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Epistaxis secondary to trypanosomiasis in *Bubalus bubalis*: Clinical report

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Abstract

Bovine trypanosomiasis elicited by *Trypanosoma evansi* is an important tabanid fly transmitted disease exacting a high public health burden and devastating impact on animal health, thereby decreasing the net milk yield. Three pregnant Murrah buffaloes were brought to Veterinary Clinical Complex, Hisar in medicine section with history of fever, epistaxis since 15-20 days, head pressing, anorexia and hypogalactia. Clinical examination revealed high temperature ($104.7 \pm 0.59^\circ\text{F}$), polypnea (48 ± 3.21), normal lymph node consistency, normal ruminal and lung sounds. Microscopic examination of blood smear revealed negative results. Haematological alteration recorded in affected buffaloes were Hb ($8.53 \pm 0.49\text{g/dl}$), PCV ($25.6 \pm 1.49\%$), TEC ($4.69 \pm 0.132 \times 10^6/\mu\text{l}$) indicating afflicted with anaemia and relative neutrophilia ($74.33 \pm 0.24\%$). Similarly biochemical alterations observed were increased SGOT ($152.67 \pm 16.45 \text{ IU/l}$), hypoproteinaemia ($4.3 \pm 0.29 \text{ mg/dl}$) and hypophosphatemia ($1.87 \pm 0.23 \text{ mg/dl}$). TE-LAT examination revealed all animals to be positive for trypanosomiasis. Following treatment with isometamidium chloride and hemostatic agents, all patients recovered. Present study inferred that occurrence of epistaxis in buffalo should prompt concerns about trypanosomiasis leading clinician to recommend haemo-protozoal examinations in such instances.

Keywords: Epistaxis, hypophosphatemia, *Trypanosoma*

Introduction

Trypanosomiasis is a protozoan disease of man and animals, causes by *trypanosomes*, affecting cattle, buffaloes, camels, sheep, goats, horses, donkeys, mules, pigs, cats, and dogs throughout the world (Mirshekar *et al.*, 2019)^[8]. *Trypanosomes* are unicellular extracellular flagellate protozoa belonging to the family Trypanosomatidae and the genus *Trypanosoma* (Sobhy *et al.*, 2017)^[10]. It is responsible for substantial losses in global production and can be fatal if not diagnosed and proper treatment commence early (Ereقات *et al.*, 2020)^[5]. The infection by *T. evansi*, typically exhibit weakness, fever, anemia, edema, uveitis, hepatomegaly, splenomegaly, and paraplegia, which can lead to death. The present case reports document epistaxis, an unusual clinical finding in buffalo affected with *Trypanosomiasis* and its management.

Case report

Three pregnant Murrah buffaloes brought to VCC, hisar with history of fever, epistaxis since 15-20 days, head pressing, anorexia and hypo-galactia (Figure 1). Initial clinical examination revealed high temperature (104.7 ± 0.59), polypnea (48 ± 3.21), normal lymph node consistency, normal ruminal and lung sounds. Microscopic examination of blood smear revealed negative results. Hematological findings include decrease mean values of Hb, TEC, PCV indicating anemia with relative neutrophilia. Biochemical alterations observed were increased SGOT, hypoproteinemia and hypo-phosphatemia. Radiographic findings indicate no lesions in thoracic cavity, reticulo-diaphragmatic and nasal area. Presumptive diagnosis of *Trypanosomiasis* based on history and clinical examination. Confirmation based on positive TE-LAT results.

| Parameters | Observed value |
|--------------------------------|----------------|
| Hb (g/dl) | 8.53±0.49 |
| TEC (million per cumm) | 4.69± 0.132 |
| PCV (%) | 25.6±1.49 |
| TLC (1000 per cumm) | 11.54 ± 0.79 |
| Neutrophil (%) | 74.33±0.24 |
| Lymphocyte (%) | 34.8 ± 0.86 |
| Platelet count (1000 per cumm) | 309.2± 1.83 |
| Blood glucose (mg/dl) | 50.85 ± 14.9 |
| Phosphorous (mg/dl) | 1.87±0.23 |
| SGOT (IU/l) | 152.67±16.45 |
| Total protein (mg/dl) | 4.3±0.29 |

Management and Discussion

The case was diagnosed as trypanosomiasis based on TE-LAT examination. Initial therapy includes topical application of epinephrine and cryotherapy (icepack) on head. Parenteral hemostats (tranexamic acid @ 15 mg/kgbw; tranexamic acid + Vitamin K (Maclot KT- 20 ml) intramuscularly. Trypanocidal drug i.e., isometamidium chloride @ 0.25-1 mg/kg bwt deep intramuscularly. For hypophosphatemia, standard therapy i.e. 60g sodium acid phosphate in 300 ml of distilled water and similar dose subcutaneously, followed by further subcutaneous injections at 12hourly intervals on three occasion and similar daily doses by mouth was given. Following 5 days of therapy, all animals were completely recovered.

Animal trypanosomiasis significantly hampers sustainable productivity and the economy of the livestock sector, with

its geographic distribution still changing (Desquesnes *et al.*, 2013) [4]. In buffalo, the disease is typically latent or subclinical, with epizootics triggered by stress from adverse climatic conditions, work, or presence of concurrent diseases (Gangurde *et al.*, 2006) [6]. Low platelet count is one of the important factors for the bleeding from the mucus membrane. Due to inadequate or slow clotting, blood comes from the respective region, resulting in different clinical signs (Degirmencay *et al.*, 2021) [3].

The nose is a vulnerable site for bleeding because the nasal mucosa is densely packed with vessels that form plexiform networks. Epistaxis in large ruminants is rare, making diagnosis of the underlying cause challenging (Prajapati *et al.*, 2024). Most episodes of epistaxis in animals are caused by mucosal dryness and exposure of an anterior septal blood vessel trauma (including nose picking), or retained foreign bodies. A clinical diagnosis can be obtained through a logical approach and haematological evaluation (Areshkumar, 2019) [2]. Similar epistaxis findings were also observed in buffalo infected with babesiosis due to thrombocytopenia, which may result from decreased marrow production, hypersplenism, utilization due to disseminated intravascular coagulation, and immune-mediated platelet destruction (Joshi *et al.*, 2020) [7].

Present study suggests that the occurrence of epistaxis in buffalo should raise concerns about trypanosomiasis, prompting clinicians to recommend haemo- protozoal examinations in such cases.



Fig 1: Murrah Buffalo brought to veterinary clinical complex with history of epistaxis since 15 days

Conclusion

The successful management of trypanosomiasis in buffalo using a combination of epinephrine, cryotherapy, hemostatic agents, and isometamidium chloride highlights the efficacy of integrated therapeutic approaches. This case underscores the significant impact of trypanosomiasis on livestock productivity and economy, exacerbated by its latent or subclinical nature in buffalo. Epistaxis, a rare manifestation in large ruminants, served as a crucial clinical indicator, prompting the diagnosis and treatment initiation. The findings emphasize the importance of prompt haemo- protozoal examinations in cases of epistaxis in buffalo, facilitating timely intervention and effective disease management to safeguard livestock health and productivity.

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