



## Clinical and Epidemiological Approach to Diagnose *Fasciolosis* in Sheep

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### ABSTRACT

Sheep and goat production plays a vital role in small and marginal farmer's livelihood. Parasitic infections among sheep and goats are major constraint that farmers come across. A shepherd approached Krishi Vigyan Kendra, Darsi with diarrhea, weakness, debility, jowl edema and death in the sheep flocks of his village. Soiling of dock with feces and mud, jowl edema and emaciation were common findings on clinical examination of the flocks. Geographical approach revealed that the flocks were left grazing in the common grazing land available in the village adjacent to the local pond and also new sheep were introduced into the flock without any quarantine measures. Fecal examination revealed presence of *Fasciola sp.* by sedimentation technique. Treatment and management strategies were taken up to control the spread of Fasciolosis.

**Key Words:** Clinical manifestations, Fasciolosis, Sedimentation, Sheep, Triclabendazole.

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### INTRODUCTION

Sheep rearing is a traditional occupation and plays major role in the rural agrarian economy by providing employment and income to large number of rural people especially landless labour, small and marginal farmers. The rich potential from the small ruminant sector is not efficiently exploited due to several constraints including malnutrition, inefficient management, and diseases (Adzitey, 2013 and Ibrahim *et al*, 2014). Gastro-intestinal parasitism is one of the most common infestations limiting the productivity of these animals. Small ruminants under intensive and extensive production systems are extremely susceptible to the effects of wide range of helminths (Abede and Esayas, 2001). The most common internal parasites in sheep and goats are: lung worms (*Dictyocaulus* spp. or *Muellerius capillaris*); stomach worms (*Haemonchus contortus*, commonly called barber pole worm); liver flukes (*Fasciola hepatica*); and intestinal parasites, the most common of which are coccidia (*Eimeria* or *Isospora*). These parasites

cause economic losses through lowered fertility, reduced work capacity, involuntary culling, a reduction in food intake and lower weight gains, lower milk production, treatment costs, and mortality in heavily parasitized animals (Fikru *et al*, 2006). A combination of treatment and management is necessary to control parasites so that they will not cause economic loss to the producer (Scarfe, 1993). This case report deals with diagnosing and managing Fasciolosis in the sheep flock.

### MATERIALS AND METHODS

#### Case Presentation

A shepherd approached Krishi Vigyan Kendra, Darsi with a history of mortality in sheep flocks in the village, reported a past history that a regular vaccination schedule (except for FMD and PPR ) and deworming were done before seven to eight months (history was unclear). The vital organs were examined in clinically ill animals, which showed hyperpnoea. On further investigation clinical signs *viz.*, chronic diarrhoea, weight loss and jowl edema

was reported. On visit to the village, there were eight flocks in the village each flock comprising of 80-130 sheep that included lambs, ewes and rams. Random clinical examination of sheep in each flock revealed pale mucus membranes, soiling of back region with feces and mud, debility and weakness, poor weight gain and jowl edema. The fecal samples (80) were collected randomly (10 random samples per flock) from each flock using sterile rectal swabs and also 5g of fecal sample in a plastic sealed cover from respective animals. Complete blood profile was not carried out because of the practical constraints at the field level. Further, the grazing lands were examined and noticed that the grazing lands were near to the local pond and the shepherds reported that all the flocks after grazing were brought here for water as it is the only source of water for sheep. It was also reported that new sheep bought from sandies were introduced in two flocks in the village.

The rectal swabs were examined using standard fecal sedimentation technique (Anon, 2007). Twenty three samples were positive for *Fasciola* Spp. eggs alone, eleven samples were positive for *Fasciola* spp. and oocyst of *Eimeria* spp. and eight samples were positive for oocyst of *Eimeria* spp alone. Based on the clinical signs and fecal sample examination it was diagnosed that infestation with *Fasciola* spp. was the main cause of mortalities in the flock and horizontal spread of infestation or the pond, common water source lead to infestation of all flocks in the village. Further, post mortem was conducted in one of the ailing sheep which also confirmed Fasciolosis by the presence of immature flukes in the gall bladder. Hepatomegaly, enlarged gall bladder with clotted blood was significant findings in the post mortem.

