



# Leishmaniasis

## A Silent Threat

Most dog owners have never heard of the disease Leishmaniasis. However that does not make your dog immune. Are you aware that in Southern Europe up to 1 in 4 dogs are infected? 2.5 million dogs in Europe already have the disease. Prevalence in Cyprus is 14.9% which means almost 1 in 7 dogs is infected.

Leishmaniasis is a very real threat to your dog and to an extent humans as it's a zoonosis. Preventative measures are very important with this disease because even though it can be treated there is no cure. Leishmaniasis is a severe disease which can be fatal.

Infection in dogs is

prevalent in Central and South America, the Middle East, Asia and in the Mediterranean region. The disease is endemic in Foxhounds in North America.

The disease is endemic in the areas where the transmitting vector, the sandfly, is found.

Isolated cases are diagnosed around the world in animals that have visited endemic areas. As pets can now travel more easily these numbers are increasing.

Lack of symptoms doesn't mean your dog is free of the disease as the parasite can stay dormant for years. A lot of dogs may not show severe symptoms even when the

parasite is active until a more advanced state when it may be too late to limit the damage.



Female phlebotomine sandfly. Photo by CDC/Frank Collins.

So is your dog a high risk case? What can you do to protect them? If your dog is a carrier are they condemned? Is it worth treating this incurable disease?

This issue deals with these important questions to help you give your dog the best care.

## What is *Leishmania spp*?

Leishmaniasis is caused by a protozoan parasite transmitted by the female phlebotomine sandflies and can infect dogs, humans and some rodents. Cats and other domestic animals are rarely infected. There are eleven species of phlebotomine

sandfly in Cyprus.

*Leishmania infantum* and *L. donovani* are the causative agents in the Mediterranean area and Middle East, whereas *L. chagasi*, *L. braziliensis*, and *L. mexicana* are the major species in Central

and South America.

Not all sandflies are infectious. They carry the parasite only if they have previously fed on an infected dog. The parasite can only be transmitted by the sandfly and not from contact with a sick dog.

### Inside this issue:

<i>Leishmania spp.</i> Lifecycle	2
No Symptoms, No Disease?	2
When the Disease Strikes	3
Symptoms of Leishmaniasis	3
Treatment Plan	3
Vaccination the Strongest Defense	4

### Special points of interest:

- What is Leishmaniasis?
- How does it spread?
- How can I protect my dog?
- Symptoms and diagnosis
- Available treatments

## Leishmania spp. Lifecycle

It is very important to look at the lifecycle of the parasite when we are looking for ways to control and limit the spread of the *Leishmania spp.*

The sandfly plays an integral part in transmitting the parasite. The female sandfly becomes infected, during blood meals on infected hosts, by ingesting macrophages (a white blood cell) infected with the amastigote stage of the parasite.

The amastigotes then develop into promastigotes in the sandfly's midgut where they multiply and differentiate to metacyclic promastigotes. The metacyclic promastigotes migrate to the proboscis of the sandfly and infect a new animal when the sandfly feeds again.

Metacyclic promastigotes that are injected into the new host when the sandfly feeds are phagocytised by macrophages and transform into amastigotes.

The amastigotes multiply in infected cells and affect different tissues, depending in part on which *Leishmania spp.* is involved.

These differing tissue specificities cause the differing

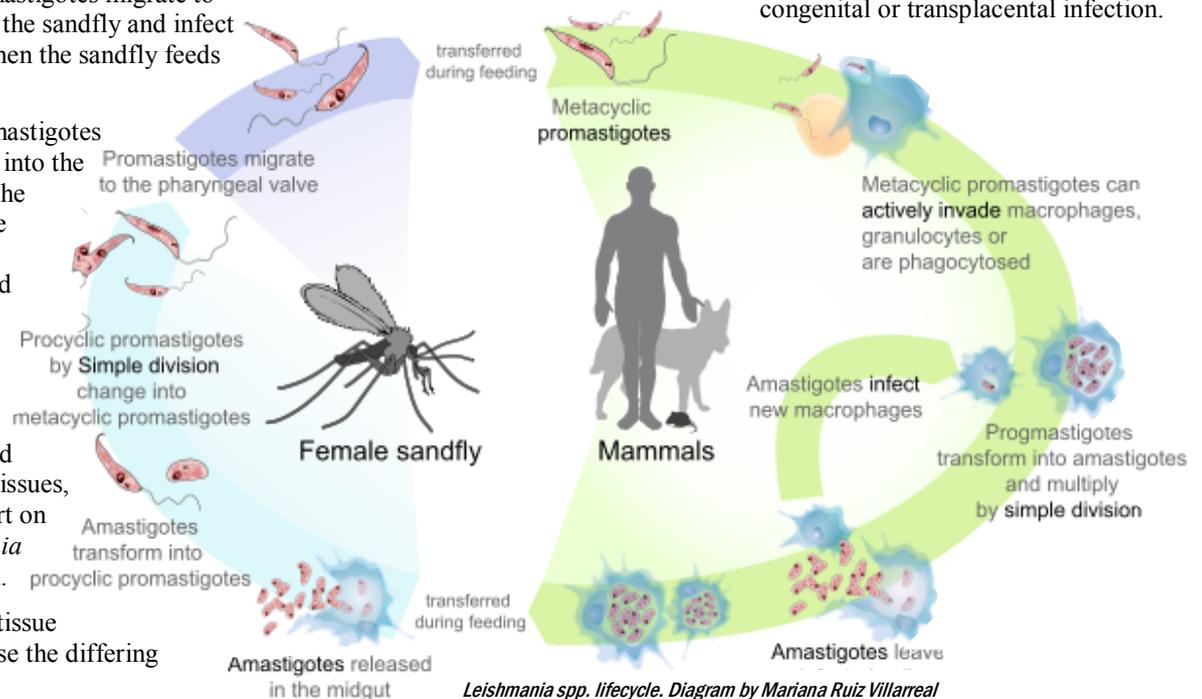
clinical manifestations of the various forms of Leishmaniasis.

