

### IDEOPATHIC JAUNDICE IN A MARE: A CASE REPORT

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The liver plays an important role in the equine digestive, endocrine, coagulation and immune systems. Its primary functions are detoxification, synthesis of proteins and biochemical products necessary for digestion. The liver is an organ with an extremely important reserve function and therefore it requires a loss of at least 60-80 % of organic mass to show signs of liver failure. The most common signs of liver disease in the horse are icterus (Fig. 1 & 2), behavioural change and



**Photo 1: Icteric eye mucus membrane**



**Photo 2: Icteric gums**

weight loss. Other signs include photosensitisation, inspiratory stridor and occasionally diarrhoea. Obviously none of these signs are pathognomonic for liver disease and none are consistently present in every case. Hepatic encephalopathy is common in liver disease in horses, and signs may vary from subtle depression to marked viciousness (Peek *et al.*, 1997). Increased serum concentrations of several intracellular enzymes have been reported to be useful in establishing the diagnosis and prognosis of the equine hepatopathies (Durham *et al.*, 2003). In equines, liver function can be evaluated by specific enzymes such as Sorbital dehydrogenase and Gamma glutamyltransferase which reflects hepatocellular and hepatocyte injury (Ambrojo *et al.*, 2013). Treatment varies depending upon the cause and in most equine cases supportive treatments include crystalloid therapy with supplemental dextrose and hepato-protectants (Divers, 2005).

#### CASE HISTORY AND OBSERVATIONS

A 6 year old Kathiawari mare was examined at Tarapur taluka of Anand district with the history of dullness, depression and inappetance since two days. Mare was brought by the owner from Bhavnagar district after travelling 300 km before five days. Upon examination the mare was lethargic, dull and

depressed. The physiological parameters, i.e. capillary refill time (<1 minute), pulse rate (34/minute), respiratory rate (15/minute) and rectal temperature (100.2°F) were normal, whereas mucus membranes were slightly hyperaemic. Depending upon history and clinical signs, the case was tentatively diagnosed as transportation stress and was treated accordingly.

## CLINICAL MANAGEMENT AND DISCUSSION

The mare was provided symptomatic therapy with intravenous infusion of dextrose saline (5% DNS, 4 litres, Claris), Ringer's lactate (4 litres, Claris) and 10 ml of multivitamins (Neuroxine, Zydus Animal Healthcare) as well as 10 ml of pheniramine maleate (Avilin, Intervet India), 10 ml of flunixinemeglumine (Unizife, 83 mg/ml, IntasPharma) and 4.5 g of amoxicillin and salbactam (Amoxirum Forte, Virbac), parenterally. Following first day of treatment, the mare resumed partial feed and water intake, yet continued showing signs of lethargy, inappetance and depression for next two days. On further examination, the mucus membrane of the gums, eyes (Fig. 1 & 2) and skin of the ear revealed a yellow tinge (icterus). For further confirmation and treatment, blood sample was collected to rule out hepatic insufficiency. Haemato-biochemical analysis revealed Hb 7 mg/dl, AST 320 IU/L, GGT 48 IU/L and total bilirubin 7.8 mg/dl. Blood culture did not yield any bacterial growth. Thus following laboratory reports, the case was diagnosed as that of jaundice and subsequently treated for that with i/v fluids [dextrose saline (5 % DNS, 6 litres), normal saline (4 litres)], intravenous antibiotic (4.5 g of amoxicillin and salbactam), and i/m injections of 10 ml Belamyl (Zydus Animal Health Care), 1 ml iron dextran (50 mg/ml, Rex Pharma) along with oral administration of 50 g of Sharkoferrol gel (Alembic Pharma, Vadodara) and 100 ml of Vitakind liquid (Vet Mankind). Treatment was continued for 11 days and the owner was advised to provide the mare with horse-gram in feed and complete rest with no exercise.

During treatment, intensity of icterus from the gum and eye mucus membrane and ears gradually reduced but hepatic encephalopathy with photosensitization developed as mare showed signs of aggression with rashes on body. Thus immediately, mare was removed from direct sun light to dark shed, to prevent further development of rashes. 4 ml of xylazine (Inj. Xylin, Indian Immunologicals Ltd., Hyderabad) was given i/m to tranquilize the mare. The response to treatment was observed with improved appetite and passing of whitish yellow urine and normal defecation. The post-treatment blood analysis revealed normal levels of Hb 12 mg/dl, AST 180 IU/L, GGT 20 IU/L and bilirubin 2.8 mg/dl indicating improvement in hepatic function. Vitakind-Liv (Vet Mankind), a liver tonic (100 ml daily) was further continued for the next 15 days. The animal made an uneventful recovery.

Horses and foals are most likely to develop liver disease or damage when they have a pre-existing septic, hypoxic, neoplastic, toxic or metabolic condition. The predominant signs of a horse experiencing acute or sudden liver failure are neurologic deficits and icterus. Liver failure caused by abnormalities in the biliary system will most often be presented with marked icterus, photosensitivity and colic, probably because of an obstruction in the bile duct and possible enlargement of the liver. Icterus is produced by the liver's inability to take up, conjugate and excrete bilirubin (Bergero and Nery, 2008). Photosensitization occurs when the liver is unable to process chlorophyll (the green pigment). An intermediate metabolite of this process called phylloerythrin reacts with ultraviolet light in sunlight to produce toxic free radicals that cause severe tissue damage (Equineews, 2010).

The first line of treatment for hepatic insufficiency is supportive therapy, which is to be started before the underlying cause and extent of injury is known. Affected animal should be fed to avoid problem of dysphagia and should be given diet which meets the daily need of energy containing mostly digestible carbohydrate, adequate but not excessive protein and moderate to high starch to decrease hepatic glucose synthesis (Davoudi *et al.*, 2013). Molasses can be given in small quantity. Supplementation of vitamin A, B<sub>1</sub> and folic acid and possibly Vitamins C and E are also indicated. Large amount of fat should be avoided as it may lead to development of fatty liver. An intravenous polyionic fluid with vitamins B is recommended in horses with inappetance.

Due to lack of proper history and negative blood culture report, the actual aetiology of the present case could not be ruled out, although it could be due to biliary obstruction.

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