

Original Research Article

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Haemonchosis in an Organized Goat Farm and the Approaches made for its Management

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ABSTRACT

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Occurrence of haemonchosis and sudden death among goats were observed in Livestock Farm Complex (Goat Farm Unit), Lakhimpur College of Veterinary Science that comprises a flock of 33 animals (22 numbers of Beetal crossbred and 11 numbers of Assam Hill Goat). The incidences were recorded during August-September, 2020. The morbidity rate of haemonchosis in the present study was recorded 66.67 % (22 nos.) and mortality rate was 27.28% (9 nos.). The mortality rate in Beetal crossbred and Assam Hill goat was recorded 36.37% and 9.09% respectively. Haemonchosis was confirmed by demonstration of strongyle type eggs in the faeces and recovery of adult *Haemonchus contortus* worms in the abomasum at postmortem examination. Internal organs revealed ascites, hydrothorax and hydropericardium etc. Proper therapeutic management, restricted movement of animals and provision of concentrate feed along with green tree leaves and grasses prevented fatalities in the flock anymore.

Introduction

Goat is a versatile domestic small ruminant and popularly known as known as “mini cow” of rural people. Goat husbandry is an age-old practice adopted mainly by small, marginal farmers and landless laborers in India. In North Eastern region of India most of the household keeps goat as a livestock commodity to obtain meat, milk and skin. The goat population in Assam is in a commendable position where Lakhimpur is one of the leading districts in terms of goat population (Boruah *et al.*, 2020). Despite

having a good population, it is very unfortunate that the farmers in this region are unable to get the optimum productivity from goat husbandry due to various factors. Out of which different diseases play a pivotal role. Haemonchosis (caused by a haematophagous nematode parasite *Haemonchus contortus*), among various parasitic diseases seems to be the most pathogenic and economically important disease of goat (Nahar *et al.*, 2015; Besier *et al.*, 2016). Seasonal incidence of haemonchosis in small ruminants like sheep and goats are available from different parts of India (Vijayalingam *et al.*, 2020)

Acute haemonchosis in goat is characterized by weakness, diarrhoea, anaemia, anorexia, pale mucus membrane, less inclination to move and rather spend more time lying down than usual (Basier *et al.*, 2016). Haemonchosis is reported to occur with variable mortality rates in different parts of the world (Dutta *et al.*, 2017; Daniel *et al.*, 2018). The confirmatory diagnosis of haemonchosis in small ruminant is based mostly on the detection of anaemia and postmortem finding of large numbers of *H. contortus* worms in the abomasum (Basier *et al.*, 2016). A wide range of anthelmintics for successful therapeutic management of *H. contortus* is available (Abdo *et al.*, 2017). Anthelmintic resistance greatly restricts the available therapeutic options in endemic circumstances (Basier *et al.*, 2016). The highest levels of resistance have been produced by Ivermectin as well as albendazole and fenbendazole, and resistance to levamisole and moxidectin is increasing (Burke, 2005; Schoenian, 2013). Supplementation of dietary nutrients (proteins and minerals) and condensed tannin (helps in dietary nitrogen retention) has some beneficial effects in withstanding the harmful effects of haemonchosis in small ruminants (Pathak *et al.*, 2013; Atiba *et al.*, 2020). The objective of the present communication is to report the occurrence of haemonchosis and acute death among goats and its successful therapeutic, grazing and feeding management with subsequent recovery in a flock of 33 animals.

Materials and Methods

The incidence was recorded during August – September, 2020 at Livestock Farm Complex (Goat farm unit) of Lakhimpur College of Veterinary science, AAU, Joyhing, North Lakhimpur, situated at the North bank plain zone of Brahmaputra river of Assam. The flock strength of the farm was 33 nos.

comprising of Assam Hill Goat (AHG) and Beetal crossbred. Faecal samples from the affected animals were collected and sent to the Department of Parasitology, LCVSc. for parasitological examinations. The samples were examined by both direct and concentration method of faecal sample examinations following standard protocol. Blood sample from the affected animals were sent to the Department of Veterinary Pathology for estimation of haemoglobin concentration. The dead animals (carcasses) were sent to the Department of Veterinary Pathology where detailed Post Mortem examinations were conducted and the typical gross lesions were recorded.

