

THE FELINE LEISHMANIOSE IN THE REGION OF ALGIERS

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Abstract. An investigation led to the municipal pound of Algiers, watch that 36% of the 50 tried roaming cats are positive to the F tests.L.G and Witness®. Leishmaniens is the total strength, 50% of the males and 20% of the females. She/it especially affects the cats of 1 to 2 years. Finally, the ulceration is the predominant and reminiscent lesion of the feline leishmaniose. Henceforth, the cat must be considered like a potential reservoir of *Leishmania infantum* in Algeria. Other studies are necessary to specify the prévalence and, the techniques of choice of the diagnosis.

Keywords: Leishmaniose. *L. infantum*. Cat. F.L.G - Witness® - Algiers.

INTRODUCTION

The leishmaniose is a non-infectious, inoculable protozoose, due to the development and to the multiplication in the cells of the SPM of (System of the Phagocytes Mononucleosis) parasites of the *Leishmania* kind, transmitted by the sting of a vector bug, the phlebotome. She/it affects many mammals of which the man and canines (especially domestic dog) [2]. She/it appears under 03 clinical shapes at the man (visceral, cutaneous and cutaneous-mucous), and under the features of an illness proteiforme, combining all clinical shapes among the dog. This illness threatens the man in 88 countries with the world and, his/her/its yearly impact is of 2 million (O.H.M.S) [4]. She/it is endemic in all countries of the Mediterranean basin. The illness seems to be underestimated among the cat and, less a 40th of case has been counted on this day in the world [6]. In Mediterranean, the main reservoir seems to be constituted by the domestic dogs [2], although a reservoir sylvatique is present (55% of the foxes) [20]. The first case of feline leishmaniose reported in the literature dates 1912 in Algiers (Sergeant and al., quoted by [11]). Dunan and al [6] signalled the presence among the cat of *Leishmania* in homes of canine leishmaniose. Of more than the experimental works demonstrated that a meaningful serological answer of the cat to the parasite inoculated by intravenous way exists, without the animal doesn't present any clinical signs [10]. Some rare cases of rodents have been found infested by *Leishmania infantum* (rat) [15]. However, the epidemiological role of these animals as reservoir of the human illness is unknown [5]. Sometimes the leishmanies is confined at the cutaneous territory (possibly to the n.ud lymphatic satellite) (Mc Hattie and al., 1931 cities by [18]; [1], or scattered in the spleen, the liver, and/or the bony marrow [11]; [16]; [9]; [21]; [8]; [12]; [22]. In balance of the studies a cutaneous clinical picture with ulcers and nodules, localized on the face and more or less partners to an adénomégalie, among a cat coming from an endemic zone, constitute a sign of call of feline leishmaniose (66%). The weak number of case observed and the rare identification of the species of leishmanies in reason doesn't allow this day, to correlate some clinical signs to a particular species of leishmanie. The statute of the cat as reservoir cannot be defined for the meantime. He/it can be receptive since some cases have been observed, but the factors of receptiveness and the existence of a meaningful circulation of the parasites within the feline population are underestimated. The objective of ours work is to determine the prevalence of the feline leishmaniose in Algiers.

MATERIAL AND METHODS

The zone of survey covered the department with Algiers with his/her/its 57communes. Some blood withdrawals have been done on 50 drawn cats to the fate after their capture. The number of topics necessary to the survey was of 47 according to the table of Toma [23].because, the prévalence of the feline leishmaniose waited according to the bibliography is estimated to 25%., the degree of precision to 50% and, the interval of confidence to 95%. Six (06) weekly blood withdrawals have been done on the animals of February 2010 to May 2010 (04 months). The appropriated (of preference of the adults) cats have been chosen on the basis of the clinical signs or the infectious risk (roaming animals) without taking into account the sex and. After tranquillisation (so necessary) of the withdrawals of total blood on dry tube are achieved systematically. On five (05) cats of skin cuttings are achieved spread then on blade and fixed. The blood samples are kept to the cold weather and are routed to the laboratory of the university. Several methods of analyses are used:

a) Serological Survey by the FLG test (Formalin Leuco Gélification). It is a nonspecific test putting in evidence the inversion of the report Albumin /Globuline. He/it consists in adding 2 drops of formalin 40% to 1 ml of serum to test (SAT). The reaction is positive, if there is whitish gélification of the SAT in less than 30 minutes.

