

## Postparturient hemoglobinuria and its medical management in a Buffalo

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### Abstract

A female Murrah Buffalo of 4<sup>th</sup> parity who calved 3 days back presented with the signs of anorexia, dullness and passing dark red colored urine. The rectal temperature was normal, conjunctival mucous membrane was pale to pink and the heart rate was slightly elevated. Serum biochemical and hematological findings revealed hypophosphatemia. The blood sample was negative for hemoprotozoa. Based on the history, clinical signs, clinical findings, urine analysis, serum biochemical and hematological findings and response to treatment, the case was diagnosed as postparturient hemoglobinuria. The buffalo was treated with Phosphorus injection, Ascorbic acid injection and supplemented with oral phosphorus and Copper sulphate. Oral hematinics were advised after 4 days of treatment. Complete recovery was demonstrated and appreciated after 4 days of treatment under inpatient observation.

**Keywords:** Buffalo, Dark red urine, Hypophosphatemia

Post parturient hemoglobinuria is a metabolic disease of multifactorial etiology which includes dietary phosphorous deficiency, feeding with cruciferous plants like brassica, cabbage, turnips etc., fodders like berseem, sugarbeet etc. Copper deficiency is also an etiological factor for postparturient hemoglobinuria, as its deficiency reduces the activity of the copper containing enzyme, superoxide dismutase, which is part of the erythrocyte protection mechanism against oxidative stress (Heuer and Bode, 1998). The sudden onset of phosphorus losses through the mammary gland at the onset of lactation and the decreased feed intake around parturition are believed to be the major contributors to postparturient hypophosphatemia of dairy buffalo (Cohrs and Grünberg, 2018) and has been recorded in buffalo rearing countries particularly in India, Pakistan and Egypt (Pirzada and Hussain, 1998). Parturient hemoglobinuria is characterized by intravascular haemolysis, hemoglobinuria, severe anaemia and death due to anaemia and anoxia (Singari *et al.*, 1991). Infectious agents like babesiosis, anaplasmosis, leptospirosis and bacillary hemoglobinuria also results in hemoglobinuria (Radostits *et al.*, 2010). Among these, phosphorous deficiency in high yielding milch buffaloes during early stage of lactation is widely believed to be associated with post parturient hemoglobinuria. The present report narrates successful medical management of post-parturient hemoglobinuria in a graded Murrah buffalo.

### Clinical History and Observations

A female graded Murrah Buffalo at its 4<sup>th</sup> calving which calved 3 days back was presented to the outpatient unit of Large Animal Clinic section of Teaching Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal with history of anorexia, dullness and passing dark red colored urine. The buffalo was regularly fed with dry roughage, little quantum of green fodder and locally available concentrate. General clinical examination and observation revealed a rectal temperature of 38.7°C, rumen motility of 1 per 2 minute, heart rate of 78 per minute, respiration rate of 24 per minute with mild dyspnea, dark red coloured urine and pale to pink conjunctival mucous membrane.

Hematobiochemical analysis showed a hemoglobin level of 4.5g/dl, packed cell volume of 16% and a serum phosphorus level of 1.9 mg/dl. Blood smear was negative for hemoprotozoan diseases. Urine and serum examination result was negative for Leptospirosis. No endoparasitic infection on faecal sample analysis was seen. Urine analysis revealed elevated urobilinogen. Microscopic examination of urine has confirmed the presence of erythrocyte and few pus cells in urine.

### Treatment and Discussion

The buffalo was administered with intravenous injection Urimin (Sodium acid phosphate) @ 60 ml and Sodaphos (Sodium acid phosphate) @ 50g orally per day for 3 consecutive days. The serum Phosphorous



Urine colour before treatment



Urine colour after treatment

level was significantly low (1.9 mg/dl) suggestive of hypophosphataemia which concurred the findings of Durrani *et al.* (2010) and Mahmood *et al.* (2013). Durrani *et al.* (2010) reported highest prevalence of parturient hemoglobinuria in buffaloes within 4 weeks of parturition (78%). The sudden onset of phosphorus losses through the mammary gland at the onset of lactation and the decreased feed intake around parturition are believed to be the major contributors to postparturient hypophosphatemia of dairy buffalo (Cohrs and Grünberg, 2018). The patient data and history of this case are in agreement with above reports. Signs of recovery like change of urine colour to normal, improvement in appetite, milk production and hematobiochemical parameters (Hb : 7.1 g/dl, PCV : 26% and serum phosphorous level to 4.0 mg/dl) were observed. The improvement in hematobiochemical findings of this case were in agreement with the findings of Mahmood *et al.* (2013). Intravenous injection of Vitamin-C 250 mg/ml @ 10 ml per day for 3 days was administered to correct oxidative stress. Soren *et al.* (2014) reported better response when given above treatment along with ascorbic acid as being antioxidant it helps in reducing the oxidative stress of RBC and reducing intravascular hemolysis. Copper sulphate 3.5 g was given as supplement orally for one day. Copper deficiency is also an etiological factor for postparturient hemoglobinuria, as its deficiency contributes to oxidative stress. Oral hematinics was advised after 4 days of treatment (Heuer and Bode, 1998).

In conclusion an acute post parturient hemoglobinuria associated with nutritional hypophosphataemia in early lactation period can be successfully treated by phosphorous administration with

supportive therapy resulted in uneventful recovery.

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