



Concurrent Infection of Parafilariosis and Anaplasmosis in a Non Descript Dog- A Case Report

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ABSTRACT: A nondescript dog was presented with clinical symptoms of straining, anemia, widespread debility, micturition, subcutaneous bruises, and ascites with swelling in all four limbs. The blood sample was found positive for both anaplasma and microfilaria. This brief communication discusses a report of parafilariosis with concomitant Anaplasma infection and its clinical management.

Keywords: Dog, Parafilariosis, Microfilaria, Anaplasma, Anaemia.

INTRODUCTION

Worldwide, vector-borne illnesses pose a major threat to dogs' health. Numerous vector-borne parasites can infect dogs, such as viruses like the tick-borne encephalitis virus (TBEV), bacteria like *Anaplasma phagocytophilum* and *Borrelia burgdorferii* protozoa like *Babesia canis* and *Hepatozoon canis*, and filarial species like *Dirofilaria immitis* and *D. repens* (Self *et al.*, 2019).

The common tick, *Ixodes ricinus*, *Dermacentor reticulatus*, and mosquitoes (in the case of *Dirofilaria* spp.) are the main vectors of transmission for these infections. Multiple pathogens can be transmitted by a single vector; reports of coinfections between filariae and/or blood parasites have been made. Numerous canine vector-borne illnesses are extensively dispersed in numerous regions where the climate fosters the growth of mosquito and tick populations. Numerous tick-borne illnesses, such as canine ehrlichiosis, babesiosis, and hepatozoonosis, have been discovered to be endemic in a number of locations (Barash *et al.*, 2019 ; Guo *et al.*, 2020). Canine parafilarial infection is transmitted by a vector and manifests clinically as nodules or areas of edema in the subcutaneous tissues, as well as focal hemorrhages from tiny punctures (bleeding sites) in the skin. Companion animal diseases caused by *D. immitis* and *Dirofilaria repens* are frequently transmitted by mosquitoes (Strobl *et al.*, 2020).

This paper describes a nondescript dog that presented with ascites from microfilaria and anaplasma, trouble defecating, anemia, generalized debility, micturition difficulties, subcutaneous bruises, and swelling in all four limbs. The case is also managed therapeutically.

MATERIAL AND METHODS

A 2.5 year old male dog was referred to the Ranchi Veterinary College's Veterinary clinical complex due to a history of difficulty in defaecation, anaemia, generalised debility, micturition, subcutaneous bruising, ascites and swollen limbs. The amount of food and water consumed did not significantly vary. A local veterinarian had previously treated the case with injections of Lasix (3 mg/kg body weight I/M) and Oxytetracycline (5 mg/kg body weight I/V), as well as supportive saline therapy that included oral multivitamins and syrup for liver stimulation. Heart rates, breathing, and rectal temperature were all within normal bounds.

Blood samples were collected in vials containing EDTA as anticoagulant from affected dog on its first clinical presentation. Parasitological examination by microscopy was performed using Knott's technique for the detection of microfilaria (Soulsby, 2005) and a Giemsa stained thin blood smear for all haemoparasites (Soulsby, 2005). The parasites were identified on the basis of characteristic morphology. Smear were prepared from bleeding points, and oozing nodules (Soulsby, 2005) and were then stained with Giemsa stain. The blood was also collected in an anticoagulant vial. The severely infected dog was treated with an injection of Ivermectin at 0.05 mg/kg body wt s/c once, Oxytetracycline (Injection terramycin at 20mg/kg b.wt I/V in NSS for 3 days), Tab Hetrazan (Diethylcarbamazine) at 6.6 mg/kg body weight and supportive treatment with Liv 52 syrup at 5 ml per day and hematinic syrup RBC pet at 5 ml per day.

RESULTS AND DISCUSSION

Haematological analysis indicated low level of haemoglobin (8.2 g/mL), packed cell volume (24%)

and eosinophilia (12%). A differential leucocytic count indicated increased lymphocyte (72%). Knott's technique from EDTA blood revealed microfilariae of *Parafilaria* spp (Soulsby, 2005). On the basis of typical signs and the presence of microfilariae (e) in Knott's technique and anaplasma in blood smear, the case was diagnosed as concurrent infection of parafilariosis with anaplasmosis.

After 21 days on Knott's technique and microscopic re-examination, a blood smear was found to be negative for *Parafilaria* and *Anaplasma* spp. respectively.

The present clinical case of concurrent infection of parafilariosis and anaplasmosis showed a remarkable response to combined therapy of subcutaneous ivermectin, intravenous Oxytetracycline, Diethylcarbamazine and supportive therapy. The present findings, therefore, indicate that ivermectin has substantial effect on *Parafilaria* spp. and are in agreement with the observations of Swan *et al.* (1983); Merker (1985); Jana and Ghosh (2009); Das *et al.* (2021). Likewise Diethylcarbamazine has been previously used for preventing the filarial infection by Ismail *et al.* (2001).

Mixed infection of *Babesia* and *Anaplasma* have been cited earlier by Himalini *et al.* (2018), and case responded well to Oxytetracycline therapy.

CONCLUSIONS

The treatment for microfilaria, which is the larval stage of heartworms, typically involves medication such as ivermectin to kill the larvae. Additionally dog with microfilaria may need supportive care to manage any symptoms or complications. Anaplasma, a tick borne bacterial infection, is usually treated with antibiotics. Treatment duration may vary depending on the severity of the infection and the dog's response to the medication. It's essential to consult a veterinarian for proper diagnosis and treatment.

FUTURE SCOPE

The future scope for a case report in dogs could involve advancements in veterinary medicine, such as new diagnostic techniques, treatments and management strategies for various health conditions. Additionally, exploring the role of nutrition and environmental factors in canine health could be promising avenues for research in the future.

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Conflict of Interest. None.

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