Results and Discussion

The total number of animals in the flock was 33 that comprise 22 numbers of Beetal crossbred and 11 numbers of Assam Hill Goat. The morbidity rate of haemonchosis in the present study was recorded 66.67 % (22nos.) and mortality rate was 27.28% (9). Similar findings were also reported earlier from Guwahati and adjoining areas in Assam (Dutta *et al.*, 2017). The mortality rate was recorded 36.37% and 9.09% in Beetal crossbred and Assam Hill goat respectively in the present study. Mortality rate in Crossbred (31.14%) and AHG (19.67%) was also recorded in a similar pattern earlier (Dutta *et al.*, 2017). It is observed in the present study that prevalence of haemonchosis is more in rainy season in comparison to the winter. It might be due to the effect of high rainfall and humidity that provides the conditions for better growth and multiplication among parasites.

Detailed parasitological examination of the suspected faecal samples revealed the presence of Strongyle type eggs (Fig. 1) in most of the cases which may be the suggestive indication of haemonchosis.

Further post mortem examination of the carcass showed a very poor condition (emaciated). Anaemia was evident in all the carcasses and the visible mucous membranes were pale to papery white in colour. Haemoglobin concentration from some of the affected animals (which was estimated prior to death) showed an average value of 5.4 g%. Majority of the carcasses showed ascites, hydrothorax and hydropericardium (Fig. 2). Visceral organs were pale in colour. Characteristic lesions were noticed in the

abomasum which comprised of hyperaemia of the abomasal folds, multifocal haemorrhages and sometimes ulcerative haemorrhagic spots on the abomasal mucosa with actively swimming adult *H. contortus* parasites (Fig. 3). Similar findings were also described by previous workers (McKenna, 1988; Dutta *et al.*, 2017). In case of haemonchosis, death occurs due to anaemia accompanied by hypoproteinaemia and oedema (Bijayalingam *et al.*, 2020).

Fig.1 *Strongyle* type eggs under 10X Magnification of light microscope

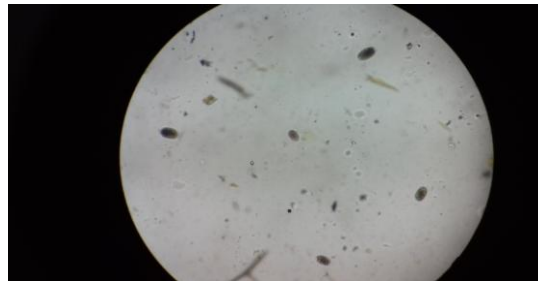


Fig.2 Presence of hydropericardium

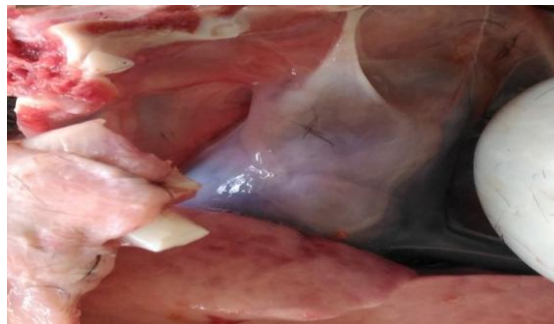


Fig.3 Haemorrhagic spots on the abomasal mucosa with adult parasites (Arrow)



Treatment and control

After confirmation proper treatment with suitable drugs and managerial care were provided to the entire flock. Therapeutic management included combined anthelmintic treatment ivermectin (Neomec[®], Intas Animal Health, India) and albendazole (Albomar[®], Virbac India). Ivermectin was administered @ 1 ml /50 kg body weight S/C. Albendazole was administered 5 mg/kg bodyweight orally. Livotas[®] (Intas Animal Health, India) @ 5ml/ animal orally twice daily was administered as liver support.

In addition to the proper therapeutic management, movement of the animals were restricted and fed them with concentrates along with green tree leaves and grasses. Stall feeding practice and grazing management reduced the exposure to reinfection with worms and the animals regained their health condition gradually. The effect of changes made in the dietary provisions may be supported by the findings of Atiba *et al.*, (2020) which suggests that Protein supplementation seems to improve host resilience to deal with detrimental effects of the infection and hence improves production and reproductive performances of animal. Dietary supplementation of Condensed Tannins improves the Nitrogen (N) retention, and inhibited the different developmental stages of *Haemonchus contortus* in experimental sheep. (Pathak *et al.*, 2013).

In conclusion the present communication it is observed that during the rainy season the morbidity rate of *H. contortus* infection in goat was found to be considerably higher, this might have attributed to high pasture larval burden in the grazing areas nearby the farm. Mortality was also recorded but implementation of proper therapeutic (combined anthelmintics) as well as managerial practices prevented the further

fatalities among the flock. In the present communication some animal recovered suggesting that anthelmintic resistance was not developed in the infected animal. It can be concluded that during high rainy seasons the animal should be properly check for any parasitic infestation and proper deworming should be followed at least four month interval. Stall feeding and restricted movement can also reduced the occurrence of haemonchosis in goat.

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