

## GENERAL INFORMATION ON MEDITERRANEAN DISEASES

All of the galgos we rescue are tested for Leishmaniasis, Babesiosis, Heartworm and Ehrlichiosis which are diseases that occur in Mediterranean countries but are not commonly known or endemic in the UK. The tests we undertake are to ascertain whether an individual galgo is currently infected with this disease but diagnosis can be challenging and latent infections can be difficult to diagnose. **The aim of this report is not to make you worry about these diseases but only to make you aware of the existence of these diseases.**

### Leishmaniasis:

#### Causing agent:

Leishmaniasis is caused by the protozoan parasite *Leishmania infantum*, which is transmitted by sand flies of the *Phlebotomus* species. Dogs are the major reservoir for this infection.

#### Geographical distribution in Europe:

*Leishmania infantum* can be found in Spain in the Mediterranean coast, south coast and some central regions like Madrid, in most of the parts of Italy, being more predominant in the southern regions and Sardinia and in Mediterranean coast of France.

#### Transmission:

The *Leishmania* parasite is transmitted to the dog by the bite of the sandfly when feeding on the dogs' blood. The most common time of the year for the sandfly to feed on the dog is from April until late September. Sandflies are weather dependent and are more predominant near water sources like rivers. The incubation period can take from 3 months to seven years. Leishmaniasis is a zoonotic disease; this means it can be transmitted to humans by the sandfly as a vector, so the dog can act as a reservoir for the parasite. This transmission can happen in countries in Southern Europe where the sandfly is present; however the clinical signs would not be like the dog's clinical signs.

Recently blood transmission has been reported and, therefore, we recommend none of our re-homed galgos act as blood donors.

#### Clinical signs:

Leishmaniasis can have many different clinical signs like skin lesions (scaling, hair loss and ulceration especially of the head and pressure points), abnormal nails growth, recurrent conjunctivitis, decreased appetite and weight loss, exercise intolerance and lethargy, vomiting and blood found in the stools. However the most common ones are Epistaxis (Nose bleeds), ocular abnormalities and renal (Kidney) failure. On clinical examination enlarged lymph nodes and spleen can be observed. Renal failure due to immune-complex glomerulonephritis eventually develops and is believed to be the main cause of death in dogs.

#### Diagnosis

By blood test to detect *Leishmania* antibodies (ELISA test); more complex tests for identification can be done like a PCR test. We recommended annual antibody testing for all our rehomed galgos.

## Treatment and prevention:

If the dog shows any of the clinical signs found above and it has been in an endemic area it should be taken to the veterinarian and let the veterinarian know in which country the dog has been to. The main drugs used for the treatment of leishmaniasis are the pentavalent antimony meglumine antimoniate (*Glucantime®*) and allopurinol.

Miltefosine (*Milteforan®*) is a relatively new anti-leishmanial drug that can be used for the first month of treatment in combination with allopurinol instead of meglumine antimoniate. Amphotericin B is also used but it is highly nephrotoxic (Toxic for the kidneys). These treatments are often designed to improve the dog's condition temporarily but sometimes the disease can reoccur. The treatment does not eliminate the parasite. Keeping infected dogs where the sandfly is present needs to be thought about as a treated dog is considered as a carrier and can transmit the parasite via the sandfly to other dogs and people.

In endemic countries dogs are given topical insecticides in Deltamethrin-impregnated collars or spot-on drops to reduce the number of sandfly bites.

A new vaccination (*CaniLeash®*) has been licenced in Europe offering protection against Leishmaniasis. This vaccination should only be given to dogs that test negative for diseases and will be particularly useful for dogs travelling to areas where Leishmaniasis is endemic. Trials are currently underway to test the use of this vaccine in animals previously exposed to Leishmaniasis but results are not expected for at least 5-10 years!

## **Babesiosis or redwater:**

### Causing agent:

The *Babesia* species. A protozoa organism that parasites the erythrocytes. The most common species that causes canine babesiosis are the *Babesia canis* and the *Babesia gibsoni*.

### Geographical distribution:

Present worldwide including in some parts of the UK and in Europe particularly in Southern France. In 2016 an outbreak of *Babesia canis* was reported in Essex with the subsequent discovery of *Babesia canis* infected ticks also in the area, suggesting this disease may become endemic in the UK.

### Transmission:

Between animals by ticks when feeding on the dog's blood, the longer the tick feeds the higher the chances of passing the *Babesia* to the dog and by contaminated instruments and needles.

