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## Therapeutic management of *Buxtonella sulcata* infection in Murrah buffaloes

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**Abstract**

The study describes the clinical signs, diagnosis via microscopic faecal examination and treatment of *Buxtonella sulcata* infection in two Murrah buffaloes. Both the buffaloes were successfully treated with parenteral medicinal therapy using oxytetracycline, flunixin meglumine and chlorpheniramine maleate.

**Keywords:** *Buxtonella sulcata*, Murrah, diarrhoea, buffaloes

**1. Introduction**

Murrah is the native breed of buffalo from Haryana state of India. Endoparasitic infection in domestic ruminants causes significant economic losses to the farmers and hence is a disease of major concern. Enteric protozoa like *Cryptosporidium*, *Giardia* and *Eimeria* spp. are accountable for diarrhoea and sometimes death especially of young bovines [1]. Protozoan like *Buxtonella sulcata* is generally seen as an opportunistic ciliate endoparasite found in the colon of bovines [2, 3]. Increased number of this protozoan parasite in the alimentary canal of the infected animal may result in diarrhoea and poor condition of the animal [4]. The main clinical sign of *Buxtonella sulcata* infection in bovines is debilitating diarrhoea that sometimes may cause death in the untreated animals [5]. Very often this protozoan endoparasite is misdiagnosed as *Balantidium coli* which is another endoparasite of pigs, humans and non-human primates [6, 7]. The current study was conducted to evaluate the clinical signs, diagnosis and therapeutic management of *Buxtonella sulcata* infection in two Murrah buffaloes.

**2. History and Clinical findings**

Two Murrah buffaloes with 4<sup>th</sup> and 6<sup>th</sup> parity were reported to Government Veterinary Hospital, Bhagwi, Charkhi Dadri (Haryana) both with a complaint of explosive diarrhoea since 5-6 days. Gross faecal examination of both the buffaloes revealed the presence of watery faeces along with slight amount of mucus in it.

**2.1 Clinical signs and diagnosis**

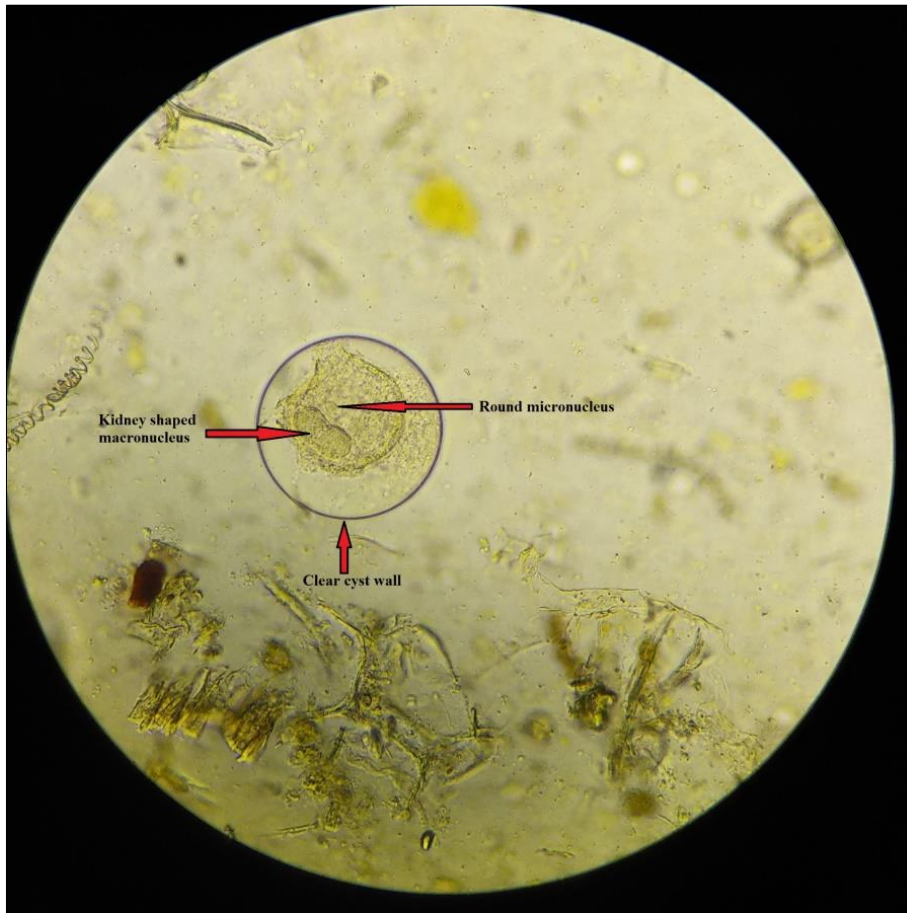
The buffaloes were with a body temperature of 99.8 °F and 100.4 °F. The heart rates were 78 per minute and 83 per minute. The respiratory rates were 27 per minute and 29 per minute. The haemoglobin values of the buffaloes were 11.1 g/dl and 12.3 g/dl (Table 1). Confirmatory diagnosis was based on the microscopic faecal examination under the 40X magnification. Microscopic examination revealed the presence of cyst (with clear wall, kidney shaped macronucleus and round micronucleus) and trophozoite (ciliated with two openings in posterior end) of *Buxtonella sulcata* (Fig. 1 & 2) [8]. Reference values of the above mentioned parameters were taken from the literature [9].

