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Therapeutic Management of Renal Dysfunction Associated with Trypanosomiasis in a Horse - A Case Report

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Trypanosomiasis, an arthropod borne blood protozoan disease commonly known as Surra is caused by *Trypanosoma evansi*. Several species of hematophagous flies, including Tabanids and Stomoxys are implicated in transferring infection from host to host, acting as mechanical vectors. Trypanosomiasis is diagnosed based on the clinical evidences augmented with some parasitological methods. The "Office international des epizootics" categorized the disease under 'B' disease of significance (OIE, 2004). Surra in India is generally considered as a disease prevalent mostly in animals of Northern India (Soodan *et al.,* 1995). The present case deals with the diagnosis of renal dysfunction associated with trypanosomiasis and its' successful therapeutic management in a mare.

Case History and Clinical Observations

A seven year old mare with a history of reduced feed intake was presented to Teaching Veterinary Clinical Complex, Anand. Clinical manifestations included fever, depression and edema on brisket and ventral region of the body. Clinical examination revealed pyrexia (103.3°F), tachycardia (60 beats/min) and pale to icteric mucous membrane. There was a history of prophylactic therapy against trypanosomes two months back.

Blood samples were taken from jugular vein in EDTA vial for specific diagnosis and haematological parameters, whereas 9 ml blood was withdrawn into serum clotting accelerator vial for serum separation and biochemical analysis. Haemato-biochemical investigation showed low Hb, RBC, platelet count, albumin, A/G ratio and high ESR, globulin, total protein, SGPT, BUN and creatinine (5.5 mg/dl). Total leukocyte count was within normal range. Urine analysis revealed acidic pH (5.5), glucosuria (+++), proteinuria (+++) and pyuria (>7 leukocytes/field). Blood smear examination on Giemsa staining revealed the presence of trypomastigotes

(Fig.1). The findings indicated the renal dysfunction/damage associated with Tryanosomiasis in absence of elevated TLC.

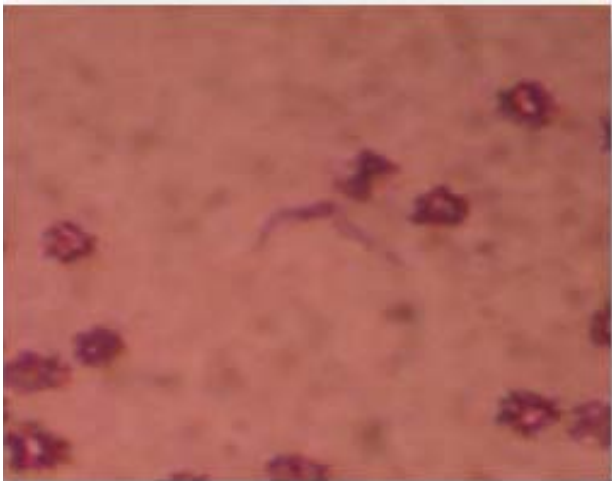

Fig. 1 : Trypanomastigotes found on Giemsa stained blood smear

Treatment and Discussion

The mare was treated first with Isometamidium hydrochloride (Nyzome) @ 0.5 mg/kg intramuscularly, followed by intravenous administration of Ketoprofen and Oxytetracycline @ 2.2 mg/kg and 10 mg/kg, respectively for the 1st day. Thereafter, 6 liters of 0.9% NaCl in combination with 5% Dextrose along with B-complex Vitamins was also administered at 12 hrs interval on the same day. Oxytetracycline was continued for next 2 days, after which Doxycycline was used @ 10 mg/kg twice in a day orally for next 5 days. Fluids in combination with B-complex vitamins and Furosemide, a loop acting diuretic @ 2 mg/kg twice a day, were continued intravenously for 2 weeks. Dexamethasone 40 mg was also administered intravenously and continued for next 3 days, whereas Prednisolone was used at a tapering dosage for next 10 days. It was used first @ 10 mg/kg intravenously for 5 days and later @ 0.75 mg/kg and 0.5 mg/kg orally for next 3 and 2 days, respectively. The mare was also treated with Silymarin, a hepatoprotectant @ 210 mg thrice a day and haematinics (Ferritas) @ 1 ml/50 kg intramuscularly for the first 5 days.

After 2 weeks of intensive therapy, the mare regained appetite and showed relief from edema. After the treatment period, the blood samples were again analyzed for haemato-biochemical parameters (Table 1). An improvement in haemato-biochemical parameters was observed and we couldn't find out any trypomastigotes on microscopic examination of Giemsa stained blood smear.

In case of hemoprotozoan diseases, glomerulonephritis may occur due to the deposition of antigen-antibody or immune complexes on subendothelial and subepithelial surface of the glomerular basement membrane, which may lead to renal dysfunction. Damage to the glomerular basement membrane results in albuminuria, which may lead to hypoalbuminemia and animal may then exhibit signs related to hypoalbuminemia like peripheral edema (Kahn and Scott, 2005) as seen in this case. In the present case, oxytetracycline was given as anti-trypanosome (Ekanem and Adeniran, 2003) in order to compete the suspected resistance of protozoa against trypanocidal drugs. Doxycycline,

Table 1: Haemato-biochemical parameters of horse before and after therapy of renal failure

Hematological parameters	TLC ($\times 10^3/\mu l$)	TEC($\times 10^6/\mu l$)	Hb (g/dl)	G (%)	L (%)	M (%)	PCV (%)	Platelets ($\times 10^5/\mu l$)	ESR (mm/hr)
Before therapy	4.8	3.58	7.2	48.2	45.2	6.6	18.2	0.21	150
After 2 wks of therapy	15.4	4.51	8.1	77.4	18.3	4.3	22.4	3.42	ND

Biochemical parameters	SGPT (U/L)	BUN (mg/dl)	Creatinine (mg/dl)	Tot protein (g/dl)	Albumin (g/dl)	Globulin (g/dl)	A/G ratio
Before therapy	50.0	64.0	5.5	10.0	2.0	3.6	0.55
After 2 wks of therapy	45.8	37.0	2.5	7.0	4.0	2.4	1.66

G=granulocytes; L=lymphocytes; M-monocytes; ND=Not done.

being a safer drug than oxytetracycline in cases of renal dysfunction was selected in order to counteract any secondary bacterial infection (Davis *et al.,* 2006). Prednisolone, corticosteroid, was used in tapering dose for 10 days in the present case as it is effective in cases of immune-mediated diseases (Lewis *et al.,* 2007). The diagnostic and therapeutic approaches adopted were fruitful and the animal made uneventful recovery within 15 days.

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Conflict of Interest

Authors have no conflict of interest.

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