INTRODUCTION

Indian economy is mainly agricultural based, out of which livestock sector is an integral component. The buffaloes in India constitute about 57% of world’s population and contribute towards milk, meat and hide production. Toxocarosis is a common cause of calf-hood mortality in India (Radiostits et al., 2000). It is caused by Toxocara vitulorum which occurs in the small intestine of Indian buffaloes below three months of age, especially in tropical and subtropical countries (Raza et al., 2013). Prenatal/placental and transmammary/transcolostral route constitutes the major source of infection for calves (Wickramasinghe et al., 2009). T. vitulorum is amongst the most destructive parasites of young calves, the larvae of which undergo migration causing great damage to several organs, especially to the liver and the intestine and is frequently manifested by diarrhea, poor performance and poor growth rate (Ahmed et al., 2016). Coccidiosis is an important cause of neonatal mortality in livestock, including buffalo. More than 12 species of Eimeria are reported in buffalo, but Eimeria bareillyi is the most pathogenic (Dubey, 2018). Coccidiosis mostly affects young animals and sometimes, morbidity can reach up to 100% (Faber et al., 2002). The infection is characterized by acute invasion and destruction of intestinal mucosa, anorexia, weight loss, diarrhoea, emaciation and sometimes even death (Coetzer and Justin, 2004). Calves with low immunity and poor nutrition are more vulnerable for such infections (Starke-Buzetti, 2006).

MATERIALS AND METHOD

A two month old female buffalo calf was presented to OPD section, College of Veterinary and Animal Sciences, Sardar Vallabhbai Patel University of Agriculture & Technology, Meerut with a history of diarrhea, poor-growth and loss of appetite since 3–5 days. On physical examination of faeces it was found to foul smell like butyric acid, mud-coloured, blood tinged with presence of mucus flakes. The faecal sample was screened for any parasitic eggs, cyst or oocyst. The species of Eimeria was further confirmed by culturing faecal sample in 2.5% potassium dichromate at 37°C for 3 days. Aeration with the help of a pasteur pipette and rubber bulb was done regularly to supply oxygen to the oocyst. A drop of the suspension was examined microscop-
RESULT

On direct faecal examination by following standard protocols (Soulsby, 1982) we found the eggs of *Toxocara vitulorum* and oocyst of *Eimeria bareillyi* in the same microscopic field (Figure 1). The eggs of *Toxocara vitulorum* are subglobular, provided with a finely pitted albuminous layer and measures 75-95 by 60-75 µm (Figure 2). Oocyst of *Eimeria bareillyi* is pyriform in shape with the narrow anterior end having slightly flattened surface, measuring 28 x 19 µm in size (Figure 3). On sporulation typical oocysts/sporocyst of *Eimeria bareillyi* were found under microscope having four sporocysts, each containing two sporozoites (Figure 4).

![Figure 1: Egg of Toxocara vitulorum and Oocysts of Eimeria bareillyi (10x)](image1)

![Figure 2: Toxocara vitulorum egg](image2)

![Figure 3: Oocysts of Eimeria](image3)

![Figure 4: Sporulated Oocysts of Eimeria bareillyi (40x)](image4)

TREATMENT

Therefore, to ameliorate the symptoms the calf was treated with Piperazine hexahydrate @ 300mg/kg body weight along with Amprolium@10mg/kg body weight orally daily for five days for its complete recovery. As a measure of supportive therapy we administrated 1ml of Tribivet (Intas Pharmaceuticals) intra muscularly. Dextrose normal saline (DNS) @5 ml/kg body weight and Ringer's lactate (RL) @5 ml/kg body weight were given intravenously along with multivitamin preparation (Conciple® 3ml) to prevent dehydration and to maintain electrolyte imbalance. The fecal sample was again examined 10 days post treatment under 10X for three times to assure complete recovery of the calf, which was found to be negative.

DISCUSSION

*Eimeria bareillyi*, a cause of coccidiosis in Indian water buffalo calves is slight to moderately pathogenic (Sanyal et al., 1985). Young calves are more susceptible to *Toxo*
CONCLUSION

Our present study have reported the simultaneous infection of calf with Toxocara vitulorum and Eimeria bareillyi, which will be helpful in devising suitable control strategies like deworming of the dam in the third trimester with fenbendazole, feeding the calves with milk replacer, as transocolstral transmission, being the main cause. Proper managemental practices like good nutrition, sanitation and hygiene are the key to success over these problems.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORS CONTRIBUTION

All authors were equally involved in processing, identification, photography of parasites and help in writing of manuscript.

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