

Cryptosporidiosis in a buffalo calf at Meerut, Uttar Pradesh and its successful therapeutic management

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Abstract *Cryptosporidium* spp. are recognized as one of the most important enteric pathogens causing enteritis and severe diarrhoea in calves up to 1 month of age. Although the infection may be responsible for some mortality, its impact is mainly associated with the impairment of gastrointestinal functions and lower performance of animals. A female buffalo calf of 25 days old was presented to OPD section, College of Veterinary and Animal Sciences, SVPUA&T, Meerut, with the symptoms of severe voluminous watery cholera like diarrhea with mucous and blood tinge since 4–5 days. On physical examination, calf was dehydrated, weak, and emaciated with normal temperature. Parasitological examination of the faeces by the direct smear and modified Ziehl–Neelsen staining technique revealed presence of high number of *Cryptosporidium* spp. oocysts. The affected female buffalo calf was treated with azithromycin and provided supportive care. Diarrhoeal symptoms were stopped from 3rd day and

animal returned to normal condition by 7th day post treatment.

Keywords *Cryptosporidium* spp. · Modified Ziehl–Neelsen technique · Azithromycin · Buffalo calf

Introduction

Cryptosporidium spp. are cosmopolitan protozoan parasites which infect a wide range of vertebrate hosts including human beings. A varying level of prevalence of *Cryptosporidium* spp. in neonatal and young bovine calves, resulting high morbidity and mortality along with their ability to transmit infection to human beings through faeco-oral route, have been reported from various parts of the world including India (Fayer and Xiao 2008; Venu et al. 2012; Maurya et al. 2013). In cattle, the clinical form of the disease (Randhawa et al. 2012) and the shedding of oocysts in faeces is usually limited to calves of few months age (Bhat et al. 2012), but there are some reports of sub-clinical oocyst shedding in adult as well as in immunocompromised animals (Lorenzo et al. 1993). Cryptosporidiosis in animal is seen as a threatening source of infection for humans because of shedding of huge number of resistant oocysts, thus contaminating the surface of water (Maurya et al. 2013) and there are indications that the disease can potentially reduce the growth performance of ruminants (Ralston et al. 2003) and cause high morbidity and sometimes high mortality rates in calves (Singh et al. 2006; Fayer et al. 1997; Olson et al. 2004). The present article describes a case of cryptosporidiosis in buffalo calf and its successful management.

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Materials and Methods

A 25 days old female buffalo calf was presented to OPD section, College of Veterinary and Animal Sciences, SVPUA&T, Meerut with the history of severe voluminous watery cholera like diarrhea with mucous and blood tinge since 4–5 days. On physical examination, animal was dehydrated, dull, weak and showing the symptoms of straining and diarrhea. Clinical examination revealed normal rectal temperature, heart rate and respiratory rate. The consistency of the stool was watery, pale and blood tinged along with mucous. The stool sample was collected by rectal swab in sterile vial without any preservatives and then sent to Parasitology Department. Direct faecal smears were prepared on clean grease-free microscopic glass slides with one slide for direct wet smear examination for detection of *Cryptosporidium* spp. oocysts and others were stained by the modified Ziehl–Neelsen (MZN) staining technique (Henriksen and Pohlenz 1981) for confirmation. Briefly, air dried smears were first fixed with methanol for 5 min, air dried and then smears were transiently fixed over a flame and kept on staining rack. The smears were flooded with concentrated carbol fuchsin and allowed to stain for 40 min. The slide were then washed under running water for 5 min, decolourised using 10 % H₂SO₄ for 10–15 s and then washed again in water. The smears were counter stained with 5 % malachite green for 5 min and then washed in running tap water for 5 min. Subsequently the calf was treated with azithromycin (ZADY READYMIX, Mankind Pharma) at 1500 mg/calf/day BW orally for 7 days and supportive care (fluids, electrolytes and good nutrition) was provided for speedy recovery.

Results and discussion

Coprological examination by direct wet smear under 40×, revealed oocysts which are rounded, measuring 4–7 mm in diameter with sporozoites inside (Fig. 1). It was further confirmed by MZN technique which revealed presence of high number of pinkish red colored *Cryptosporidium* spp. oocysts with a hollow at centre (Fig. 2). The diarrhoeal symptoms stopped from 3rd day and animal returned to normal condition by 7th day post treatment.

Cryptosporidiosis is common in livestock and causes significant morbidity and mortality, particularly among young animals. It is characterized by acute gastro intestinal disturbances, mucoid or haemorrhagic watery diarrhoea, fever, lethargy, anorexia and loss of condition (Navin and Juranek 1984), leading to significant economic losses in farm animals (Xiao et al. 1999). In India, the disease was reported for the first time in Uttar Pradesh (Dubey et al. 1992) and subsequently it has been reported from other parts of country. The infection rate, in India is significantly

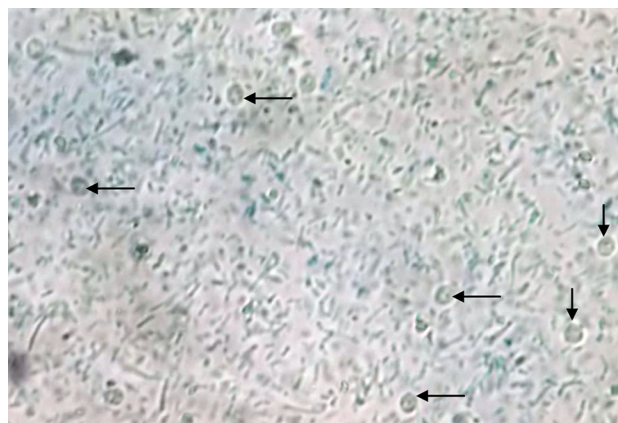


Fig. 1 Unstained *Cryptosporidium* spp. sporulated oocysts (arrows) by direct smear examination (×40)

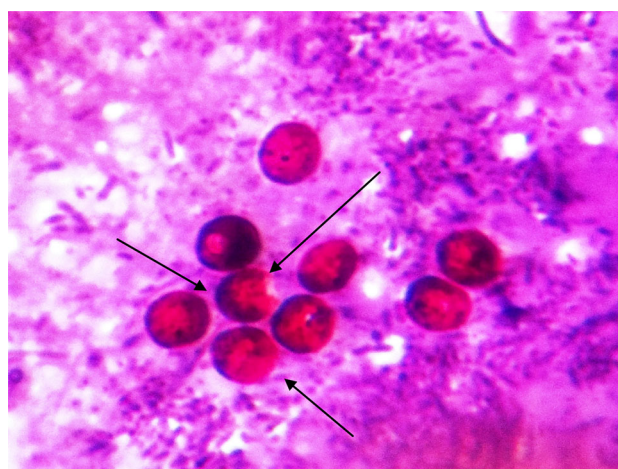


Fig. 2 *Cryptosporidium* spp. oocysts (arrows) observed under high power microscope by modified Ziehl–Neelsen (MZN) staining technique (×100)

higher in bovine calves below 1 month of age than animals between 1 and 3 months (Maurya et al. 2012). We reported here a case of bovine cryptosporidiosis and its successful management in Meerut district of Western Uttar Pradesh. Our results are in line with the observations made by previous authors (Mead 2002; Elitok et al. 2005; Nasir et al. 2013) which confirmed the efficacy of azithromycin against cryptosporidiosis in bovines.

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