



Outbreak of Lungworm Infection in Yearling Sheep- A Case Report

Mubashir Ali Rather, Ambreen Hamadani, Syed Shanaz, Ruksana Shah, Nusrat Nabi

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ABSTRACT

Background: Lungworm infection is commonly called verminous bronchitis or verminous pneumonia; parasitic bronchitis is caused by worms of superfamily trichostrongyloidae. The nematode irritates the lining of the airways in the lungs and causes coughing, loss of body condition and death in extreme cases. During necropsy examination white, long thread-like worms are observed either in the airways or in the form of nodules under the lung surface.

Methods: Postmortem of carcasses of sheep died just after the return from high land pasture. The present report describes a lungworm outbreak in a yearling sheep flock at a sheep farm of Kashmir.

Result: The outbreak was observed in a yearling sheep flock comprising 197 animals including 99 male and 97 females at a sheep farm of Kashmir during the autumn season in November just after the return from high land pasture pastures and shearing. The animals presented symptoms of loss of body condition, severe cough and five deaths were also observed. The post mortem of five carcasses revealed congestion of lungs with bronchioles filled with frothy exudates and worms. The animals responded to treatment with levamisole, which was effective in controlling outbreaks. Therefore, concluded that parasitic infestations are a major threat to livestock production and parasitic infestations demand serious attention owing to their ill effects on animal health and the economy. Further, levamisole is effective in controlling lungworm outbreaks. Therefore, yearling sheep should be drenched levamisole on priority after return from high land pasture and before shearing during the autumn season after conducting fecal sample examination.

Key words: Levamisole lungworm, Parasitic infestations, Verminous bronchitis, Verminous pneumonia.

INTRODUCTION

Lungworm infection commonly called verminous bronchitis or verminous pneumonia, parasitic bronchitis (Uro, 2019) is caused by *Dictyocaulus filaria*, *Protostrongylus rufescens* and *Mullerius capillaris* in sheep and goats (Kimberling, 1998). These worms (Nematodes) belong to the superfamily trichostrongyloidae (Uro, 2019) and have a very wide distribution. The larvae need moisture, a temperature of 27°C and 6 to 7 days for development and to reach the infective stage (Uro, 2019). The infection is transmitted usually by coughing, infected pastures and unhygienic and contaminated water. L3 larvae may survive in the bronchi of infected animals, particularly yearlings for several months (Upadhayay, 2005). The outbreaks of Verminous bronchitis occur in autumn and early winter (cool seasons) as larval stages of causative worms prefer low temperatures (Uro, 2019). The severity of infestation depends upon the host immune system and the number of larvae ingested. Most severe infections occur in young animals and adults having the previous infection develop immunity. The nematode irritates the lining of the airways in the lungs. The main symptom of lungworm infection in sheep is coughing. During necropsy examination white, long thread-like worms are observed either in the airways or in the form of nodules under the lung surface. The present article reports a case study of verminous pneumonia at a sheep farm.

Department of Sheep Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir, Srinagar-190 008, Jammu and Kashmir, India.

Corresponding Author: Ambreen Hamadani, Department of Sheep Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir, Srinagar-190 008, Jammu and Kashmir, India. Email: escritor005@gmail.com

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MATERIALS AND METHODS

Postmortem of five yearling sheep (four male and one female) was performed at a sheep farm of Kashmir during the autumn season in November just after the return from high land pasture and shearing operation. The animals presented symptoms of coughing and loss of body condition before death. Diagnosis was based on clinical symptoms and postmortem.

RESULTS AND DISCUSSION

Severe coughing, loss of body condition and five deaths (four male and one female) were observed in yearling sheep flock comprising 197 animals including 99 male and 97



Fig 1: Verminous pneumonia of lungs.

female a sheep of Kashmir during the autumn season in November just after the return from high land pasture and shearing operation. Uro (2019) reported that outbreaks of verminous bronchitis usually occur during autumn and early winter. Engdaw (2015) reported that the prevalence of lungworm infection is low in spring and summer and goes up rapidly in the autumn and winter. The clinical signs vary from animal to animal (Kimberling, 1998 and Fraser 1991). The disease is most serious in young animals with weight loss and severe cough among symptoms (FOA, 1994). Although, sheep of all age groups are infected by these parasites, however, young sheep are most susceptible (Radostits, 2007). The disease was observed after downward migration from high-land pastures and shearing. This indicates a high level of pasture contamination with lungworm larva and eggs. However, the effect of stress caused by shearing and migration in the precipitation of disease cannot be ruled out. Bekele *et al.* (1992) have reported that heavy infection of *Dictyocaulus filaria* leads to coughing, loss of weight/reduced weight gain and respiratory system damage, or even death (Bekele *et al.*, 1992). A postmortem of all the five carcasses was conducted. Externally, the lungs were congested and heavy with purple-red patches. Bronchioles were filled with frothy exudates and thread-like white worms (Fig 1). Kassai (1999) has also reported more or less similar findings. The treatment of the infected sheep flock was done with levamisole, which was effective in controlling the disease. This suggests that the parasites are not yet resistant. Thus, it can be used to prevent future outbreaks too. According to Urquhart *et al.* (1996), specific control measures should be applied to manage lungworm infestation. Regular deworming on farms in J&K is done (Baba *et al.*, 2020; Hamadani *et al.*, 2021) and this should be more meticulously followed.

CONCLUSION

Regular and strategic deworming of the whole flock with broad-spectrum anthelmintics should be undertaken in small ruminants to check lungworm infestation. Young sheep should be drenched with levamisole just after downward migration to improve growth performance and manage lungworm infestation.

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