### Clinical signs

The clinical findings and the severity of these can vary. The most common symptoms are pale tongue, gums and nose due to low number of red blood cells, fever, loss of appetite, lethargy, red or orange urine, enlarged lymph nodes. The most severe infections are called peracute infections and show typical symptoms of a hypotensive shock; pale membranes, tachycardia, weak pulse and depression this associated with organ dysfunction leads to coma and death. Acute infections signs are fever, anaemia, jaundice, inappetance, weakness and sometimes death.

### Diagnosis:

By blood test. Directly seeing the parasite using a stain but using PCR Test is most reliable.

Treatment and prevention:

The dog should be taken to the veterinarian to get a correct diagnose and treatment. There are several drugs that can be used to treat the dog after been correctly diagnosed. These are imidocarb, and Ataquavone often in combination with an antibiotic. If the dog has a severe anaemia blood transfusion should be considered.

In order to prevent tick bites the dog and the dog kennels should be treated with an appropriate acaricide. A vaccine that protects the dog for 6 months has been recently developed and it is used in Europe.

### **Heart worm disease or canine heartworm**

Causing agent:

*Dirofilaria immitis*. Is a filarial worm that as an adult lives in the cardiovascular system, in the right ventricle, right atrium, pulmonary artery and posterior vena cava. The final host are dogs, wild canids and sometimes cats and ferrets

Geographical distribution:

Warm-temperature countries and tropical zones. In Europe countries like Spain and France. There have been some cases in the UK of animals who have travelled abroad.

Transmission:

Transmitted by mosquitoes of the genera *Aedes*, *Anopheles* and *Culex*. The female mosquito bites taking blood from an infected animal, after two weeks the mosquito carries the larvae in the mouth parts and bites another animal. The larvae develop in the host system and migrate to the heart vessels.

Clinical signs:

Heartworm is asymptomatic in the early stages of the disease. Clinical signs start when there are a high number of worms obstructing the blood flow. This causes endocarditis and dead worms in the system can cause pulmonary embolism. Heavily infected dogs suffer from loss of condition and exercise intolerance. It is common to observe a chronic cough and breathlessness.

Diagnosis:

The dog should be taken to the veterinarian where it will have a blood test +/-an x-ray and heart ultrasound done. The blood test will run two tests an antigen test to detect adult females and the Knott test which allows identification of larval stages. Occasionally these tests will be negative despite Heartworm infection.

Treatment and prevention:

Once the dog is diagnosed before dealing with the parasite the dog may need to be treated for cardiac insufficiency. Treatment is a combination of heartworm prevention treatments, antibiotics (doxycycline) and usually three injections of melarsomine over a period of 4 months. During treatment the activity of the dog must be restricted to avoid risk of pulmonary embolism as a result of the dead worms in the system.

To prevent heartworm infection the use of oral or spot-on preparations must be used when travelling or living in endemic areas. Ideally prevention you start prior to leaving for an endemic country and for a month after visiting such an area.

## Ehrlichiosis

### Causing agent:

A bacterium from the Rickettsiaceae family called *Ehrlichia canis*. This bacterium infects dogs but other *Ehrlichia* species can infect humans and other animal species.

### Geographic distribution:

Worldwide distributed.

### Transmission:

By *Rhipicephalus sanguineus* tick or brown dog tick. The tick larvae and nymph feeds on an infected dog and when adults feed on a new dog transmitting the disease.

### Clinical signs:

The clinical signs vary depending on the stage of the infection. In the acute phase the clinical signs can vary, the signs can be depression, lethargy, anorexia and pyrexia and weight loss. Specific signs are enlarged lymph nodes and spleen, occasional epistaxis (nose bleed) and petechia (blood spots in the skin or gums). In the chronic severe form the symptoms will be the same as in the acute form but more severe. Systemic signs can be haemorrhage, shock and multi-organ failure.

### Diagnosis:

By clinical presentation, pathological findings (*E. canis* invades mononuclear cells, there is a decrease in platelet number, mild leucopenia and anaemia) and a PCR blood test.

### Treatment and prevention:

Once the disease has been diagnosed there are several drugs that can be used such as Doxycycline, tetracycline hydrochloride, oxytetracycline and chloramphenicol. The dose and time of treatment depends on the drug used.

There is no vaccine therefore the best way to prevent the disease is by using acaricides that will prevent the tick from feeding on the dog. Remove all ticks promptly using a tick remover.

Please remember that the galgos have been tested for these diseases however if you travel to an endemic country or you think that your galgo has any of the clinical signs shown above take the galgo to the veterinarian as soon as possible.