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Occurrence of *Schistosoma spindale* infection in bovine of Puducherry

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Abstract

A five years old female cross bred Jersey cow was presented with the history of blood mixed diarrhoea with fetid odour since 15 days and lateral recumbency. Upon fecal examination, the ova of *Schistosoma spindale* was revealed. The present case deals with occurrence of *S. spindale* infection in a Crossbred Jersey breeds of cattle of Union territory of Puducherry. Eggs of *Schistosoma spindale* was noticed in fecal sample of affected animals and identified as per standard taxonomical keys (Soulsby, 1982).

Keywords: Cross bred cow, blood mixed diarrhoea, *Schistosoma spindale*, Puducherry

1. Introduction

Visceral schistosomiasis caused by *Schistosoma spindale* is a snail borne digenetic trematode infection of cattle. It was first identified in 1906 by Montgomery from cattle in Mukteswar, India (Montgomery, 1906) ^[6]. It affects domestic animals, man and wild animals in different parts of Asia and Africa (Latchuminkanthan *et al.*, 2014) ^[4]. The species which commonly occur in India are *Schistosoma nasale* and *S. spindale* in cattle, *S. indicum* in equines and sheep and *S. incognitum* in pig. It resides in a mesenteric vein of cattle, Buffalo, Horse, Pig (Taylor, 2016) ^[12]. The freshwater snail *Indoplanorbis exustus* acts as an intermediate host. It is a chronic wasting disease contributing substantial economical loss (Bulbul *et al.*, 2021) ^[2]. Visceral schistosomiasis were reported from Tamil Nadu (Jeyathilakan *et al.*, 2008) ^[9], Kerala (Ravindran *et al.*, 2007) ^[10], Assam (Bulbul *et al.*, 2021) ^[2]. The pathology of infection and clinical signs are severe intestinal haemorrhage in intestinal mucosa, thickening of intestinal mucosa and ulcers covered with blood stained mucosa. The present communication reports the presence of *S. spindale* infection in Crossbred Jersey cow of Puducherry, a southern Union Territory of India

2. Materials and methods

2.1 Clinical history

A five years old Cross bred Jersey cow was presented with a history of blood mixed diarrhoea with fetid odour since 15 days and with history of lateral recumbency, diarrhoea since 2 days.

2.2 Sample collection

The fresh dung sample was examined grossly for the presence of helminthes and approximately two hundred grams of dung sample was collected in an air tight container/polythene cover. The sample was subjected for direct and concentration techniques like floatation and sedimentation in the department.

2.3 Microscopic examination of dung sample

The direct fecal examination was done by taking a small quantity of faeces is placed on a slide, mixed with some droplets of water and a cover slip is placed on the fluid and examined under 10X objective lens. Further, the faecal samples were subjected to sedimentation and floatation techniques.

2.4 Sedimentation technique

A 1-2g of dung sample is kept in a mortar and with the help of pestle grind the sample properly. Add 10-15 ml of water and grind it till homogenous suspension is formed. Filter the contents through sieve and filtrate is transferred to the centrifuge tube. Centrifuged for 2000 rpm for 3 min. Discard the supernatant and reconstitute the pellet. The sediment is then examined under low power objective lens (10X).

2.5 Flootation technique

A 1-2g of dung sample is kept in a mortar and with the help of pestle grind the sample properly. Add saturated salt solution and grind it till homogenous suspension is formed. Filter the contents through sieve and filtrate is transferred to the flotation tube, place a slide over the top of it. Incubated for 15 min and take a slide in one stroke. The slide is examined under low power objective lens (10X).

3. Results and Discussion

The microscopic examination of faecal samples of Cross bred Jersey revealed the presence of spindle shaped egg with terminal spine and fully developed miracidium inside (*Schistosoma spindale*) (Fig.1). The eggs belong to *S. spindale* as per the standard taxonomical keys given by Soulsby (1982)^[11].

The presence of spindle shaped eggs in fecal sample of cattle was also reported by Vimalraj and Latchumikanthan (2015)^[13], Jeyathilakan *et al.*, (2008)^[9] in Chennai, Shiyad *et al.* (2004)^[8] in Kerala. The similar observations have been made by Banerjee *et al.*, 1988^[1] where he has recorded 41.2% infection rate in cattle. While there may be minimal or no apparent clinical indications in the short term, the elevated occurrence of prolonged schistosome infections ultimately leads to substantial detriments to the herd. These detriments manifest through less easily discernible impacts on animal growth and productivity, as well as an increased vulnerability to other parasitic and bacterial diseases, as documented by Dargie (1980)^[3], Pitchford and Visser (1982)^[7] and McCauley *et al.* (1984)^[5].

Additional investigations into the epizootiology of *S. spindale* in farm animals and the cercarial bionomics in snails are necessary to enhance our comprehension of *S. spindale* and the dynamics of the associated diseases.

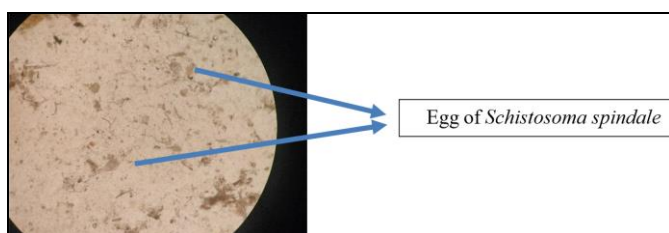


Fig 1: Egg of *Schistosoma spindale*

4. Conclusion

Considering the history of the case, clinical observation and faecal examination of the crossbred Jersey cow it is evident that schistosomiasis caused by *Schistosoma spindale* affected the cattle and faecal examination is still a diagnostic method for the confirmation of the case and further treatment.

5. Conflict of interest: Authors have no conflict of interest in this study

6. References

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