Case report

Intestinal Schistosomiasis in A Red Kandhari Bullock

ABSTRACT

Schistosomiasis is a parasitic disease of cattle that is caused by trematode worms and results in morbidity, mortality, reduced fertility and productivity. A three-year-old Red Kandhari bull weighing 300 kg was presented to Department of Veterinary Medicine, COVAS, MAFSU, Parbhani, Maharashtra with a history of bloody diarrhea and anorexia. Clinical examination revealed rectal temperature 104°F, moderate dehydration, pale conjunctival mucous membranes and bloody diarrhea. Fecal sample analysis showed the presence of spindle-shaped Schistosoma eggs. Based on the history, clinical findings and laboratory examination, the case was diagnosed as intestinal schistosomiasis. The bullock was treated with Praziquantel @ 25 mg/kg body weight orally, with a repeat dose after three weeks, Inj. Sulphadimidine sodium @ 15 ml/50 kg body weight intramuscularly, Inj. Ascorbic Acid @ 15 mg/kg body weight intravenously, Inj. Carbazochrome salicylate 10 ml intramuscularly, Inj. Pheniramine Maleate @ 0.5 mg/kg body weight intramuscularly, Inj. Meloxicam @ 0.5 mg/kg body weight intramuscularly. The bull showed a complete recovery after three days of successful therapeutic management.

Key words: *Intestinal schistosomiasis, praziquantel, Red Kandhari*

1. INTRODUCTION

Schistosomiasis is a chronic and debilitating disease that affects both humans and animals, caused by various species of the genus *Schistosoma*. It is considered a public health concern due to its impact on multiple hosts (Lulie and Guadu, 2014). Schistosomiasis is now well recognized as the fifth major helminthosis of domestic animals in the Indian sub-continent (Sumanth *et al.,* 2004). This infection is caused by trematode parasites that primarily target the mesenteric and portal veins in their hosts. These parasites are elongated and sexually differentiated flukes that reside within the circulatory system of their host (Dwight *et al.,* 2003). In livestock, several species of Schistosoma significantly impede production, particularly in Africa and Asia. Key species affecting animals include *Schistosoma bovis, Schistosoma mattheei, Schistosoma intercalatum, Schistosoma spindale, Schistosoma indicum,* and *Schistosoma nasalis* (Dwight *et al.,* 2003; Amsalu, 2007). These parasites can cause serious health issues, reducing

productivity, fertility and overall well-being in infected animals.

In cattle and buffaloes, the condition is caused by *Schistosoma indicum, Schistosoma spindale, Schistosoma bovis* and *Schistosoma japonicum*. Severe schistosome infections lead to reduced productivity, increased mortality rates, and chronic wasting disease in affected animals (Islam *et al.,* 2011; Kerie and Seyoum, 2016; Sudhakar *et al*., 2016). Environmental factors play a crucial role in the prevalence of schistosomiasis. The presence of water bodies, such as stagnant ponds, swamps, rivers, streams, irrigation channels, wetlands and canals, creates favorable conditions for the transmission of the disease, impacting both animals and humans (Kifle *et al.,* 2022). The lifecycle of *Schistosoma* involves snails as intermediate hosts. The parasite's infectious immature stages penetrate the host through direct contact, often during activities such as drinking water, leading to potential infections in livestock (Abriham *et al.,* 2018). Understanding the role of environmental factors and the snail vector is essential for controlling the spread of schistosomiasis and mitigating its adverse effects on animal health and productivity.

2. CASE PRESENTATION AND DIAGNOSIS

A three-year-old Red Kandhari bull, weighing approximately 300 kg, was referred to the Department of Veterinary Medicine, College of Veterinary and Animal Sciences (COVAS), Parbhani. The animal presented with a history of bloody diarrhoea and anorexia that had developed over the preceding days. The owner reported a marked decline in feed intake and a progressive weakness in the animal. Upon detailed physico-clinical examination, the bull exhibited an elevated rectal temperature (104°F) indicating a febrile condition, moderate dehydration was evident, as assessed by reduced skin elasticity and sunken eyes and conjunctival mucous membranes appeared pale on examination. The primary clinical sign observed was bloody diarrhoea, which was persistent and had a foul odour, further confirming the severity of the gastrointestinal disturbance.

Additional clinical findings included a dull behaviour, with the animal appearing lethargic and unwilling to move. Vital parameters such as heart rate and respiratory rate were noted to be within the upper normal limits, though the elevated temperature and dehydration pointed towards systemic involvement. Based on the history and clinical signs, it was suspected that the bull might be suffering from a severe gastrointestinal infection or parasitic infestation requiring immediate intervention. Further diagnosis, included faecal examination and blood analysis, was recommended to confirm the underlying cause. Fresh fecal samples were directly collected from the rectum of bullock using gloved hand. Then, the samples were concentrated using standard sedimentation technique described by Hansen and Perry (1994).