Deworming with Triclabendazole @ 10mg/kg body weight followed by another dose after 48 hr was done to all the flocks in the village. Application of an aqueous solution of 589 g of copper sulfate and 58.9g of citric acid per 10 linear meters in a 2m-wide swath along the pond shoreline was suggested to control the intermediate host (snails). It was advised

to provide fresh drinking water for sheep at sheep sheds for few days. However, Sulfaquinoxaline (SD COX WS ® @ 10g in 10l of water) in drinking water for 5 d was also advised to control coccidiosis in the affected sheep. The mortality gradually reduced improvement in body condition and no further morbidity is reported. However, it was suggested to examine the fecal samples after 1-2 months and also suggested to deworm the cattle population as a preventive measure.

## RESULTS AND DISCUSSION

Gastrointestinal parasites like helminths and protozoan are very common in sheep and goats. When heavy infections occur those parasites contribute to reduced milk and meat production (Murthy and Rao, 2014). Fasciolosis is a serious impediment to sheep farming and causes heavy losses due to its high morbidity and mortality (Soundararajan *et al*, 2000). The prevalence of gastrointestinal helminths is related to the agro-climatic conditions such as quantity and quality of pasture, temperature, humidity, and grazing behavior of the host (Pal and Qayyum, 1993). In the present case, the pond which is a common water source and the introduction of new sheep might be the source of the infection. This problem is severe in tropical countries due to highly favorable environmental conditions for helminth transmission. However, literature on the disease prevalence including all the epizootiological factors is lacking in this part of country. The present clinical signs were similar to that of the Gupta and Singh (2002) who stated that Fasciolosis alone is the major cause of productive loss in sheep resulting in anorexia, anemia, hypoproteinemia, submandibular edema, reduced body weight, increase in heart and respiratory rates and animals treated at this stage with any of the available anthelmintics usually recover to normal health in due course of time. Further, the options for diagnosing the condition in this case at village level are limited due to non availability of the materials. So, Demonstration of parasite egg in fecal samples using simple sedimentation method (Fagbemi *et al*,

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1997) was performed, which revealed presence of *Fasciola* spp. Gupta and Singh(2002) stated that it was important to obtain information by systemic approach including periodical coprological investigation, climitological observations, farmers practices, intermediate host's biology etc., In the present case though visually the snails were not been spotted visually but measures were taken to control them in the ponds by using n aqueous solution of 589 g of copper sulfate and 58.9 g of citric acid per 10 linear meters along the pond shoreline (Andrew, 2002). Increasing the opportunities for herd-level diagnosis is important for disease monitoring, making informed treatment decisions. In the present case, parasite control measures adopted by shepherds were very limited or absent resulting to the Fasciolosis incidence in the village. Treatment with Triclabendazole @10mg/kg body weight per os for *Fasciola* Spp. showed effectiveness by improving the health condition of the animal. Triclabendazole, a benzimidazole compound used in veterinary practice since 1983 and in humans since 1989, is the drug of choice against fascioliasis. It is active against adult parasites in the bile ducts and immature flukes migrating through the liver. Cure rates of 79.4–83.0% have been reported with a single 10mg/kg dose and 92.2–93.9% with two 10mg/kg doses administered 12 hr apart (WHO, 2007).

### CONCLUSION

The case reports the incidence of *Fasciola* Spp. in the sheep flock. Epidemiological features described during this study will be useful for the veterinary professionals to formulate effective control measures and there is need for farmers to improve on their biosecurity and feeding habits to prevent parasitic infestations in their flocks. Deworming schedule and quarantine methods should be strictly followed to prevent massive pasture contamination with ova and larvae.

### ACKNOWLEDGEMENTS

Authors acknowledge the help rendered by the Veterinary Assistant Surgeon, Thallur mandal

and the officials of Acharya N G Ranga Agricultural University, Lam, Guntur, Andhra Pradesh.

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Received on 06/05/2020

Accepted on 05/11/2020