The cycle starts again when the host is next bitten by a sandfly. Without the sandfly the lifecycle is broken and no transmission can occur as only the metacyclic promastigotes are infectious.

Reducing or eliminating the sandfly population will reduce transmission from host to host. Certain insect repellents will also lowering the likelihood of the sandfly feeding on you or your dog hence reducing the likelihood of transmission.

The sandfly is active to feed only at dawn and dusk. You can decrease the possibility of your dog being bitten if they are kept indoors during this time.

Cases in the United States have proven *L. infantum* transmission from dog to dog by direct contamination with blood and secretions, as well as transplacentally from an infected bitch to her pups. This has not been shown to happen in Europe. This mode of transmission seems to be unique to the *L. infantum* Mon1 strain found in the United States. A Brazilian study of 63 puppies from 18 *L. donovani*-infected parents found no evidence of congenital or transplacental infection.



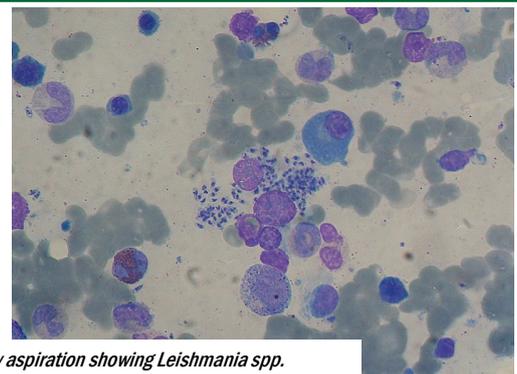
## No Symptoms, No Disease?

A dog infected with *Leishmania* may show no symptoms of the disease from three months to several years after being bitten by an infected sandfly. So if your dog is showing no symptoms it doesn't mean that they are free from this disease.

Even when free of symptoms they can still act as a reservoir of *Leishmania* and transmit the disease to other hosts through the sandflies.

Diagnosis of the disease can be done by a blood test or a biopsy of either a lymph node or the bone marrow.

The sensitivity of the blood test varies so in a dog with a negative blood test result that is showing symptoms, a biopsy should be performed as well.



Bone marrow aspiration showing *Leishmania spp.*

## When the Disease Strikes

The disease is active when the amastigotes start multiplying in the host's macrophages. These will then spread to different organs, especially the bone marrow, lymph nodes, skin, spleen, liver, and kidneys.

At least two different pathogenic mechanisms are responsible for the signs and lesions of the disease:

- the production of granulomatous inflammatory reactions
- the formation of circulating immune complexes that deposit in the renal glomeruli, blood vessels, and joints.

The disease can manifest as a

cutaneous or visceral form and symptoms vary accordingly.

*Leishmania* can be active for a long time before any significant symptoms develop. Often the dog may get secondary infections because they are weakened by the underlying disease, such as skin infections and colds, that don't seem to improve. So if a dog seems to have chronic infections that under normal circumstances



*A dog displaying a typical clinical picture of visceral Leishmaniasis. Photo by Filipe Dantas-Torres*

should be simple to treat a blood test should be done to check for Leishmaniasis.

Leishmaniasis is incurable but if diagnosed early, is more likely to respond to treatment and your dog can have a normal and full life. Treatment will not clear your dog from the parasite but it will keep the disease in remission and limit the damage to the organs.

