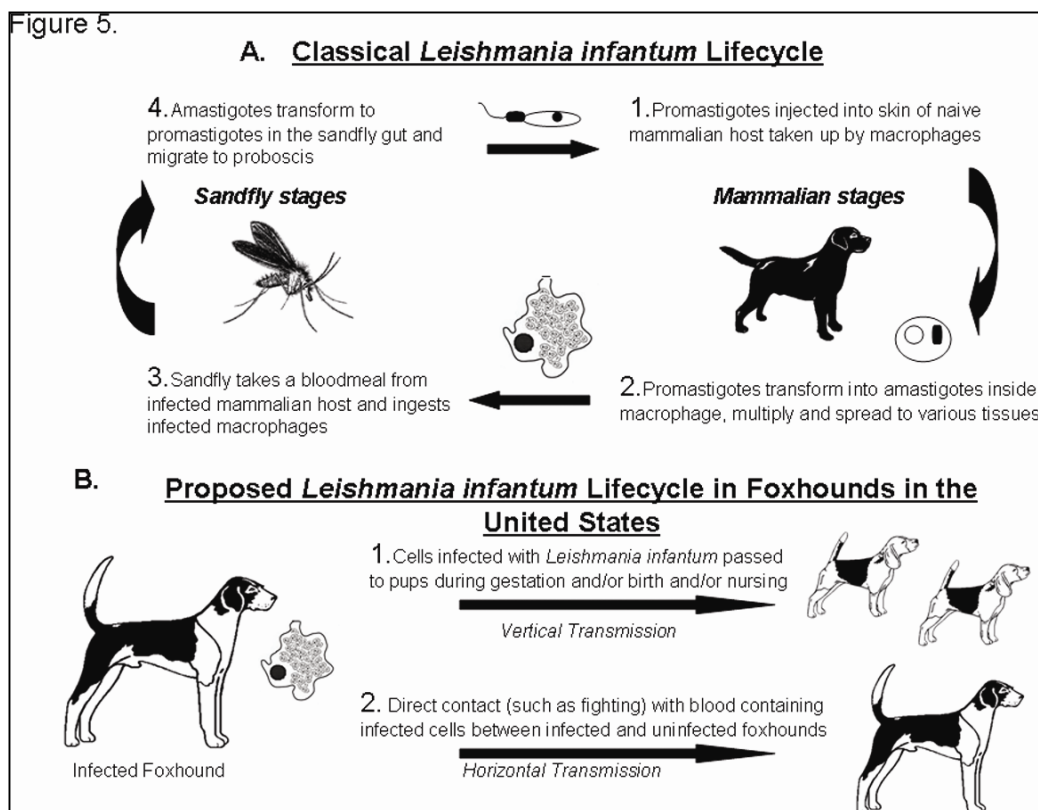


Leishmaniasis and The Neapolitan Mastiff

Lisa Cinciripini

Leishmaniasis (LESH-ma-NIGH-ah-sis) is a disease which was first identified in Italy in 1903 and in 1940 it was determined that 40% of all dogs in Rome were positive for Leishmaniasis¹. A 2007 Study of dogs in Southern Italy revealed 29.9% of kennel dogs seropositive for Leishmaniasis². Current studies indicate a rise of Leishmaniasis in S. America as well. Since a significant number of Neapolitan Mastiffs enter the United States from Italy it is important for breeders and owners to be aware of this disease and participate in testing.

Leishmaniasis (LESH-ma-NIGH-ah-sis) is a zoonotic disease most commonly caused by the bite of an infected Sand Fly. The SandFly is quite common in Italy and the surrounding Mediterranean but “this method of transmission has not been confirmed in North America and it is suspected that the infection is transmitted from dog to dog in blood and secretions incidental to biting, licking, breeding, blood transfusion, etc”³. Prior to the year 2000, virtually no cases of Leishmaniasis were reported in the United States, however, recent studies involving the Foxhound have identified Leishmaniasis in 22 states and 2 Canadian provinces.



Leishmaniasis is divided into two forms; the Cutaneous form affecting skin and the Visceral form affecting internal organs most notably the liver and spleen. Both visceral and cutaneous forms can be found simultaneously in dogs.⁴

Symptoms of Leishmaniasis include:

Cutaneous

- Skin Lesions
- Alopecia
- Ulcerative or Exfoliative dermatitis

Visceral

- Swollen lymphnodes or “glands”
- Ocular signs:
- Progressive loss of weight with decreased appetite
- Nose bleeds (epistaxis)
- Kidney failure- increased urination and drinking

Very few veterinarians in the United States have ever witnessed *Leishmania* infection and most are not aware of its existence in this country. Symptoms which vary and incubation from several months to years makes pinpointing the actual disease, vector or time of infection difficult. What has been noted both in Europe and the United States is the existence of co-infection especially Ehrlichiosis and Leishmania. The importance of this co-infection is not thoroughly understood at this time. To complicate diagnosis, currently available testing methods and their respective accuracy are under scrutiny. Recently, a veterinary scientist, at Iowa State University, Dr. Petersen DVM Ph.D. has developed a molecular PCR method for detection of parasite DNA. A recent study completed on Foxhounds whom were tested with PCR showed approximately 20% of the tested dogs positive, the same population tested with anti-body serology showed only 5% positive⁵.

