



## LEPTOSPIROSIS IN A DOG : A CASE REPORT

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### INTRODUCTION

Leptospirosis is a zoonosis of world wide distribution caused by infection with pathogenic spirochetes of genus *Leptospira*. It has been recognized as a re-emerging infectious disease.

Leptospire are maintained in nature by numerous subclinically infected wild and domestic animals that serve as a potential source of infection and illness for people and other incidental animal hosts.

This report details the investigation carried out in a dog presented to the University Veterinary Hospital, Kakkal Thrissur with symptoms suggestive of leptospirosis.

### MATERIALS AND METHODS

The animal was screened for leptospirosis with dark field microscopic examination, DFM and microscopical agglutination test (MAT) as performed in serum sample with reference strains of *Leptospira* organism.

Haematological and biochemical analysis, abdominal ultrasonographic evaluation of liver, kidney and urinalysis were carried out.

### RESULTS AND DISCUSSION

The dog presented with symptoms of anorexia, vomiting. The animal was weak, recumbent and mucous membrane of conjunctiva and vagina revealed jaundice. Temperature was below 98°F and pulse was 60/min. Clinical manifestations were indicative of multisystemic involvement.

No blood parasites could be detected on wet film and blood smear examination. No parasitic ova were detected in the faecal sample examined. The animal was vaccinated against rabies only.

Blood and urine samples were processed and examined under DFM and no moving leptospire

could be detected. DFM can detect leptospire only when large numbers of viable leptospire are present in the clinical samples (Birnbau et al).

MAT revealed agglutinating antibodies to leptospire in the serum sample and showed a titre of 1:1000 to *L. autumnalis*, *L. hebdomadis*, *L. pyrogens* and *L. javanica* indicating the animal was positive for leptospirosis. But his finding is contrary to result of other studies (Indu and Soman) that showed *Leptospira pomona* as a predominant serovar among dogs in and around Thrissur. The data indicate that there has been a change from the traditional serovar typically caused in dogs. So development of a multivalent vaccine with serovars of higher occurrence in a particular geographical area is necessary.

**Table 1: MAT titre**

SI No	Reference strains	Titre
	<i>L. icterohaemorrhagiae</i>	
	<i>L. autumnalis</i>	
	<i>L. australis</i>	
	<i>L. hebdomadis</i>	
	<i>L. pyrogens</i>	
	<i>L. javanica</i>	

Haemogram revealed marked leucocytosis ( $15 \times 10^9/\mu\text{l}$ ) and platelet count was in normal range. On biochemical analysis, elevated levels of serum creatinine and total bilirubin with values 2.5 mg/dl and 1.5 mg/dl respectively were observed. The increased mean serum creatinine showed the animal was azotaemic.

Renal failure was the typical response to leptospiral infection in an unadapted host such as the dog (Birnbau et al and Golstein et al).

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**Table H Haematological values**

Sl No	Parameter	Value
1	RBC(X $\mu$ l)	
	WBC(X $\mu$ l)	
	Neutrophil( )	
	Lymphocyte( )	
	Platelet(X $\mu$ l)	
	Hb(g dl)	
	PCV( )	

**Table B Biochemical values**

Sl No	Parameter	Value
	Creatinine mg dl	
	Protein g dl	
	Albumin g dl	
	Globulin g dl	
5	AG	
	Bilirubin mg dl	
	Bilirubin Direct mg dl	
	Bilirubin Indirect mg dl	

Following localisation in the renal tubules it was proposed that leptospiral toxins cause necrosis of adjacent tubular cells with resultant nephrosis and subsequent renal failure Miller et al resulting in an increased level of serum creatinine

On abdominal ultrasonography architecture of kidney was not clear and cortico medullary distinction could not be appreciated Liver showed slight enlargement in size and hypo echoic areas were noted In acute chronic target localization of organisms in the kidney tubules and liver parenchyma would create morphological abnormalities in the surface of kidney and liver which could be evaluated by ultrasonography

Urinalysis was performed and proteinuria glucosuria and bilirubinuria was observed Renal

tubular damage might be the cause of proteinuria and glucosuria Goldstein et al

The animal was treated with Benzyl penicillin and supportive therapy was given But the animal succumbed on third day of treatment

### CONCLUSION

Clinical manifestations were indicative of a multisystemic involvement Haemato biochemical analysis indicated marked leucocytosis azotaemia and hyper bilirubinemia Abdominal ultrasound had the potential role to play in the earlier diagnosis of canine leptospirosis Urinalysis showed proteinuria glucosuria and bilirubinuria A very less survival rate was noted in the present study

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