**Varshney TR and Singh YP (1976).** A note on development of resistance of *Haemonchus contortus* worms against phenothiazine and thiabendazole in sheep. *Indian Journal of Animal Sciences* **12** 666-668.

**Wyk JAV and Bath GF (2002).** The FAMACHA system for managing haemonchosis in sheep and goats by clinically identifying individual animals for treatment. *Veterinary Research* **33** 509-529.

**Yadav AK and Tandon V (1989).** Gastro-intestinal nematode parasite infections of goats in a sub-tropical and humid zone of India. *Veterinary Parasitology* **33** 135-142.