b) Serological Survey by the test WITNESS® Leishmania. It is a simple test, founded on a fast immuno-migration technique. The SAT is put in contact with particles of colloidal gold sensitized. The reaction is positive, if the complex Ag-Ac formed migrates on a membrane to be captured on a reactive zone, and to cause the formation of a pink strip. A strip of control is situated to the extremity of the membrane,

c) Serological Survey by the test of indirect immunofluorescence (IFI) [23]. The IFI rests on the setting in evidence of complex Ag-Acs thanks to the marking of the immunological reagents (Ag) by a fluorescent substance. The Acs of the SAT are fixed on the antigen (himself fixed on a blade) then put in evidence by the addition of anti-gamma specific globulins of species marked by a fluorochrome.

RESULTS AND DISCUSSION

During this survey, we took attachment with private veterinarians exercising in the region of Algiers. We selected among these veterinarians those that had a clientele exclusively canine (dogs and cats) in order to surround the problematic of the feline leishmaniose better. He/it proved to be that during this meadow-investigation the practitioners in their almost-totality don't have to any moment evoked the suspicion of the leishmaniose among the cat by their usual clientele. This being of the ours opinion to an ignorance of the pathology at this species and, he/it would seem of by their answers to the questionnaire that the illness is confined to the only dogs. Thereafter ours work has been centred on the roaming animals captured by the services of the pound of Algiers. This method of work constituted a slant in itself insofar as we could not do a clinical and biologic follow-up of the animals whose withdrawals proved to be positive since they were sacrificed after their capture. The goal is to calculate some prevalence at every species (dogs and cats) to given one time and on one relatively short period (3 months). The activity of the phlébotome being maximal during the hot periods and, the animals are exposed more in summer and develop an immunity (of which we ignore the length among

the cat) after contact with the leishmanias. These are the reasons that motivated the choice of the period of survey (February to May). The chosen sample was about 50 roaming cats. Let's note a last recorded slant, it is the non availability to the IPA (Pasteur institute of Algiers) of antibody anti-leishmanias specific feline for the IFI (immuno indirect fluorescence) exam. The tracking by the serology presents the big advantage to use an easy withdrawal to achieve for the veterinary practitioners. The choice of this method remains questionable: a séropositivité to one instant t is only more or less the witness of a contact recent between the animal and the parasite. This technique doesn't permit to foretell the presence and the infectious state of the leishmanias among the cat [24]. The cats tested by the technical FLG have been drawn by lot. There was parity between the sexes of the tried animals (52% of males and 48% of females). He/it seems that the males are touched more that the females with respectively 50% (13 positive cases) and 20,83% (5 positive cases). He/it is some in the same way for the technique of the Witness®. All tested cats are roaming animals (lives outside). The séropositivité among these subjects is superior to the one of the cats living inside [17]. The prévalence calculated at this species is of 36%, close to the 38,46% (n = 26 cats).recorded by Venet [24]. The disparities between the prévalences recovered among the cat are numerous according to the years, the methods of serological diagnosis and the immune statute of the animals tested (cats affected by FeLV and FIV). Thus, of the authors as Michael and al [14] signal a prévalence of 3,75% on a strength of 80 cats in Egypt, [17] and a rate of 12,4% on 97 cats and Pennisi and al [18] a prévalence of 68% on a strength of 97 cats. It is necessary to underline that the methods of serological diagnosis evolved with the advent of the molecular biology, as the PCR (Polymérase Chain Reaction). On the cats studied thanks to the FLG tests and Witness®, while comparing the rates in relation to the sex, one notices that the males represent 50% on a strength of 26 cats tested and the females 20,83% on a strength of 24 topics tested.

