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Diagnosis and therapeutic management of theileriosis induced pseudo pericarditis in a non-descript cattle: A case report

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Abstract
A 6-year-old non-descript cow was presented to Teaching Veterinary Clinical Complex of the institute, with a history of inappetence, weakness and ventral oedema from one week. Clinical examination revealed pale conjunctiva mucus membrane, high rectal temperature (104.6 °F), tachypnoea (35/min), normal heart rate (86 bpm), ventral oedema extending from brisket region to udder, enlarged prescapular lymph node, slight engorgement of the jugular vein. Auscultation of thorax did not reveal any pericardial friction rubs, gurgling, splashing sounds. Microscopic examination of faecal sample negative for any parasitic egg. Clinical examination of peripheral blood smear was found positive for *Theileria annulata*. Haematological examination showed anaemia. Biochemical examination revealed normal liver and kidney function. The animal was therapeutically managed with parenteral buparvaquone injection @ 2.5 mg/kg body weight IM, 0.9% normal saline along with electrolytes @ 10 ml/kg body weight on the day of presentation, injection oxytetracycline @ 10 mg/kg body weight IV, inj. Meloxicam @ 0.5 mg/kg body weight, IM, inj. Chlorpheniramine maleate @ 0.5 mg/kg body weight IM, Frusemide@1mg/kg body weight IM for 5 days. Haematinic and phosphorus injections were given at the rate of 15 ml IM weekly twice. The appetite of animal came to normal within a week. Over a span of ten days, the brisket edema and jugular distensions were noticeably reduced. The cow exhibited a full recovery from all clinical symptoms. This case report illustrates the successful treatment of a non-descript cow suffering from complicated theileriosis. This highlights the potential for effective management of such conditions in veterinary medicine.

Keywords: Theileriosis, buparvaquone, oedema, anaemia, pseudo-pericarditis

Introduction
Theleriosis is commonest haemoprotozoan diseases of Indian subcontinent causing severe economic losses. Tropical theileriosis is a tick-borne disease of cattle caused by the agent *Theileria annulata* and transmitted by *Hyalomma anatolicum*. Cattle affected with theileriosis showed the signs of fever, enlargement of superficial lymph nodes and emaciation (Sudhakara Reddy and Sivajothi, 2017) [1] but there are certain occasions in which some clinical manifestations exhibited in animals mask the original cause. According to Radostits *et al.* (1994) [2], pressure at the base of the cranial and caudal vena cava returning blood to the heart causes jugular engorgement and oedema of the brisket and ventral abdominal wall. It is employed because calves with traumatic pericarditis have symptoms comparable to these. Pseudopericarditis in cattle has been linked to tumours, abscesses, echinococcus cysts, swollen lymph nodes brought on by leukaemia and tuberculosis, one-sided pleuritis, and diaphragmatic hernia (Keles *et al.*, 2003) [3]. Tropical theileriosis causes hematologic and biochemical changes linked to anaemia. These variations rely on the parasite's virulence, the infectious dose, the animal's breed, its level of immunity, and regional environmental conditions. Mahmmod *et al.* (2011) [4]; Singh *et al.* (2001) [5]. These modifications are also influenced by the degree of hypoxia, parasitaemia, and anaemia (Singh *et al.*, 2001) [5]. This case report seeks to inform readers of the clinical, haematological, and biochemical results of a cow which had tropical theileriosis-related pseudo-pericarditis.

Materials and Methods
A 6-year-old non-descript cow that had been complaining of weakness, loss of appetite, and weight loss was presented at veterinary clinical complex at the College of Veterinary Science, Rajendranagar.

We collected blood samples from the animal's vena jugularis into vacuum-sealed anticoagulant and coagulant tubes for hematologic and biochemical analyses. Utilising a cell counter for hematologic analyses and an autoanalyzer for biochemical results. Giemsa-stained blood smears were created using anticoagulant blood and viewed under an optical microscope with immersion oil at a magnification of 100X to see if any *T. annulata* piroplasms were present.

