PATHOLOGICAL CHANGES IN CANINE LEPTOSPIROSIS *

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ABSTRACT

Post mortem examinations were conducted in 10 dogs that died during treatment for canine leptospirosis. Liver & kidneys were enlarged with varying degrees of vascular & degenerative changes. Histopathologically, liver revealed varying degrees of vascular & degenerative changes with scattered areas of mononuclear cell infiltration and kidney revealed vascular changes, cystic dilatation, tubular necrosis with interstitial lymphoplasmacytic & neutrophilic infiltration.

Key Words: Canine leptospirosis, Gross and Histopathological changes.

INTRODUCTION

Leptospirosis is a disease of major zoonotic importance, which affects both human and animals. Distinctive antigenic components of L.interrogans are used to differentiate a number of serogroup which are then subdivided into various serovars (Scanziani et al., 1994). Greene et al., (1998) reported that infection of dogs with serovars canicola & grippotyphosa has been associated with predominantly renal dysfunction with minimal liver involvement, whereas serovars icterohaemorrhagiae & pomona produces mostly hepatic disease. The present study describes the gross pathological and histopathological changes in leptospirosis.

MATERIALS AND METHODS

The study was undertaken at the Madras Veterinary College Teaching Hospital. Fifty (50) dogs with leptospira positive titre greater than or equal to 100 in Microscopic Agglutination Test (MAT) were taken for the study. Among them 10 animals were died during treatment. Post mortem results obtained were presented and critically discussed.

RESULTS AND DISCUSSION

Gross pathological changes observed were hepatomegaly with mottled appearance in 2 dogs (20%), yellowish brown to grayish discoloration in 5 dogs(50%) and multiple nodules in 6(60%) dogs. Monlux (1948) reported pale and slightly more friable liver with multiple petechial and ecchymotic haemorrhages in the hepatic duct system. Prescott (2007) reported that dogs dying of acute leptospirosis had widespread haemorrhages and focal necrosis in the liver. Present findings are in concurrence with Monlux, (1948) & Prescott (2007).

Histopathological changes of liver were moderate to marked congestion of the sinusoids (Fig.1) in 7 dogs (70%), varying degree of degenerative changes (Fig.2) in 5 dogs (50%), bile

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duct hyperplasia with focal to multifocal areas of mononuclear cell infiltrations in 5 dogs (50%) and a solitary case of periportal cirrhosis in 1 dog (10%).

Birnbaum et al., (1998) recorded severe dissociation of hepatocytes, perivenous oedema, and neutrophilic infiltration in the liver. Hepatocyte dissociation with intrahepatic cholestasis and hepatocytic necrosis were the hall marks of leptospirosis infection in dogs (Greene et al., 1998).

Present findings are in general agreement with the observations of Birnbaum et al., (1998) & Greene et al., (1998).

Gross pathological changes observed were kidney enlargement in 2 dogs (20%), capsular adhesion to the cortex in 7 dogs (70%), vascular changes in the cortex with focal to multifocal areas of whitish to grayish discolouration in 5 dogs (50%).

Confer and Panciera (1997) stated that in diffuse interstitial nephritis, kidneys were swollen and pale, with a random gray mottling seen from the capsular surface. Prescott, (2007) reported that in acute disease kidneys were swollen and had subcapsular and cortical ecchymotic haemorrhages. Present findings are in agreement with Confer & Panciera (1997) & Prescott, (2007).

Histopathological changes of kidney were mild to severe congestion in 7 dogs (70%), cystic dilatation of tubules in 2 dogs (20%), tubular necrosis in 1 dog (10%), glomerular atrophy with scattered interstitial lymphoplasmacytic infiltration (Fig.3) in 2 dogs (20%), multifocal interstitial mononuclear infiltration (Fig.4) in 2 dogs (20 %) & neutrophilic infiltration in 5 dogs (50%). Birnbaum et al., (1998) recorded a moderate to severe, primarily lymphoplasmacytic and neutrophilic tubulointerstitial nephritis. These findings are in accordance with Birnbaum et al., (1998).

REFERENCES


Liver - Congestion of central vein, Sinusoids and thinning of hepatic cords

Liver - Diffuse vacular degenerative changes in the hepatocyte
Fig. 1
Kidney - Ferriglomerular Fibrosis, hyperemia & interstitial mononuclear cell in infiltration

Fig. 3
Kidney - Interstinal accumulation of Lymphocytes and plasma cells with mild tubular degeneration