If left untreated to progress the disease will result in multi-organ failure and death. In some dogs the anaemia is so severe and non-regenerative which can also lead to death.

Beyond a certain stage the damage to the organs is not reversible even if treatment is attempted. In these cases it is kinder to euthanize the dog.

## Symptoms of Leishmaniasis

Leishmaniasis can present with a range of symptoms at a varying degree of severity from mild to critical. Main clinical presentations are:

- fast growing claws
- loss of weight or poor appetite
- local or generalized lymphadenopathy

- ocular lesions
- renal failure
- epistaxis
- lameness
- anaemia
- chronic diarrhoea
- liver failure

*"Leishmaniasis presents with a range of symptoms of varying severity"*

- skin lesions - alopecia with severe dry desquamation
- chronic ulceration - located particularly on the head and limbs

The signs invariably show a slow, progressive evolution and mirror the organs that have been affected by the amastigotes. Not all symptoms will be present in every dog.

## Treatment Plan

In the past a variety of treatment protocols have been used for Leishmaniasis. These had varying degrees of success depending on the individual case but unfortunately a high percentage of dogs either would not respond to treatment or would quickly relapse and eventually would have to be euthanized.

In recent years a new drug has been released which is more effective

against the disease. A much higher percentage of dogs will respond to treatment and they are less likely to relapse.

The treatment protocol of choice is now Miltefosine for twenty eight days in combination with Allopurinol.



*Miltefosine the latest treatment for Leishmaniasis.*

Allopurinol is given as a long term maintenance treatment. Ideally it should only be stopped if a blood test and a bone marrow test for Leishmaniasis give a negative result otherwise relapse of the disease can occur.



**VETERINARY CLINIC  
GEORGIA PASHIAS**

40 Charalambou Mouskou  
Mesa Geitonia  
4001  
Limassol, Cyprus

Phone: 25751999  
Fax: 25723431

E-mail: [veterinaryclinic@primehome.com](mailto:veterinaryclinic@primehome.com)

**Prevention is the best cure!**

## *Cyprus Luxury Pets*

Our online pet shop at [www.cyprusluxurypets.com](http://www.cyprusluxurypets.com) provides anything your pet needs to have a luxurious life to your door. Choose from our collars, beds, toys, grooming accessories and shampoos, snacks, food and pet health products. We are based in Limassol, Cyprus but will ship internationally.

For sandfly repellent collars follow this link:

[http://www.cyprusluxurypets.com/Scalibor\\_65cm\\_-\\_Intervet/p915291\\_4117465.aspx](http://www.cyprusluxurypets.com/Scalibor_65cm_-_Intervet/p915291_4117465.aspx)

**Cyprus Luxury Pets**  
**[www.CyprusLuxuryPets.com](http://www.CyprusLuxuryPets.com)**

*This newsletter is written by Georgia Pashias, BVSc MRCVS.*

## Vaccination the Strongest Defense

Prevention is always better than cure especially in incurable diseases. So far the only way to protect your dog was by attempting to reduce the likelihood of a bite from an infected sandfly.

This can be done by keeping your dog indoors during dawn and dusk when the sandfly feeds. Added protection can be given by antiparasitic collars containing Deltamethrin as this will repel the sandfly and discourage it from feeding on your dog.

However these measures even though they help, they are not 100% effective, and provide no defense once your dog is bitten.

New developments in medicine have finally produced a reliable vaccine against Leishmaniasis. The vaccine has already been released in the Mediterranean countries and is also now available in Cyprus.

The vaccine has been proven to evoke an effective defense mechanism in the dog against Leishmaniasis, as long as

it is used before the dog contracts the disease, enabling the dog to kill the parasite. Even with vaccination, the use of sandfly repellent collars is recommended to give a more extensive protection of your dog.

The vaccine will give an active immunity in *Leishmania* negative dogs from 6 months of age to reduce the risk of developing an active infection and clinical illness after contact with *Leishmania infantum*.

The effectiveness of the vaccine has been demonstrated in dogs subjected to

a natural parasite exposure in areas with multiple high risk of infection.

A blood test is required prior to vaccination to ensure that the animal is *Leishmania* negative. In positive dogs the vaccine is ineffective. If the dog is negative, your vet can proceed with an initial vaccination course of three injections. A single annual booster is required thereafter.

The onset of immunity is four weeks after the primary vaccination and lasts one year after the last (re)vaccination. Booster vaccinations provide further immunity for a year.

The initial cost of the vaccines may appear high, however all responsible owners in endemic regions, or travelling to an endemic country with their dog, should consider that Leishmaniasis is an incurable disease. No matter how well you look after your dog, it's impossible to protect the animal 100% from sandfly bites. Can you afford not to have your dog vaccinated?



*CaniLeish the new vaccine against Leishmania.*