Results

Physical examination of the cases revealed high fever (40.2°C), tachypnea (36/min), tachycardia (100 bpm), pale mucous membranes (anaemia), petechial haemorrhages, icterus in the conjunctiva, a clearly enlarged left prescapular lymph node, ventral oedema, and a slight engorgement of the jugular vein (Figures 1 and 2). There were no signs of pericardial friction, bubbling, splashing, or tinkling during the heart's auscultation. The abdominal organs were next examined using a metal detector to rule out the presence of any metallic foreign bodies, but nothing was discovered. When the peripheral blood smears were microscopically examined for parasitological diagnosis, a significant amount of *T. annulata* factors were found (Figure 3). The parasitological investigation of the faeces samples revealed no signs of fascioliasis or any other parasitic disorders.

Fig 1: Cow suffering from ventral oedema

Fig 2: Slight jugular vein engorgement.

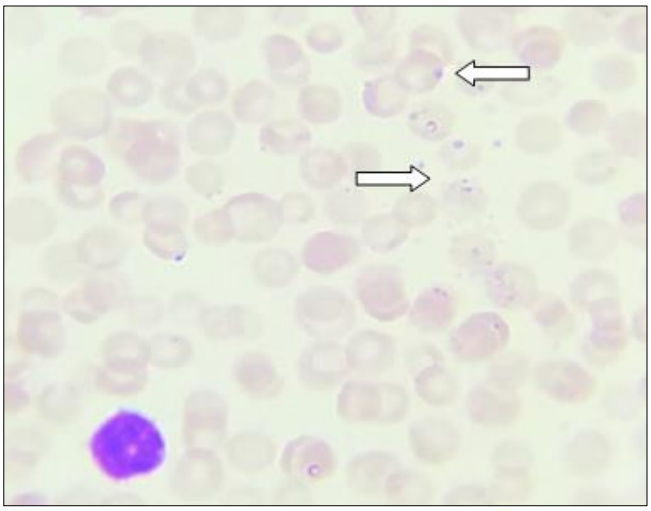

Fig 3: Laboratory examination (Peripheral blood smear, 100x magnification under microscope) with Piroplasms of *T. annulata.*

The results of haematological and biochemical analysis are represented in table 1, 2.

Table 1: Haematological changes

	Parameter unit	Unit	Before treatment	After treatment	Reference value
Haematological changes	haemoglobin	gm%	7.5	10.8	8-15
	PCV	%	17.3	27.7	24-47
	Total erythrocyte count	$\times 10^6/\mu l$	4.68	5.42	4.95-7.87
	Total leucocyte count	$\times 10^3/\mu l$	16.6	10.46	5.0-12.1
	Neutrophiles	%	84	40	15-33
	Lymphocyte	%	12	57	45-75
	Monocyte	%	4	7	0-8
	Eosinophils	%	0	2	0-20
	Basophiles	%	0	0	0-2
	Platelet	Lacs/µl	4.2	4.8	2.11-6.21

Table 2: Biochemical changes

	Parameter unit	Unit	Before treatment	After treatment	Reference value
Biochemical changes	SGPT	IU/L	10.08	10.8	10-109
	SGOT	IU/L	64.53	27.7	60-125
	Total protein	mg/dl	5.57	5.92	4.95-7.87
	Albumin	mg/dl	3.1	3.54	2.5-3.8
	Globulin	mg/dl	2.47	2.38	3-3.5
	Blood urea nitrogen	mg/dl	19.38	24.9	10-25
	Creatinine	mg/dl	1.46	1.57	0.5-2.2

Treatment

1. Fluid therapy (10 L Ringer's lactate, 5 L normal saline) IV Once
2. Inj. Buparvaquone @ 2.5 mg/KG BW IM once
3. Inj. Avil (Pheniramine maleate) @0.5 mg/kg BW IM OD for 5 days
4. Inj. Oxytetracycline @ 10 mg/kg BW IV OD for 5 days
5. Inj. Frusemide@1mg/kg body weight IM OD for 5 days
6. Inj. Meloxicam@ 0.5mg/KG BW IM OD for 5 days
7. Inj. Hivitplus (Vitamin B-complex) 10 ml OD for 5 days
8. Haematinic (Iron Sorbitol Citric acid complex 50 mg + Folic Acid 500 mg + Hydroxocobalamin Acetate 50 mg per millilitre) @ 1 ml/50 Kg BW IM on alternate days for one week.

Conclusion

The brisket oedema and jugular cardings were reduced over a period of ten days and the cow showed complete recovery from all clinical signs and the peripheral blood smear examination was found to be negative for parasites after the end of therapy the present case report describes confirmatory diagnosis and successful management of complicated theileriosis of a non-descript cow.

Acknowledgement

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