MICROFILARIAE IN DOG: A CASE REPORT

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A six year old male cocker spaniel dog on clinical examination revealed pale mucous membrane, 103.4^{0}F rectal tempreture, tachypnea, tachycardia, and systolic murmurs. Haemato-biochemical examination revealed amaemia, leukocytosis, neutrophilia, eosinophilia, monocytosis and increased level of alkaline phosphate, alanine aminotransferase, aspartate aminotransferase enzyme, creatinine and blood urea nitrogen levels. Blood smears were found positive for the presence of *Dirofilaria Imitis*. The case was treated with Di ethyl carbamazine and Ivermectin. The successful management of the case with prompt therapeutic approach and supportive therapy is reported.

Key words: *Dirofilaria Imitis*, Dog, Microfilariae, Therapy.

Canine Dirofilariosis is a common heart worm disease caused by *Dirofilaria immitis* nematode infestation. All canine *Microfilariae* are zoonotic and therefore remain important from public health perspective (Irwin and Jefferies, 2004). *Dirofilaria immitis* is ubiquitous in both tropical and subtropical latitude, recognized increasingly in India. It is most prevalent in dogs of 3.5-7.5 years age group, increasing with age and decreasing after 10-12 years. Prevalence is observed to be related to the environment with higher incidence in outdoor dogs compared to house dogs while no evidence of other factors like breed, sex, length of hair coat affecting the vulnerability of dogs was reported. Adult *Dirofilaria immitis* normally lives in right ventricle but may also be present in pulmonary artery, posterior venacava, and anterior chamber of eye and interdigital cysts. Adult parasite may live for 3 to 5 years. Female parasite releases larvae directly in blood stream. Larvae can also be present in cerebrospinal fluid. Tranplacental transfer can also occur. The present paper describes successful management of Microfilariae in dog.

A six year old male cocker spaniel weighted 11 kg was referred to Veterinary Clinical Complex, COVAS, Pantnagar with the complaint of inappetence from the last 10 days, reduced water intake, lack of stamina along with heavy breathing during exercise. Occasional slight coughing and dark brown coloured urine was also reported. On clinical examination, the dog was extremely dull and depressed. Exercise intolerance was observed along with the signs of paroxysmal coughing and dyspnea. Mucous membrane was pale. The rectal temperature recorded 103.4^{0}F with tachypnea, tachycardia and auscultation revealed systolic murmurs. On thick smear examination; Microfilariae of *Dirofilaria Imitis* could be recognized. Giemsa stained thin blood smear and wet smear examination were positive for Microfilariae of *Dirofilaria Imitis*. Corpological examination was negative for the presence of any parasitic eggs and ova and hematological examination revealed typical features of heartworm as depicted in (Table-1) including anemia, leukocytosis, Neutrophilia, Eeosinophilia, and monocytosis.

The most common serum biochemical abnormalities (Table-2) in microfilriae dogs found were increased alkaline phosphatase, alanine aminotransferase and aspartate aminoptransferase, creatinine and blood urea nitrogen (BUN) level. Urine was observed to be dark brown coloured (haemoglobinuria). On the basis of blood smear – presence of microfilariae, clinical symptoms, x-ray, haem –atological /biochemical examinations it was confirmed for *Dirofilaria Imitis* infestation.

TABLE-1: HEMATOLOGY OF MICROFILARIOSIS AFFECTED DOG

Parameters	Normal range	Observed value

Haemoglobin (gm%)	12-18	09
TLC (x10^3cu.mm)	6-17	21.5
DLC		
Neutrophil(%)	60-77	82
Lymphocyte (%)	12-30	25
Eosinophil (%)	2-10	15
Monocyte (%)	3-10	16
Basophil (%)	Rare	0

TABLE-2: BIOCHEMICAL PARAMETERS OF MICROFILARIOSIS AFFECTED DOG

Parameters	**Normal range**	**Observed value**
SGOT (IU/liter)	16-43	50
SGPT (IU/liter)	15-58	71
Alkaline phosphatase (IU/liter)	10-73	100
Creatininie (mg/dl)	0.5-1.6	2
BUN (mg/dl)	6-25	31

The animal was treated with Di ethyl carbamizine @ 6.6 mg/kg b.wt. once for 10 days and ivermectine as single dose @ 200 µg/kg b.wt. orally. Liver tonics, hematinics along with multivitamins were also advised for five days. Fluid therapy was also administered. After 10 days of treatment, re-examination of blood showed absence of *Dirofilari -a Imitis*, animal found active and responsive. Systolic murmurs most likely due to the progressive increase in pressure within the right ventricle caused by *Dirofilaria Imitis* infestation. Dark coloured urine is resulted due to haemoglobinuria. Anemia in present case may be attributed to the hemolysis of RBCs as a result of destructive motility of microfilaria that showed a severe intravascular hemolysis with a significant reduction of RBCs count and HB concentration in dogs with dirofilarial haemoglobinuria as also reported by Anuchai *et al*. (2007). The higher blood neutrophil and monocyte counts were for the phagocytic removal of tissue breakdown products or Microfilariae as also recorded by Paltrinieri *et al*. (1998). The observed eosinophilia was due to sensitivity to the foreign protein of a parasite which may be a part of an immune phenomenon as also observed by Feldman *et al*. (2000). Concerning the biochemical results, an increase in the serum enzyme activities, ALT and AST suggested liver dysfunction secondary to circulatory disturbance as also mentioned by Anuchai *et al*. (2007). In dogs with *D. immitis*, probable alterations in blood urea nitrogen (BUN), creatinin, alkaline phos -phatase (ALP), aspartate aminotransferase (AST), alanine aminotransferase (ALT), have been recorded. The higher serum urea nitrogen, creatinine might result from more severe kidney dysfunction as also reported by (Sharma *and Joshi* 2002).

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