Fig.1 Bullock with pale conjunctival mucous membrane (Before treatment)

Fig. 2. Bloody diarrhea (Before treatment)

Fig.3 Bullock with straining (Day 2 After treatment)

Fig.4 Fecal examination revealed Spindle shaped *Schistosoma*

3.TREATMENT AND DISCUSSION

Schistosomes are significant helminths responsible for infections in humans and animals worldwide. Cattle and buffaloes, due to their habit of free grazing in waterlogged areas where infective cercariae are present, are highly susceptible to schistosome infections (Rashid *et al.*, 2022). In the reported case of Red Kandhari bullock, clinical signs such as pale conjunctival mucous membranes (Fig.1), bloody diarrhea (Fig.2), tenesmus and straining while defecation (Fig.3) were observed. These findings are consistent with observations by Sucharitha *et al.* (2024). Fecal analysis revealed spindle-shaped Schistosoma eggs (Fig.4), confirming the diagnosis of schistosomiasis. Morphological examination identified *Schistosoma spindale*, a common intestinal schistosome in cattle and buffaloes across the Indian subcontinent. The morphological traits observed in this case correspond closely with descriptions of Soulsby *et al.* (1982). Schistosomiasis, caused by trematodes of the genus Schistosoma, primarily affects the

gastrointestinal system, manifesting in significant clinical symptoms such as bloody diarrhea and anorexia. The bovine schistosomiasis showed higher infection rate in local breed than in cross breed and in the cattle with poor condition (Yihunie, *et al.* 2018). The cattle usually comes in contact with snail contaminated water while drinking and act as a source of contamination (Islam et al., 2011). The disease is characterized by diarrhea, weight loss, anemia, hypoalbuminemia, hyperglobulinemia and severe eosinophilia that develop after the onset of egg excretion. Severely affected animals deteriorate rapidly and usually die within a few months of infection, while those less heavily infected develop chronic disease with growth retardation (Yogeshpriya, 2022).

A comprehensive treatment protocol was initiated to address the schistosomiasis diagnosis and associated complications. Praziquantel was administered orally @ 25 mg/kg body weight, with a follow-up dose scheduled three weeks later, as recommended by Yogeshpriya, (2022). To counter secondary bacterial infections, Sulphadimidine sodium was given intramuscularly @ 15 ml per 50 kg body weight daily for three days. Supportive care included intravenous administration of ascorbic acid @15 mg/kg body weight for two days to alleviate oxidative stress and enhance recovery. To manage bleeding, Carbazochrome salicylate was administered intramuscularly @ 10 ml daily for three days. Anti-inflammatory and allergic responses were controlled using Pheniramine Maleate at 0.5 mg/kg body weight intramuscularly for three days and Meloxicam at 0.5 mg/kg intramuscularly for the same duration, providing both anti-inflammatory and analgesic effects. Fluid therapy was implemented to address dehydration and restore electrolyte balance, comprising 8 liters of Dextrose Normal Saline (DNS) and 4 liters of Ringer's Lactate (RL) intravenously per day. This integrated approach aimed to alleviate clinical symptoms, address underlying complications and promote the animal's recovery effectively.

Comment [11]: Should be converted in mg

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Fig. 5 Bullock with reduced bloody diarrhea

Fig. 6 Slight blood in feces (Day 2 After treatment)

(Day 2 After treatment)

Fig. 7. Bullock with normal appetite (Day 3 After treatment)

Fig. 8 Normal consistency of feces (Day 3 After treatment)

On second day of treatment animal showed improvement with reduced bloody diarrhea (Fig. 5 and Fig. 6). However, from third day bullock started taking feed normally (Fig. 7) and consistency of feces was normal in appearance (Fig.8).

4. CONCLUSION

The case of schistosomiasis in a Red Kandhari bull highlights the significant impact of helminthic infections in livestock, particularly in animals grazing in waterlogged areas. The clinical signs, including pale mucous membranes, bloody diarrhoea and tenesmus, along with faecal analysis revealed spindle-shaped *Schistosoma* eggs, confirmed the diagnosis of intestinal schistosomiasis caused by *Schistosoma spindale*. Prompt and comprehensive treatment, included Praziquantel, supportive care, anti-inflammatory and antibacterial therapies and fluid management, effectively addressed the condition and its complications. This approach not only alleviated clinical symptoms but also supported recovery. The findings underscore the importance of early diagnosis and targeted treatment in managing schistosomiasis in cattle, which is vital for reducing productivity losses and improving animal welfare in endemic regions. Preventive strategies, including environmental management and routine deworming, are essential to curb the disease's prevalence.

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DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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