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Thiamine Responsive Poli-oencephalomalacia in a Swan Goose- A Case Report

S.U.Digraskar*, S.T.Borikar, A.S. Tawheed, B.S. Nithin, S. Neelam and S. Kumbhar

Department of Veterinary Medicine

College of Veterinary and Animal Sciences, MAFSU, Parbhani (Maharashtra)

Corresponding Author: sudigraskar@gmail.com

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Thiamine (vitamin B_1) deficiency in birds is caused by malnutrition or thiaminase-rich foods (raw freshwater fish) or foods high in anti-thiamine factors (betel nuts).Thiamine is an essential water soluble vitamin contributing phosphate derivatives that are involved in many cellular processes as coenzymes in the catabolism of sugars and amino acids. Also thiamine triphosphate (TTP) helps in proper functioning of neuronal membranes (Cooper and Pincus, 1979) and its deficiency leads to polyneuritis which is manifested as lethargy, head tremors, impaired digestion, general weakness, star-gazing and frequent convulsions (Aiello, 2016; *Susan, 2016)*.

History, Clinical Examination and Management

A two year old male swan goose was referred to the Department of Veterinary Medicine with a history of dullness, attacks of head tremors, star gazing, convulsions and general weakness since last 3-4 days. Anamnesis revealed decrease in appetite since a week consequent to feeding of raw fish. Clinical examination revealed decreased respiration rate and body temperature (103.1°F), sitting on flexed legs with frequent retraction and drawing back of head in a star-gazing posture (Fig. 1,2). The swan goose was unable to stand upright or to walk.

Fig. 1: Swan goose showing star-grazing posture

Fig. 2: Swan goose showing retracted headand convulsions

The case was diagnosed as polioencephalomalacia on the basis of typical pattern of clinical signs, posture and history of raw fish feeding. The swan goose showed drastic response to thiamine@10mg/kg b.wt. intramuscularly within 30 minutes and there was complete abolition of head tremors, convulsions and star-gazing posture (Fig. 3). The goose started walking normally. Injectable thiamine preparation was continued for three days followed by oral multivitamin supplementation for next fortnight to prevent the recurrence of the clinical signs.

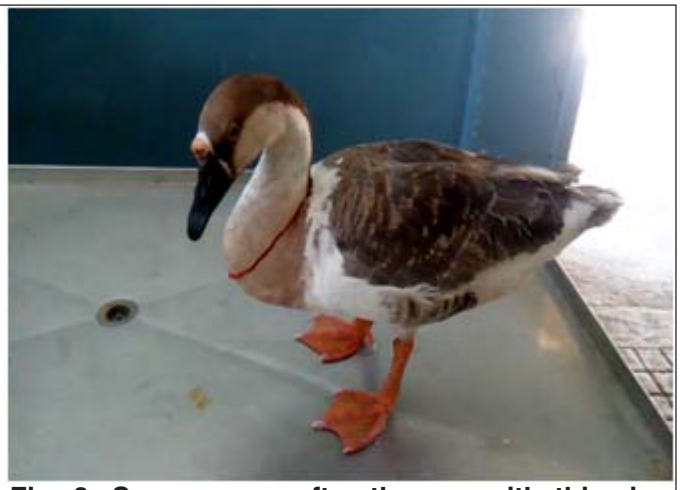

Fig. 3: Swan goose after therapy with thiamine ingection

Discussion

Polioencephalomalacia occurs due to exhaustion of thiamine that acts as co-factor in biochemical reactions resulting in build-up of the intermediates of carbohydrate metabolism. Also thiamine triphosphate (TTP) helps in proper functioning of neuronal membranes (Cooper and Pincus,1979) and its deficiency leads to polioencephalomalacia. Thiamine deficiency leads to inappetance initially and later on there is complete anorexia which can be reversed only by supplementation of thiamine (*Susan, 2016)*. Thiamine deficiency also leads to decreased physiological processes such as body temperature and respiratory rate.

The present case demonstrates typical clinical picture of thiamine deficiency induced polioencephalomalacia and its management. From the present case study it can be concluded that the response to treatment in thiamine deficiency cases can be dramatic when administered appropriately. The affected swan goose showed drastic response just 15-20or 30minutes after giving injectable thiamine. However, to treat completely and prevent recurrenceof the clinical signs, injectable thiamine (10mg/kg b.wt.,i/m) was continued for three days followed by oral multivitamin supplementation rich in thiaminefor next fortnight period.

Conflict of Interest: All authors declare no conflict of interest.

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