

# Successful treatment of Leptospirosis in a captive lioness -- a case report

K.S. Subramanian<sup>1</sup>, K. Vijayarani<sup>2</sup> and R. Thirumurugan<sup>3</sup>

## Introduction

Incidence of leptospirosis has been reported in wild animals like opossums, rats, mongooses (Rim *et al.*, 1993) captive tigers and lion (Arora, *et al.*, 1985). Some of them act as carriers, potentially shedding the organisms in urine and transmitting the infection to other animals. This paper reports the incidence of leptospirosis in a captive lioness and its successful treatment.

## History and Observation

An adult lioness belonging to rescue and rehabilitation centre of Arignar Anna Zoological Park, Chennai was noted to have haematuria. She was straining whilst urinating and was anorectic for 5 days. The lioness was physically restrained in squeeze cage and blood sample was collected from the lateral coccygeal vein. The blood sample was analysed for haematology, biochemistry and leptospiral organisms.

## Results and Discussion

Haematological examination revealed normal parameters but biochemical parameters revealed elevated levels of BUN and Creatinine (147.96 mg / dl and 1.82 mg /dl respectively). Serological examination of the blood sample by dark field microscopy which revealed the presence of leptospiral organisms. Examination of blood smears was negative for haemoprotozoan infection. In addition, the serum sample was subjected to latex agglutination test to identify whether the organism is in a pathogenic or non-pathogenic state (Levett *et al.*, 2005 ) which revealed positive results indicating that the lioness is infected with pathogenic leptospira though the species of leptospira could not be identified.

Doxycycline Hcl was administered @ 5mg/kg body weight orally mixed with fresh liver for 21 days and the lioness was monitored for the intake of medicine. The lioness started taking beef from 4<sup>th</sup> day after treatment and the colour of the urine changed to light pink with reduced straining on the 6<sup>th</sup> day of treatment. The lioness was shifted to a new nearby enclosure and rodent control measures were strengthened. In the second week the colour of the urine had become normal. She was urinating without straining and the lioness recovered completely. The lioness was closely monitored for 15 days after recovery for reoccurrence of any clinical signs, even though post recovery testing could not be done. The lioness was eating normally, urination and defecation and did not show any signs of illness.

Arora (2003) reported that leptospirosis was serologically diagnosed in a 21 month old male tiger with clinical signs like anorexia, pyrexia, distress, clonic spasms etc., Treatment was not successful and the animal died on 4<sup>th</sup> day of illness. Blood serum collected just before death was found to be positive for *Leptospira autumnalis*.

The elevated levels of BUN and Creatinine may be probably due to anorexia related dehydration, reduced micturition and concentration of urine and all this combined together would have contributed for the manifestation of symptoms mentioned above.

## Haematological parameters studied

S. No	Haematological parameters	Values	Normal ranges *
1	Hemoglobin (g % )	10.5	8 - 12
2	PCV (%)	35	35 - 40
3	RBC (mill / c mm)	5.18	7 - 8

## Biochemical parameters studied

S. No	Biochemical parameters	Values	Normal ranges *
1	BUN (mg/dl)	67.89	16 - 58
2	Creatinine (mg/dl)	1.57	0.7 - 4.0
3	Total Protein (g/dl)	7.93	4.4 - 9.1
4	Albumin (g/dl)	2.27	1.9 - 4.6
5	Glucose (mg/dl)	75.21	28 - 309
6	ALT (IU/l)	6.32	10 - 138
7	AST (IU/l)	1.78	2 - 82
8	Total Bilirubin (mg/dl)	0.14	0 - 1.0

As rodents and mangooses act as reservoirs, captive and free ranging wild animals are susceptible to leptospiral infection and many times the status of infection goes undiagnosed for want of appropriate clinical samples. In this case, the veterinary intervention, diagnostic sampling and treatment at the right time has yielded successful results. Prophylactic measures such as rodent control, proper drainage and sanitation are carried out as a precaution to protect other zoo animals.

## Summary

A case of leptospirosis in a captive lioness and its successful treatment is reported.

## References

- Arora, B.M., P.N. Kumar & N.S. Parihar (1985). Health monitoring and Disease surveillance in captive and free wildlife. Annual Scientific Report. Centre for Wildlife Conservation, IVRI, Izatnagar (UP).
- Arora, B.M. (2003). *Indian Wildlife Diseases and Disorders*. Association of Indian Zoo and Wildlife Veterinarians, Bariely. Pp. 82
- Levett, P.N., R.E. Morey, Turner & R.E. Mayer (2005). Detection of pathogenic leptospire by real time quantitative PCR. *Journal of Medical Microbiology*. 54: 45-49.
- Rim, B.M., C.W. Rim & L. Kakoma (1993). Leptospirosis serology in Korean wild animals. *Journal of Wildlife diseases*. 29: 602-603.

## Acknowledgement:

The authors thank the Director, Arignar Anna Zoological Park, Chennai and TANUAVS for the facilities provided.

<sup>1</sup>Department of Wildlife Science, Madras Veterinary College, Chennai 600 007, Tamil Nadu. Email: drkswildlifevet@gmail.com

<sup>2</sup>Associate Professor, Department of Animals Biotechnology, Madras Veterinary College, Chennai 600 007, Tamil Nadu.

<sup>3</sup>Zoo Veterinarian, Arignar Anna Zoological Park, Chennai, Tamil Nadu.