



## MYOGLOBINURIC ACUTE RENAL FAILURE IN A DOG

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Rhabdomyolysis is an important cause of acute renal failure. Early diagnosis may provide the opportunity to reverse the decline in renal function and obviate the development of established acute renal failure. This case report highlights the importance of considering rhabdomyolysis in all animal patients with unexplained acute renal failure.

A three year old Weimarnner weighing about 50 kg was referred to the College Veterinary Hospital, Mannuthy with a history of discoloured urine, melena and haematemesis of two day duration. The animal was vaccinated against rabies about two days back in a nearby hospital. At the time of presentation of local veterinary hospital the rectal temperature was 106°F and prescribed Nimesulide on that day. Upon presentation at the College hospital the rectal temperature was 102°F, heart rate was 160 bpm and respiration rate was 58/min. Echymotic and petechiae were seen on the ventral abdomen, thigh and penile mucosa. Ulceration was observed on oral mucosa and tongue. Animal was oliguric and recumbent. The urine was dark brown and turbid. Specific gravity of urine was 1.005. Urine sample was positive for Ammonium sulphate precipitation test indicative of myoglobinuria. Ultrasonographic examination of abdomen revealed hypoechoic and homogenous kidney but no other abnormalities could be detected on other organs. Initial treatment indicated fluids (NS), Dexamethasone sodium phosphate and Amoxicillin Cloxacillin @ 10 mg/kg b.wt i/v. Blood smear was negative for haemoparasite. Blood sample was collected for haematobiochemical analysis. Serum had an unusual greenish brown colour. Haematological examination revealed leukocytosis ( $38.6 \times 10^3/\text{ml}$ ) with neutrophilia and lymphopenia. The values of haemoglobin, RBC and PCV were 16.8 g/dl,  $6.87 \times 10^6/\text{cc}$

and 56.8% respectively. The most striking haematological abnormality observed was severe thrombocytopenia (26,000/cc). The characteristic biochemical abnormalities on the day of admission was increased serum levels of creatine kinase (50,000 IU/L), ALT (1300 IU/L) and AST (2300 IU/L). Other biochemical values were protein (5.6 g/dl), albumin 2.7 g/dl, A:G ratio 0.9, BUN 123 mg/dl and creatinine 5.6 mg/dl. The very next day the creatinine value was elevated to 13 mg/dl. The same treatment were continued for three more days. In spite of therapy the condition of the dog deteriorated and it died on the 4<sup>th</sup> day. Based on the history of strenuous physical activity during transportation and the values of serum biochemical and enzymatic studies obtained a diagnosis of ARF due to rhabdomyolysis was made.

### Summary

Rhabdomyolysis is an uncommon disease process with profound sequelae if it is not identified and treated expediently. Clinical presentation varies, ranging from a nearby asymptomatic illness to fulminate and life threatening disease process with multiorgan system failure. Rhabdomyolysis results in the release of myoglobin, a haem pigment, which through multiple effects can result in nephrotoxicity and ARF (Zagar, 1989 and Better and Steain, 1990). The main mechanism is likely to be intra-luminal obstruction by haem pigment casts and ischemia (Luscher, 1991) and a direct or iron-mediated proximal tubular injury. Treatment should be directed at reducing the nephro-toxic potential of the released pigments which can be achieved by rehydration, correction of acidosis, maintaining good urine output and establishing a urinary pH of 7.0 by forced alkaline diuresis (Prabhakar *et al.*, 2000)

**References**

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