Treatment of canine visceral leishmaniasis is more resistant to therapy as compared to people and parasitological cure is rarely attained. ⁶. Allopurinol inhibits the growth of Leishmania and as a sole treatment for up to 24 months has shown clinical cure but relapses did occur. Dogs treated with both allopurinol and meglumine showed a significantly higher rate of clinical cure.⁷ In S. America the drug Amphotericin B has recently been added to potential treatment use with Allopurinol for maintenance.

In areas where the vector is identified as the SandFly, (Italy, Africa and S. America) prevention is best obtained by using standard insecticides, collars, shampoos and by keeping dogs indoors during dawn and dusk when SandFlies are most active. In the U.S., where the vector and mode of transmission is not identified prevention can only be considered testing of breeding stock and imports.

Leishmaniasis is a zoonotic disease, “to date, no autochthonous human cases of visceral leishmaniasis have been reported from the United States, and there are no data to suggest vector transmission is occurring among dogs in North America”⁸. Dr. Petersen explains the current United States canine zoonotic risk as “...*infected dog blood should be considered infectious and treated as a biohazard. There is no direct evidence indicating semen or vaginal fluids as being directly infectious, but I think caution is warranted for now. There is no evidence for saliva being infectious. Urine is known to carry parasite DNA, but due to pH etc. is unlikely to harbor infectious parasites*”.

Control of Canine Leishmaniasis is undetermined since we do not know the level of its existence in the United States. Some Foxhound kennels in the United States have elected to euthanize effected dogs to remove them

from kennel populations. The Center for Disease Control and the Companion Animal Parasite Council encourage euthanizing positive dogs, it should be noted that culling of positive dogs as a means of control in other countries has not had an impact on the disease.

Health Committee Recommendations

- Test by submitting blood sample to Iowa State University to Dr. Christy Petersen.
- Dogs imported from endemic areas should be tested once a year.
- Isolate and treat positive dogs, and continue testing.
- Should an owner decide to euthanize please contact Dr. Petersen to submit blood, tissue and biopsy material for further research.

I would strongly encourage all breeders and owners of the Neapolitan Mastiff, especially those who have imports or offspring from an import to participate in Dr. Petersen's study by simply submitting blood samples. The long term goal of Dr. Petersen's research is the development of a vaccine for Leishmaniasis, which would greatly benefit future generations of mastini both here in the United States and in Italy.

Vocabulary

Sandfly – Smaller than a mosquito, brownish color n daytime but have a white glow at nite.

Allopurinol – Zyloric[®], Amphotericin B - Fungizone[®]

Meglumine – Pentostam[®] in the US, regulated and available from the CDC⁹, Glucantime[®] in S. America and Italy.

PCR - Polymerase Chain Reaction Assay Test

Zoonotic – Diseases which travel from other animals to humans.

References

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- ⁸ Companion Animal Parasite Council (2008). Retrieved February 5, 2008. http://www.capcvet.org/?p=Guidelines_Leishmaniasis&h=0&s=0
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Figures

Figure 5 K. Gibson-Corely. et al. (2008). Leishmania Cycles. Submitted publication.

Written and prepared by Lisa Cinciripini. Permission to publish and cross-post in entirety only is granted.

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Dr. Petersen for including the Neapolitan Mastiff in her research and her review, input of this article.

Neapolitan Mastiff Leishmania Submission Form

Please use a pen, print clearly and complete entirely

Owners Name: _____ Daytime Phone Number: _____

Mailing Address: _____

Dog's Name: _____ AKC #: _____ DOB _____

Dog's Sire: _____ AKC #: _____

Dog's Dam: _____ AKC #: _____

INSTRUCTIONS

You will need:
3-6 cc Green top (Heparin) or Purple top (EDTA) Tube
A small ziplock bag and a slip of paper to identify the sample
A small box, several cold packs, bubble wrap
A Fed Ex Overnight Label—printed off the internet or avail. at any FedEx Kinko's Location

It is best to be prepared to collect and prepare your samples in the morning or early afternoon. Although times vary, most Fed Ex Overnight shipments must be done by 1 pm local time. Submissions are best sent on Mondays, Tuesdays or Wednesdays. In order to have accurate PCR and T-Cell assay results it is important that these samples arrive quickly so that the cells are viable on arrival.

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- 1) Draw Blood
 - 2) Place tube in ziplock bag with a slip of paper identifying sample—if submitting multiple samples complete one form for each sample and place each sample in individual bag.
 - 3) Ship using FedEx—Dr. Petersen's Fed Ex Account #050301710, Internal Account#428-3392. The account number goes on the top of the FedEx Shipping Label on the left hand side, just below the tracking number.
 - 4) Indicate that the box contains "Scientific Samples" - DO NOT INDICATE BLOOD. Telling them it contains blood only insights panic, going through the litany that it is dog blood will only confuse them and result in rejected shipment.
 - 5) Place a cold pack on the bottom of the box, a layer of bubble wrap, the sample, another layer of bubble wrap and top with an additional cold pack.

If there are any questions, please email or call Dr. Petersen (515)294-9013 or kalicat@iastate.edu. If you don't get a live person when calling, you can also try the lab and ask for Dr. P. Paola or Amanda at (515) 294-0964.

Send Samples overnight to:
Dr. Christy Petersen
2714Vet Med.
Dept. of Vet Path.
College of Veterinary Medicine
Iowa State University
Ames, IA 50011