LESSONS LEARNED REGARDING FELINE LEISHMANIOSIS OVER THE LAST DECADE
(INCLUDING GAPS IN KNOWLEDGE)

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LEISHMANIA INFECTION IN CATS

Leishmania infantum is the species most frequently reported in cats in areas of endemicity such as Mediterranean countries (Italy, Spain, Portugal, France, Greece, Turkey, Cyprus), Iran, Brazil (1-4) but prevalence of infection is usually lower compared to dogs (1). Recently, Leishmania tropica and Leishmania major have also been molecularly detected in Turkey (1, 3, 5). Sand fly-transmission of Leishmania infection to cats is supported by several studies about the feeding habit of vectors (1) but it has never been investigated as well as have not non-vectorial transmission ways. However, blood transfusion could be a source of infection in cats as it is proven in dogs and humans. In fact in endemic areas healthy cats – similarly to healthy dogs and humans - can be found positive at blood PCR (1).

THE DEVELOPMENT OF LESIONS AND SIGNS ASSOCIATED WITH LEISHMANIA INFECTION

Few information is available on immune mechanisms involved in pathogenesis of feline leishmaniosis (FeL). Humoral and cell mediated adaptive immune response is elicited by L. infantum infection in cats from endemic areas and cats with L. infantum-associated clinical disease have high blood parasitemia and low to very high antibody levels (6). In endemic areas the feline disease caused by L. infantum is far less frequently reported than the canine one and host factors may contribute to a lower susceptibility of cats. Retroviral infections and immunesuppressive therapies are suspected to play a role by impairing the immunocompetence of hosts (1). Case reports published in recent years provided information on the most common clinical signs and clinico-pathological abnormalities associated with FeL (1). However, coinfections or comorbidities are frequently detected and they can contribute to a misrepresentation of clinical FeL. Moreover less frequent and less severe clinical presentations could currently be unreported and we are presumably underestimating the clinical relevance of FeL.

DETECTION OF L. INFANTUM INFECTION

Parasitological, molecular and serological techniques are effectively used to confirm FeL (1). Among serological techniques, validated IFAT (cut off dilution: 1:80), ELISA and WB provided good sensitivity and specificity (1, 7). Epidemiological studies using PCR were performed on EDTA blood and very few compared performances of PCR carried out on different tissues (blood, lymph node, bone marrow, skin) or non invasive samplings (conjunctival or oral swabs) (1, 4).

THERAPY AND PROGNOSIS OF SICK CATS

Treatment of cats with clinical FeL is empirically based (and off label) on the most common drugs used in dogs (allopurinol or meglumine antimoniate and their association) and a clinical cure is usually obtained (1, 8, 9). This means that efficay and safety of used protocols have never been evaluated in controlled studies. Therefore cats should be monitored very carefully for adverse effects during treatment and for possible clinical recurrence after stopping therapy. Life expectancy of cats with clinical FeL is usually good unless concurrent conditions or complications occur (9).

PREVENTION OF L. INFANTUM INFECTION

It is advised to protect individual cats from the risk of developing infection and clinical disease. Topical
insecticides currently available for cats have no demonstrated effect in preventing the bites of sandflies. Moreover, pyrethroids used for this purpose in dogs are toxic to cats. However, there is scientific evidence that flumethrin collars reduce incidence of *L. infantum* infection in cats as seen in kennelled dogs, and this is currently the only pyrethroid formulation licensed for cats (1, 10).

Proven vectors of *L. infantum* (*Phlebotomus perniciosus* and *Lutzomyia longipalpis*) were found infected after feeding on two sick cats with FeL (1). Infectivity to sand flies of infected healthy cats is however unknown and, if it is confirmed, the protection of feline populations should be included in a “One Health” strategy for the regional control of *L. infantum* infection.

According to current knowledge, testing of blood donors by antibody detection and blood PCR is the only advisable measure for preventing non-vectorial transmission (1).

**CONCLUSION**

Feline leishmaniosis is an emergent feline disease more and more frequently reported in endemic areas and sporadically seen also in non endemic areas in rehomed cats. In last ten years information about FeL expanded significantly and the paradigm of the cat as an accidental host for *L. infantum* is definitely abandoned. We expect continuous progress of current knowledge and increased scientific evidence of information available to better diagnose, manage and prevent *L. infantum* infection and disease in cats.

**References**