

OCCURRENCE OF LEPTOSPIROSIS IN A VACCINATED DOG - A CASE REPORT

Deepak Chandran¹ and P.V.Tresamol²

¹Senior Research Fellow, University Goat and Sheep Farm, ²Professor and Head,
Department of Veterinary Epidemiology and Preventive Medicine,
College of Veterinary and Animal Sciences, Mannuthy, Thrissur, Kerala - 680651

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ABSTRACT

A Labrador male dog aged 11 years weighing 25 kg was presented to Teaching Veterinary Clinical Complex, Mannuthy with a history of vomiting, anorexia and black coloured faeces. The animal had a history of regular vaccination and deworming. Physical examination revealed pale roseate mucus membranes, palpable lymph nodes, normal temperature and pain on palpation of the lumbar region. Peripheral blood smear examination revealed no haemoparasites. Dark Field Microscopy examination of blood revealed cork screw motility suggestive of Leptospire and serum sample was subjected to Microscopic Agglutination Test which was found to be positive for serovar Australis at 1:400 dilution. The animal was successfully treated with Amoxicillin-Cloxacillin @ 20 mg/kg b. wt. and supported with IV fluids, Pantoprazole and B complex vitamins for five days followed by Doxycycline @ 10 mg/kg b. wt. orally for 10 days. As there is no cross protection between the serovars there is risk of contracting the disease with non-vaccinal serovars, which warrants the need for including the locally prevalent serovars in the vaccine.

Keywords: Dog, leptospirosis, dark field

microscopy, microscopic agglutination test

INTRODUCTION

Leptospirosis continues to be a significant clinical condition in canine medicine. In addition to the increased number of cases, more diverse clinical presentations are being recognized. Selection of appropriate vaccines and interpretation of serological results in the presence of vaccinal titers are emerging issues in clinical practice. The serovars most commonly incriminated in canine infection and their common reservoirs include *L. canicola* (dog), *L. icterohaemorrhagiae* (rodents), *L. grippityphosa* (raccoon, skunk, opossum, vole), *L. pomona* (cattle, swine, skunks, opossum), and *L. bratislava* (rodents, swine) (Greene *et al.*, 2006). Infected animals become bacteremic and leptospira organisms multiply in the kidney, liver, spleen, central nervous system, ocular tissue and genital tract. In dogs, serovars canicola and grippityphosa results in more renal dysfunction, whereas serovars icterohemorrhagiae and pomona produce more hepatic damage (Adkin and Cowgill, 2000).

In dogs, the incubation period varies between three and 20 days; the most common signs of disease are anorexia, lethargy, vomiting, fever, weight loss,

polydipsia / polyuria, diarrhea, abdominal / lumbar pain, icterus / jaundice, stiffness / reluctance to walk (myalgia), enlarged kidneys, petechiae or sometimes severe hemorrhage, and low platelet count (Greene *et al.*, 2006).

Diagnosis of leptospirosis is based on a combination of suggestive historical information, physical findings, nonspecific laboratory findings and confirmatory testing. Confirmatory tests include serologic testing to detect antibody production to leptospira. Leptospiral infection has been based generally on serologic evidence. A wide variety of serological tests, which show varying degrees of serogroups and serovar specificity, have been described. Out of which, the two tests which have a role in veterinary diagnosis are the microscopic agglutination test (MAT) and enzyme-linked immunosorbent assay (ELISA) (OIE, 2000).

CASE HISTORY AND OBSERVATIONS

A Labrador male dog aged 11 years (Fig. 1) and weighing 25kg was presented to Teaching Veterinary Clinical Complex, Mannuthy with a history of vomiting, anorexia and black coloured faeces. The animal had a history of regular vaccination and deworming. Physical examination revealed pale roseate mucus membranes (Fig. 2), palpable lymph nodes, normal temperature (101.5°F), normal respiration (35/min.) and normal pulse rate (96/min.). Pain was elicited upon palpation of the lumbar region. Blood sample was collected and subjected to DFM, haematological and biochemical analysis. A serum sample was tested for leptospira antibody using MAT for the confirmation.



Fig. 1. Labrador male dog



Fig. 2. Pale mucus membrane

Peripheral blood smear examination revealed no haemoparasites. Dark field microscopy examination of blood revealed cork screw motility suggestive of Leptospire (Fig. 3). Serum sample was subjected to MAT and the sample was found to be positive for serovar Australis at 1:400 dilution. Haematological analysis showed anaemia and leucocytosis with granulocytosis, lymphopenia and monocytosis. Biochemical analysis revealed elevation in creatinine level (4.8 mg/dl).

Parameter	Value obtained	Reference range
RBC Count (million/mm ³)	4.29	5.5-8.5
Total WBC (/mm ³)	48300	(6000-17000)
Granulocytes (%)	77	(40-74)
Lymphocytes (%)	9.4	(12-30)
Monocytes (%)	8	(3-5)
ESR (mm/hr)	8	(5-25)
Hb (g%)	8.1	(12-18)
Platelet count (/mm ³)	2,90,000	(2-9 lakhs)
PCV(%)	28.5	(37-55)
MCV (fl)	66.4	(60-77)
MCHC (%)	28.4	(32-36)

Fig. 3. Microscopic Agglutination Test (MAT): Positive for serovar Australis at 1:400 dilution of serum and negative for 8 other serovars

TREATMENT AND DISCUSSION

The animal was treated with Amoxicillin-Cloxacillin (@ 20 mg/kg b. wt. bid as intravenously) and supported with IV fluids, Pantoprazole (@ 1 mg/kg b. wt. bid as intravenously) and B complex vitamins. The treatment continued for five days. Considerable improvement was reported in the condition. Animal started taking food and there was no vomiting. Further the treatment was continued with Doxycycline @ 10 mg/kg b. wt. orally for 10 days supported with Ranitidine and Tefroli vet. After one week, dark field microscopy of urine sample revealed no leptospira and all blood parameters came back to normal. The animal made an uneventful recovery and had put on weights.

Leptospirosis is reported frequently amongst dogs in various states in India (Srivastava, 2008). Even though

vaccination is practiced widely, the disease due to non vaccinal serovars was also reported (Pappas *et al.*, 2008). Vaccines are available for leptospirosis but are relatively weak and short acting and cannot protect against all 20 serovars. Currently the vaccines used in Kerala include pomona and icterohemorrhagiae. It is ineffective for the current serovar Australis that's causing the majority of infections in Kerala. According to the study conducted by Sari Prabha (2010), serovar Australis was most prevalent in Kerala. There is no cross protection among different serovars of Leptospirosis, so if pets in Kerala has been vaccinated for a different strain of Leptospirosis, they will still need to be vaccinated for *Leptospira interrogans* serovar Australis. In the present study the disease was successfully treated with Amoxicillin-Cloxacillin and Doxycycline combination.

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