**Table 1:** Haemoglobin values and physiological parameters of the affected buffaloes

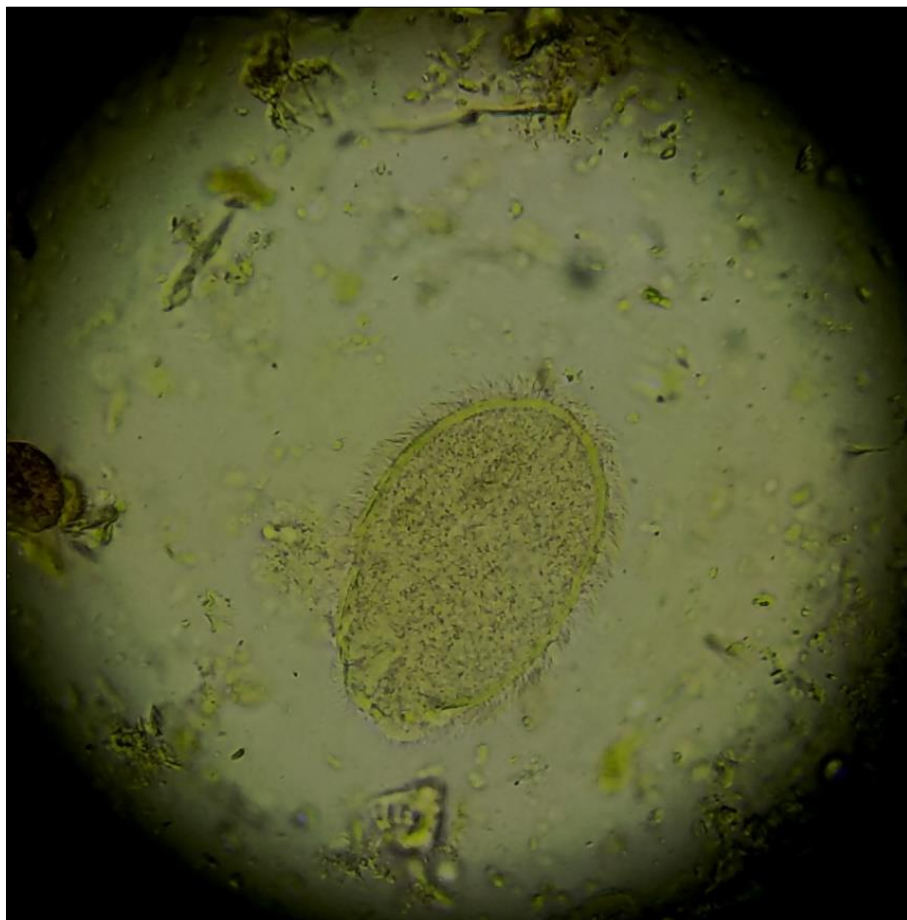
Parameter	1 <sup>st</sup> buffalo	2 <sup>nd</sup> buffalo	Normal Values [9]
Temperature (°F)	99.8	100.4	101-102
Respiration rate / minute	27	29	12-16
Heart rate / minute	78	83	40-60
Haemoglobin (g/dl)	12.3	11.1	8.5-12.5

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**Fig 1:** Microscopic field showing cyst of *Buxtonella sulcata* (with clear wall, kidney shaped macronucleus and round micronucleus) under 40X



**Fig 2:** Microscopic field showing trophozoite of *Buxtonella sulcata* (ciliated with two openings in posterior end) under 40X.

### 3. Treatment

Both the buffaloes were treated using oxytetracycline, flunixin meglumine and chlorpheniramine maleate. Oxytetracycline (Injection Oxynex: Cadila Healthcare Ltd.) @ 10mg / kg body weight / day was given to both the buffaloes for consecutive four days. Along with it, they were also given flunixin meglumine @ 2.2 mg / kg body weight (Injection FM-50: Macwell Pharmaceuticals Pvt. Ltd.) and chlorpheniramine maleate 10ml (Inj. Avilin® vet: Intervet India Pvt. Ltd.) for consecutive four days to treat them for enteric infection.

### 4. Results and Discussion

The affected buffaloes showed improvement from 2<sup>nd</sup> day post-treatment. The faeces of both the buffaloes were again examined on 11<sup>th</sup> day post treatment and they were found negative for *Buxtonella sulcata* cysts and trophozoites. Post-therapeutic remission of clinical signs confirmed complete recovery. The effected buffaloes were successfully treated with parenteral medicinal therapy using oxytetracycline, flunixin meglumine and chlorpheniramine maleate. Oxytetracycline is a broad spectrum antibacterial and antiprotozoal drug which is active against *Buxtonella sulcata* [10]. Among all parasitic infections, *Buxtonella sulcata* (14.57 %) was reported to be the most prevalent gastrointestinal protozoa in bovines with higher proportion in all age groups, seasons, sex and breeds [11]. *Buxtonella sulcata* was considered to be non-pathogenic protozoa, but recent studies reported and admitted its pathogenicity associated with diarrhoea [6, 11] which is supported by our study also.

### 5. Conclusion

The protozoal infection (*Buxtonella sulcata*) generally causes minor health problems especially in young ruminants but it significantly affects the growth and productivity of the animals causing remarkable economic losses to the farmers. Oxytetracycline is a proven broad spectrum antibacterial and antiprotozoal drug. Scheduled frequent herd screening via microscopic faecal examination is advised in the prevalent areas of *Buxtonella sulcata* infections for enhanced growth and productivity of the animals.

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