Case Report

A CASE REPORT OF CHRONIC HEPATITIS WITH EFFUSION IN A DOG AND ITS THERAPEUTIC MANAGEMENT

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ABSTRACT

The present study was aimed to know the chronic hepatitis with abdominal effusion in a beagle dog and its therapeutic management. A 2.5 year old male beagle was presented to Madras Veterinary College teaching Hospital, madras veterinary college, Chennai with the history of inappetence, abdominal distension for past 10 days and the clinical signs of inappetence, fever and palpablelymph node and congested mucous membrane. On Physical examination, dog showed respiratory distress and dull. Dog was subjected for radiography examination, haematology, biochemistry parameters and ultrasound examination. On first day of examination, dog was treated with Lasix at the dose rate of 3 mg/kg body weight, antibiotics and Tribivet injection. Hematology and biochemical values revealed neutrophilia, elevated alkaline phosphatase, total bilirubin, direct bilirubin, and decreased total protein and albumin. The lateral view radiography of abdomen revealed fluid shadow and ultrasound examination revealed that chronic hepatitis with moderate abdominal effusion. In case of clinical suspicion of hepatitis an ultrasonographic liver scan can be of diagnostic aid and the finding of an altered structure can be indicative of a liver problem. In many cases of chronic hepatitis may not be associated with ultrasound abnormalities but ascites can be easily identified. Dog was treated with antibiotic cefotaxime at the dose rate of 25 mg/Kg body weight and Lasix at the dose rate of 3 mg/Kg body weight with liver supplement of Lysibin which contain silymarin and supplement with Astymin syrup for 3 weeks. The animal was reviewed after three weeks of treatment which was subjected for haeamtology, biochemistry and ultrasound examination which revealed there was improvement in the blood

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parameters with decreased total protein and normal level of Alkaline phosphatase and bilirubin level and ultrasound examination revealed normal study of abdominal effusion and liver echogenicity and dog had normal appetite and normal vital parameters. In this case hepatitis may be due to any viral etiology like adenovirus that may cause hepatitis with effusion that may be respond to treatment and diuretics and brought normal parameters of vital in dog. Chronic hepatitis with effusion may be further confirmed by Liver biopsy and molecular diagnosis.

Key Words: Abdominal Effusion, Alkaline phosphatase, chronic hepatitis. Hepatitis, dog

INTRODUCTION

The main function of the liver is metabolism of carbohydrate, protein, fat, detoxification, secretion and storage of bile acids and salts (Ahmedullah *et al.,* 2008). Hepatitis is inflammation of the liver. It is a syndrome - a group of clinical signs or symptoms immediate inflammation in their liver called acute hepatitis or long-term inflammation called chronic hepatitis. Hepatitis can be infectious and non-infectious (Gura and Acab 2011). Hepatitis may be occurred occasionally in older animals and in younger animals it may be occur as congenital and acquired in origin. (Pallavi *et al.,* 2017). Hepatitis may be classified into acute and chronic hepatitis (Ming *et al.,* 2015). Acute hepatitis is the combined inflammation of hepatocellular cell death, regeneration and necrosis of liver tissue results in sudden death of animals within 48 hours (Pritt *et al.,* 2010). Chronic hepatitis is the long-term pathological process of continuous destruction of liver tissue and end in fibrosis result in death (Hideyuki *et al.,* 2017) and irreversible in nature.

Chronic liver disease involves hepatic lipidosis, neoplasia, cholangitis and cirrhosis (Sherman and Tran, 2006). The etiology for chronic hepatitis is unknown so that it is called as idiopathic. Causative agent for chronic hepatitis is aflatoxin, anticonvulsants (Van *et al.,* 2006) and leptospiral infection (Boomkens *et al.,* 2004). Bedlington terrier have genetic mutation of copper transporting proteins causes accumulation of copper in the hepatocytes leads to chronic hepatitis (Spee *et al.,* 2006). Canine Adeno virus type 1 cause acute hepatitis in immune suppressed dogs (Boomkens *et al.,* 2004).

Breeds like west highland white terrier, skye terrier, Dalmation and labrador (Van *et al.,* 2006) highly familial to copper accumulation lead to chronic hepatitis. Labrador retriever has hereditary primary copper storage disorder (Hoffmann *et al.,* 2006). Breeds commonly associated with chronic hepatitis are Doberman, Anatolian shepherd, boxer, Norwich terrier, white for terrier, bull terrier, cocker spaniel (Hoffmann *et al.,* 2006). This study was aimed to know sequel of the chronic hepatitis with abdominal

effusion in a beagle dog which was presented at Madras Veterinary College Teaching Hospital, Madras Veterinary college, Chennai with the history of inappetence, abdominal distension for past 10 days and clinical signs of inappetence, fever and palpablelymph node and congested mucous membrane.

CASE HISTORY AND OBSERVATION

A 2.5-year-old male beagle was presented to Madras Veterinary College Teaching Hospital, Madras Veterinary College, Chennai with the history of inappetence and abdominal distension for past 10 days with clinical signs of inappetence, fever and palpable lymph node and congested mucous membrane with distended abdomen. On Physical examination, dog showed respiratory distress, dull with muffled heart sounds. Dog was subjected for radiography examination, liver function test, haematology. biochemistry parameters and ultrasound examination.

