More and more proven cases of vertical transmission of Leishmania in dogs

Dogs are the main reservoir host of Leishma- nia infantum, etiologic agent of human vis- ceral leishmaniasis (VL) and canine visceral leishmaniasis (CVL). Transmission of CVL in Dusseldorf to humans and dogs is mainly through the bite of infected sand flies. However, occas- sional vertical transmission of CVL has been reported. Several studies investigated mid-nineties after Italian parasitologist Fran- cesco Spinola reported a case of canine visceral leishmaniasis in a female boxer dog from Dusseldorf that had been positive for antibodies. The bitch, Berta, was infected through gazing at the sand flies during a walk. She had a history of generalized lymphadenopathy, anemia, and severe neutrophilia. The infected sand fly, Liponyx oleracea, had fed on a fox in the area. The bitch was confirmed positive for CVL infection by indirect fluorescent antibody test, by PCR, and by genotyping. The results strongly suggested a vertical transmission of CVL in Dusseldorf. The bitch had whelped three litters, and one puppy from the third litter was also positive for CVL antibodies. Any strat- egy for controlling canine visceral leishmaniasis in Dusseldorf, which has never been reported in the region, would be important. The bitch was treated with a combination of miltefosine and amikacin, and she is doing well.

Hosts

Hepatozoon canis is a very effective parasitism that causes hepatozoonosis. The infection is often sub-clinical, but it can develop into a severe disease. The life cycle of H. canis involves three distinct parasite stages: apicomplexan, macrozoite, and microgametocytes. The apicomplexan stage is transmitted to the host through the bite of an infected tick. The microgametocytes are engulfed by the macrophages, and the microgametocytes penetrate the gut wall. They invade the dog as an intermediate host, and the tick is a definitive host. The primary vector of H. canis in Europe is a brown dog tick (Rhipicephalus sanguineus). The parasite also transmits vertically from the mother to the adult dogs, which is a potential route of transmission to puppies. The infection rate in dogs becomes significant in the presence of high tick densities. A seroconversion rate of 20% within the first year of birth has been observed.

How to Diagnose Canine Hepatozoonosis

The disease is often diagnosed by the presence of enlarged lymph nodes and liver enlargement. Laboratory tests such as peripheral blood smear examination, complete blood count, serum chemistry, and immunological tests are used for diagnosis. The treatment involves the use of clindamycin and imidocarb dipropionate. The prognosis is generally good, but the disease can be life-threatening in severe cases.

In Clinic

The article describes a case of hepatozoonosis in a mixed-breed dog named “Jessie,” a 16-month-old female neutered Yorkshire terrier weighing 4 kg, presented to the clinic in Preston, England, with a 2-week history of unproductive cough and asthmatic respiratory distress. The dog was fully vaccinated and treated with a tick control product. However, the dog developed coughing and dyspnea, and a physical examination revealed a condition score of 4/9, no lymphadenopathy, a palpable lung crackle, and a decrease in body condition. Thoracic radiographs showed a multifocal infiltration of lungworm infection in affected lungs. The dog was treated with a specific endectocide targeting both nematodes and arthropods. The treatment included the use of praziquantel and levamisole. The dog responded well to the treatment, and the cough resolved. The dog was discharged with a prescription for fipronil for fleas but had not been dewormed since pupping. The owner was advised to continue with the fipronil treatment and to keep the dog on a regular deworming schedule. The dog was referred to a veterinary specialist for further evaluation.

How to Prevent the Disease

Prevention of H. canis consists of the use of topical insecticides, especially those with re- peat efficacy (permethrin).

Uncertain Treatment

The current treatment protocol includes the administration of imidocarb dipropionate at 5-6 mg/kg every 14 days until gamonts are no longer detectable in blood smears. It has been reported that imidocarb dipropionate is effective against hepatozoonosis, but the treatment is not considered curative. The treatment is not recommended for cases with advanced liver damage, and the dog should be closely monitored for liver function tests and other parameters. The treatment should be repeated every 14 days until gamonts are no longer detectable in blood smears. The treatment is not considered curative, and the dog should be closely monitored for liver function tests and other parameters.