Table 1

Efficient of the cats appropriated according to age and the sex

Age	1 -2 years	2 -3 years	3-10 years
Males	11	9	6
Female	16	4	4
TOTAL	50		

The cutaneous lesions have been raised on 18 positive cats, practically all present lesions of type ulceration (16 cats) on the head (chamfer, ear). In this strength, the males (11) are a few meadows two times more numerous than the females (5), the topics with 2 lesions are to the number of 2 (males), Pennisi [22] makes notice the same type of lesions, successively on a female of 14 years with ulceration on the superior lip and an adult male presenting a canker of inoculation on the external cantus of the left ear. After cytological exam of the lesions and the lymphatic nodes of the two cats, the author put in evidence of the shapes amastigotes and the positive titles to the IFI in *Leishmania infantum*. Two other cats were the subject of a survey by the same author in 2002 [18]: a male of 6 years brawler, presenting a choriorétinite and a female of 10 years with blood and fibrin to the level of the previous room of the 2 eyes. The 2 topics were positive to the toxoplasmosis and in the FIV as well as to the leishmaniose. Pennisi in 2009, observed on 18 cats of the cutaneous lesions as alopecie of dermatitis ulcérative and nodules. While studying the factors age and sex in relation to positivity in the FLG tests and Witness® of the studied

topics, he/it takes of it out again that all slices of disconcerted ages, the males appear more sensitive than the females.

Table 2

Tests FLG & Witness®				
	FLG + Witness+	%	FLG -Witness-	Efficient
Male	13	50%	13	26
Female	5	20,83%	19	24
EFFICIENT	18	36%	32	50

These results don't corroborate those returned by Pennisi [18], on a survey by PCR led on a population of 89 cats found a rate of 61% of positives, with respectively 73% of females and 54% of males. Age seems on the other hand to influence on the apparition of the illness. Indeed, the age group of 3 to 10 years seem the more touched (27,77% of the positive males). It is similar to the works of Venet [24] that concludes to a longer exhibition. The factor race has not been studied because the chosen sample only represented one race (common race). Pennisi [18] makes notice that on the 89 studied cats, 61% are of common race and 39% of known race. However this factor had no influence on his/her/its work. Cases of known race (Siamese) are described punctually by Bosselut 1948 [3] and Bergeron 1927 cités by Pennisi [18].

Table 3

The positive cats according to the sex and age			
Age	1-2 years (%)	2-3 years (%)	3-10 years (%)
Male	4 (22,2%)	4 (22,2%)	5 (27,7%)
Female	2 (11,1%)	2 (11,1%)	1 (5,5%)
TOTAL		18	

Table 4

Ordering of the lesions observed among the positive cats						
Cats	Years	Sex	Race	Lesions	FLG	Witness
CT20	3ans	Male	Commune	2	+	+
CT21	2ans	Male	Commune	2	+	+
CT22	2ans	Male	Commune	2	+	+
CT23	3ans	Female	Commune	2	+	+
CT25	4ans	Male	Commune	2	+	+
CT26	3ans	Female	Commune	2	+	+
CT27	3ans	Male	Commune	2	+	+
CT29	4ans	Male	Commune	2	+	+
CT30	5ans	Male	Commune	2	+	+
CT31	3ans	Male	Commune	2	+	+
CT32	3ans	Male	Commune	2	+	+
CT33	2ans	Male	Commune	2	+	+
CT34	4ans	Female	Commune	2	+	+
CT36	2ans	Female	Commune	2	+	+
CT39	2ans	Male	Commune	2	+	+
CT46	1ans	Female	Commune	2	+	+
CT48	10ans	Male	Commune	1-2	+	+
CT49	4ans	Male	Commune	1-2	+	+

*Codification of the lesions: 1: Canker of inoculation 2: Ulceration (face)

CONCLUSION

To the term of our investigation led to the municipal pound of Algiers, we can affirm, under the authority of the results positive of the FLG and (Formalin-Leuco-Gélification) especially of the Witness® (specific serological test), that the cat is a real reservoir of leishmaniose in Algeria. Indeed, 36% of the tried roaming cats are positive to the Witness® test, of which 50% of males and 20% of females. Although she/it seems to affect the cats of all age, the more reached have between 1 and 2 years. The ulceration is the predominant lesion among the cat leishmanien. Of the results as surprising either him, must incite us to pursue our investigation on the land to clarify with more of details, the real prevalence of this protozoose among the cat on a national scale, to specify the zones of endemic and the risks incurred for the man and finally, to elaborate the gait clinical result to the diagnosis, to know the establishment:

- Of the data épidémio-cliniques for a diagnosis of suspicion.
- The application of the F.L.G for a diagnosis of orientation.
- The tests sérologiques (Witness and I.F.I) and/or parasitologiques (bet in evidence of the parasite after puncture or setting in culture) for a diagnosis of confirmation.

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