

# Incidence of Leptospirosis in Captive Asiatic Elephant (*Elephas maximus*)

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Leptospirosis is one of the commonly encountered zoonotic diseases in domestic livestock. However, the incidence of leptospirosis is rarely documented in wild animals especially the pachyderms. Rats are the predominant natural carriers of leptospiral serovars in general and sometimes wildlife hosts like the mongooses were included in the list of carriers. Most human cases of leptospirosis are due to the accidental contact with the affected animals or the water contaminated with the urine from the infected animals.

An adult Asiatic elephant reared at the Arulmihu Devi Karumariamman Temple Devasthanam, Thiruverkkadu was reported to have intermittent anorexia earlier and history revealed that animal was subjected to treatment for respiratory infection earlier. Signs of health like routine movements of tail, head and limbs were apparently visible and mucous membrane was rosy pink. Blood was obtained from ear vein for haematological and biochemical profiles and for Microscopic Agglutination Test (MAT).

The haematological examination revealed PCV of 28%, haemoglobin of 10 gm%, total RBC count of 5.6 m/Cu mm and total WBC count of 6000/Cu mm. The differential WBC count revealed absolute counts of neutrophils, lymphocytes, monocytes and eosinophils as 2520, 2760, 360 and 360/Cu mm, respectively. The biochemical profile revealed Blood Urea Nitrogen (BUN) of 8.73 mg/dl, creatinine of 1.29 mg/dl, total protein of 7.30 gm/dl, albumin of 2.95 gm/dl, Aspartate Aminotransferase (AST) of 36.4 IU/dl, Alanine Aminotransferase (ALT) of 23.3 IU/l and Alkaline phosphatase (ALP) of 49.8 IU/l. The microscopic agglutination test (MAT) revealed evidence of leptospiral antibodies related to the serovars group, with a titre of 1:1600 and the Polymerase Chain Reaction (PCR) carried out with Lip L32 specific primers revealed the serovars as *Leptospira pyrogenes* and Marker used was Lip L32 and the PCR procedure revealed 765 bp band (Cheema *et al.*, 2007) and the primer details used were given below:

FP: GC GAC ATG AAA AAA CTT TCG ATT TTG  
RP: CTG CAG TTA CTT AGT CGC GTC AGA AGC gtc  
gas

The sero-prevalence of leptospirosis was reported in multiple wild animal species belonging to the families like canidae, felidae, procyonidae, ursidae, viverridae, cervidae etc. by Wallach and Boever (1983) and was documented in raccoon, fox and jackal by Carter *et al.*, (1995). Similarly sero-prevalence of leptospirosis was documented in wolves and feral dogs by Jayathangaraj *et al.*, (1997). Lip 32 is a gene found in pathogenic leptospire and was used as a marker in many studies.

Except the intermittent anorexia, no other specific clinical signs were evident in the elephant under study. This was in agreement with the findings reported by Fowler and Mikota (2006) who stated that elephants could develop a positive titre to one or more sero groups of leptospire, but clinical disease did not occur. However, anorexia as found in this case was reported as one of the signs in leptospirosis affected elephants. Fowler and Miller (2008) opined that in case of captive wildlife, leptospirosis was often an insidious infection that might result in chronic renal disease and high rates of reproductive failure and outbreaks of human diseases were often associated with increase in rodent population after heavy rainfall or during floods. Fowler (1986) also quoted about the incidence of leptospirosis in many wild animal species and rodents were found to be the carrier species of leptospirosis and might serve as the sources of infection to other animals as well as humans. Finding the evidences on leptospiral serovars like *Leptospira pyrogenes* in this elephant was further in agreement with the report furnished by Arora (2003) who encountered the antibody titre of 1:1000 with *Leptospira volbuzzi* as well as the antibody titre of 1:200 with *Leptospira pyrogenes* in apparently healthy captive elephant and further quoted about the occurrence of different leptospiral serovars in elephants like *L. pomona*, *L. icterohaemorrhagiae*, *L. grippotyphosa*, *L. hebdomadishebdomadis*, *L. hardjo*, *L. canicola* etc.

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