In CLINIC

Medical treatment of a mixed lungworm infection in a dog

In the veterinary literature, there are relatively few case reports of mixed lungworm infections. However, there are some case reports of mixed infections with lungworms and other parasitic infections, such as Hepatozoon canis and echinococcosis. The dog owner reported a worsening history including the consump- tion of dogs and the treatment with ivermectin. The owners were advised to treat the dog with a systemic medication for lungworms. The dog was treated with a combination of praziquantel and levamisole. The treatment was not considered curative, and the dog should be closely monitored for liver function tests and other parameters. The treatment should be repeated every 14 days until gamonts are no longer detectable in blood smears. The treatment is not considered curative, and the dog should be closely monitored for liver function tests and other parameters.

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**ONE HEALTH**

**What is Dirofilaria repens?**

Dirofilaria repens is a roundworm that affects dogs. It can cause significant health problems in dogs, such as lung infections, fever, coughs, fever, weight loss, and other symptoms. 

**How Dirofilaria repens lives?**

Dirofilaria repens lives in the heart and lungs of dogs. It can also be found in the subcutaneous tissues of dogs. 

**What is the life cycle of Dirofilaria repens?**

The life cycle of Dirofilaria repens begins with the ingestion of the parasite by the mosquito. The mosquito then becomes infected and can transmit the parasite to other dogs. 

**How can Dirofilaria repens be diagnosed?**

Diagnosis of Dirofilaria repens is typically made through the detection of microfilariae in the blood. A Knott's test is commonly used to detect microfilariae, which are motile stages of the parasite. 

**How to perform a Modified Knott's Technique?**

1. Add 1 ml of anticoagulated blood to a microhematocrit tube. 
2. Centrifuge for 5 minutes at 1000 rpms. 
3. After centrifugation, discard the supernatant carefully. 
4. Fill a microhematocrit tube and spin down. 
5. Label the tube clearly. 
6. Examine the tube under a microscope with 10x magnification. 
7. Look for microfilariae. 
8. Record the number of microfilariae per high power field (HPF). 

**MICROFILARIAE IN THE BLOOD OF THE DOG**

- **Tissue (body)**
  - **Dirofilaria repens**
- **Dirofilaria immitis**
- **Dirofilaria lutea**
- **Acanthocheylonema reconditum**
- **Hepatozoon canis**

**HOW TO PERFORM?**

1. In a 15 ml conical tube take 10 ml of 2% commercially purchased formalin and 1 ml of imidacloprid solutions. Place the tube in the ice box for five to 10 minutes. 
2. Centrifuge for 5 minutes at 1000 rpm. 
3. Add 1 ml of formalin. 
4. Add 2 ml of 0.85% saline solution to a fresh 15 ml conical tube. 
5. Add 1 ml of saline solution to the 15 ml conical tube containing the microfilariae. 
6. Add 1 ml of saline solution to the 15 ml conical tube containing the microfilariae. 
7. Remove the supernatant carefully. 
8. Add 1 ml of saline solution to the 15 ml conical tube containing the microfilariae. 
9. Add 1 ml of saline solution to the 15 ml conical tube containing the microfilariae. 
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20. Label the tube clearly. 
21. Examine the tube under a microscope with 10x magnification. 
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23. Record the number of microfilariae per high power field (HPF). 

**CLINICAL PARASITOLOGY BRIEFS**

**1. Another Babesia in felines**

Although reported sporadically from felines,32 it is a significant entity, especially in South Africa. The disease in cats is not reported in the veterinary literature. Babesia felis is the most common species of Babesia in felines. The diagnosis is made by the identification of intracellular piroplasms in red blood cells. 

**2. Hymenolepis diminuta (datocystis)**

This is a common intestinal helminthiase in felids. The diagnosis is made by the identification of ova, eggs, and larvae in the feces. The treatment is usually supportive. 

**3. Toxocara canis and T. cati**

Toxocara canis is a common intestinal helminthiase in dogs. The diagnosis is made by the identification of ova, eggs, and larvae in the feces. The treatment is usually supportive.