Pimply gut condition in mithun (*Bos frontalis*) calves

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Abstract The present observation was recorded at National Research Centre on Mithun, Jharnapani from May 2010 to September 2012. A total of 15 mithun calves, which died in and around Jharnapani, were attended and detailed post-mortem examination was carried out. Out of these, five calves (33.33 %) aging between 1 and 1.5 years exhibiting the condition of chronic wasting and diarrhoea were found positive for pimply gut condition based on gross and microscopic examination. Post-mortem examination revealed extensive nodule formation on the wall of the rectum; however, the entire lumen did not reveal any of adult parasites. In all the cases, there were congestion in the mucous layer and thickening of the intestinal wall. Histopathological examination revealed chronic enteritis with mononuclear cell infiltration comprising mostly of macrophages, lymphocytes and eosinophils. In the muscularis mucosae, encysted larvae were found along with fibrous tissue proliferation. These lesions gave the intestine a nodular appearance as they thickened the wall and projected from the serosal surface. These extensive numbers of nodules in the intestine might have interfered with peristalsis and intestinal absorption which led to chronic wasting and diarrhoea in the calves.

Keywords Oesophagostomiosis · Mithun · Pimply gut

Introduction

Mithun (*Bos frontalis*), popularly known as ‘the cattle of hills’, is believed to be a descendant of Gaur (*B. gaurus*). Mithun plays an important role in the socio cultural life and economic status of the tribal population of northeast India. Mithun is susceptible to various parasitic diseases as with other ruminants (Rajkhowa and Verma 1993; Rajkhowa et al. 2003). Pimply gut is one of the most important parasitic diseases of ruminants which results in significant economic loss to the livestock sector. The causative agent responsible for pimply gut condition in mithun has been recognized as *Oesophagostomum* spp. (Chamuah 2005; Tandon et al. 2005; Rajkhowa et al. 2005). Present study reports the incidence and pathology of pimply gut in mithun reared under semi intensive conditions in Nagaland.

Materials and methods

The present study undertaken at the National Research Centre on Mithun (ICAR), Jharnapani from May 2010 to September 2012. During this period, fifteen animals examined by postmortem showed the incidence of pimply gut. Representative tissue samples of five animals were collected in 10 % formol saline solution. Fixed samples were processed and embedded in paraffin; 4–5 µ thick tissue sections were cut and stained by routine H&E method (Luna 1968). Gross pathological changes of internal organs were recorded.

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Results

Postmortem examination of 15 animals revealed five animals (33.33 %) positive for pimply gut condition. Most of the positive animals were between 1 and 1.5 years of the age and showed chronic wasting and diarrhoea with rough hair coat (Fig. 1). Grossly, there was extensive nodule formation in the large intestinal wall mainly in the rectum (Fig. 2). The nodules were greyish white in colour ranging in size from pinhead to a pea. The intestinal wall was thickened, congested and edematous with mild hemorrhages in some of the cases (Fig. 3). Microscopic examination of the rectum revealed congestion and haemorrhage of mucosa and submucosa (Fig. 4). H&E stained sections revealed encysted larvae, visible in the muscularis mucosae and in the submucosa surrounded by eosinophilic infiltration and fibrous connective tissue proliferation (Fig. 5). In most of the cases, chronic enteritis was found with

Fig. 1 Mithun calf showing chronic wasting and rough hair coat

Fig. 2 Nodule formation in the Large intestine

Fig. 3 Congestion and thickened mucous layer of the large intestine

Fig. 4 H&E staining of rectum showing encysted larvae (right arrow), eosinophilic infiltration (left arrow) and fibrous tissue proliferation (left right-arrow)

Fig. 5 Mononuclear cell infiltration comprising macrophages, lymphocytes and eosinophils

Fig. 6 Congested blood vessels with hemorrhage

mononuclear cell infiltration comprising mostly macrophages, lymphocytes and eosinophils (Fig. 6).

Discussion

In most of the tropical developing countries, there is a marked increase in the population of *Oesophagostomum* spp. in rainy season that leads to a peak in population towards the beginning of the pre-monsoon season. This trend slows down or completely ceases during the dry or winter periods resulting in pasture contamination. Survival of the parasite is facilitated by the ability of non-parasitic stages of larvae to survive on pastures from the large number of ova laid. During the periparturient period, the number of ova passed in the feces increases substantially. In addition, the grazing habits and management of the animals may significantly influence the epidemiology of *Oesophagostomum* infection. Present study revealed that

incidence of pimply gut is comparatively low in semi intensive system of rearing compared to free range system. This may be due to practice of regular deworming and better system of management in farms. The low prevalence may be due to peculiar geography of north eastern hilly region and prevailing climatic conditions in this area.

Conclusion

The present case report draws the attention of Mithun rearers to impart proper care and management of the calves.

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