Haematology and biochemical examination revealed neutrophilia, elevated alkaline phosphatase, total bilirubin, direct bilirubin, and decreased total protein and albumin. The radiography of lateral view of abdomen revealed fluid shadow and dog was scanned by using Aeroscan ultrasound machine with the probe type of curvilinear and the site of examination was xiphoid area shown increase echogenicity of liver parenchyma and irregular border with diffuse anechoic areas with floating abdominal structure and revealed that chronic hepatitis with moderate abdominal effusion.

RESULTS AND DISCUSSION

On day one, the dog was treated with Inj. DNS, Inj. Lasix® at the dose rate of 2mg/kg body weight IV, antibiotic and Inj. Tribivet®. On day two, dog was treated with antibioticInj. Cefotaxime at the dose rate of 25 mg/Kg body weight IV and Inj. Lasix® at the dose rate of 3 mg/Kg body weight with liver supplement of (Anti-oxidant) Lysibin medium contain silymarin for 10 days and supplement with Astymin®syrup with dietary management for2 weeks, after three weeks post treatment changes was analysed.

In the present study, an elevated level of serum bilirubin was (1.63 mg/dL) recorded but the normal level is 0.1-0.3 mg/dL, which indicate the presence of Jaundice (Stockham and Scott, 2008). A decreased level of albumin was 1.7 mg/dL was recorded in the present study. Stockham and Scott (2008) reported that albumin is produced by hepatocytes and normal albumin level for dog is 2.7-4.4 mg/dL but hypoalbuminemia is not specific to liver diseases its mainly due to protein-losing enteropathy, vasculitis, blood loss and skin injury (Larson, 2007). Daniel (2010) reported that an elevated level of Alanine amino transferase to 235 U/L indicate hepatocellular injury and may also noticed in muscle injury and gastrointestinal diseases. ALT level is 5 -107 U/L which was in normal. In the present study, Alkaline Phosphatase was 1390 U/L. Thapa and Anuj (2007) explained that ALP was the primary indicator of Cholestasis and severe bone diseases due to steroid induction.

Table1. Haemato-biochemisrty of dogs with chronic hepatitis (Before treatment)

Haemogram parameters	Values	Differential count	Percentage	Biochemistry parameters			
Hb	12.5 g/dL	Neutrophils	85	Glucose(mg/dL)	80	Total bilirubin (mg/dL)	1.72
PCV	30 %	Lymphocyte	20	Cholesterol (mg/dL)	196	Direct bilirubin (mg/dL)	1.63
RBC	6.75 m/cmm	Monocytes	5	ALT (U/L)	235	BUN (mg/dL)	9.69
WBC	12,200/cmm			ALP (U/L)	1390	Creatinine (mg/dL)	0.98
Platelets	1,00,000 /cmm			Total protein(g/dL)	3.9	Calcium (mg/dL)	7.77
Parasite	Negative	Blood picture	Neutrophilia	Albumin (g/dL)	1.7	Phosphorus (mg/dL)	3.83

Table 2. Haematology-biochemistry of dogs with chronic hepatitis (After treatment)

Haemogram	Values	Differential count	Percentage	Biochemistry Parameters			
Hb (g/dL)	13	Neutrophila	80	Glucose mg/dL	80	Total bilirubin (mg/dL)	0.57
PCV (%)	34.1	Lymphocyte	15	Cholesterol mg/dL	196	Direct bilirubin (mg/dL)	0.11
RBC (m/cmm)	6.56	Monocytes	4	ALT U/L	151	BUN (mg/dL)	5.69
WBC (cmm)	7000			AL U/L P	71	Creatinine (mg/dL)	0.53
Platelets	1,55,0000 /cmm			Total protein (g/dL)	3.9	Calcium (mg/dL)	11.77
Parasite	Negative	B l o o d picture	NAD	Albumin (g/dL)	2.3	Phosphorus (mg/dL)	4.83

Radiographic report of this case indicated that fluid shadow appearance in the abdomen on the lateral view and Erina (2018) and Thapa and Anuj (2007) suggested the use of radiography for identification of extra hepatic abnormalities.

The ultrasonography revealed that there was reduced liver size, irregular contour with heterogenous contour. Moderate diffuse anechoic areas in the abdomen with floating abdominal organs which indicative of chronic hepatitis with moderate abdominal effusion. After treatment, the ultrasonogram evaluation showed normal impression with respect to liver size, border, parenchyma, hepatic and portal veins, gallbladder and effusion. Erina, 2018 reported that the ultrasonography was the most practical diagnostic imaging procedure for detecting hepatobiliary disease and ultrasound showed alteration in the tissue structure as difference in echogenicity also detecting heterogenous structures within the liver parenchyma. Animal was reviewed after three weeks of treatment, which revealed normal ultrasonogram images, liver enzymes and blood parameters. Hepatitis may occur due to infectious (Viral, bacterial, parasitic and Mycotic) and non-infectious (Drugs and toxins, Wilson's disease), autoimmunity hepatitis, reactive hepatitis, endocrine disorders like (Diabetes mellitus, Hyperthyroidism, Hyperadrenocorticism) and bile duct obstruction. Therefore, this case of chronic hepatitis may be any one of the above listed originsand treatment with antibiotics and dieuretics treatment the animal responded well and recovered.

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