

## FELINE IMMUNODEFICIENCY VIRUS ON A HOUSE CAT IN ALGERIA: A CASE REPORT

ARKENE ABDENNEBI<sup>1</sup>, RATIBA BAAZIZI<sup>1</sup>, NORA MIMOUNE<sup>1,2\*</sup>,  
ISMA ABDENNEBI<sup>1</sup>, SAIDI RADHWANE<sup>3</sup> AND RACHID KAIDI<sup>2</sup>

<sup>1</sup>National High School of Veterinary Medicine, Bab Ezzouar, Algiers, Algeria.

<sup>2</sup>Institute of Veterinary Sciences, Laboratory of Biotechnologies Related to Animal Breeding,  
University Saad Dahleb, BP: 270, Soumaa Road, Blida, Algeria.

<sup>3</sup>Department of Agronomy, Teldji Amar University, 03000 Laghout, Algeria.  
Email: nora.mimoune@gmail.com

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Case Report

### ABSTRACT

The current study highlighted FIV in Algeria in the absence of a previous report. This is the first reported FIV positive case. Indeed, a cat was presented for consultation; it was a dewormed, vaccinated subject with no major history. The unavailability of epidemiological data, a varied and non-specific clinical picture made the diagnosis difficult. The inconclusive symptomatic treatments, the aggressiveness of the animal and its access to the outside putting it in contact with stray animals led us to the use of a Rapid Kit based on immunochromatography for the diagnosis of FIV. The result was positive, highlighting the presence of the disease in Algeria, but due to the unavailability of an epidemiological map, cats likely to be carriers of the virus represent a potential danger for the transmission of the virus. Cats indeed die without clear causes whereas veterinarians suspect their attack by the FIV.

Keywords: Feline immunodeficiency virus; cat; immunochromatography.

### INTRODUCTION

Feline immunodeficiency virus (FIV), a Lentivirus within *Retroviridae* family [1] associated with an AIDS like syndrome in the domestic cat [2]. The virus was first isolated in 1987 [3,4]. The disease is endemic in the domestic cat population worldwide [2]. FIV induces a disease of major importance in veterinary medicine, as well by its prevalence and by its severity. The host's immune response does not eliminate the virus. It induces a state of immunosuppression in cats [4,5].

FIV is a disease that is similar to human immunodeficiency. It presently represents a

great scientific interest, despite an already-achieved vaccination success. The disease in cats is similar to human immunodeficiency. It currently represents scientific interest and can serve as a therapeutic model for humans.

It is a chronic viral disease that causes immunosuppression, due to lymphocyte tropism; it consequently exposes the organism to numerous pathological affections that can either be severe or common, the subject becomes at risk and can die. FIV diagnosis hardly rests on symptomatology, as the latter is unspecific, epidemiology can indeed accentuate it, but we always remain in a situation of unclear

suspicion. All of these scientific concerns led us to discover the presence of the disease in Algeria, where it is still little-known and, hence, uncontrollable. Even if the symptoms are not specific, suspicion in front of a similar clinical picture made it possible to highlight the presence of the disease in Algeria. In another hand none study on FIV seroprevalence was reported in Algeria. In addition, FIV is believed to be the cause of mortalities without being able to identify it.

Our present study concerned a cat presenting a general degraded state associated with several attacks. The administration of symptomatic treatment has not produced convincing results. However, the use of an IVF Kit on a blood sample revealed a positive result highlighting the presence of the virus in Algeria. Finally, the purpose of this study was to determine and proof the seropositivity of FIV in cat's owner in presence of suggested clinical signs.

## **MATERIALS AND METHODS**

A Siamese indoor cat, vaccinated against coryza, viral rhinotracheitis, feline panleukopenia and rabies, wormed, known to be aggressive, especially given that it is not sterilized. It is 4 years old and had a free access to the outside. The cat was presented for a severe lethargy and a marked anorexia, both observed by its owner during three days.

A general and thorough clinical examination found a second-degree dehydration, explored by capillary refill time of more than 3 seconds associated with a persisting skin fold that is superior to 3 seconds as well. The vital triad was physiologic, with a slight elevation of body temperature equaling 39.3°C.

The abdominal palpation revealed a bilateral renal enlargement with kidneys having tripled in size. Paleness of the conjunctivas indicated anemia. The ears presented sequela of an ear mite infection caused by pruritus and scratching.

Fluidotherapy was administered as an emergency treatment in order to cure the renal hypovolemia and hypertrophy. Molecules that fight anemia (hepatoprotector and erythropoiesis stimulant) Néomeriol<sup>®</sup> and Hematophose B12<sup>®</sup> are administered intravenously.

In the hopes of determining the etiology of anemia, we carried out a blood smear that detected no pathogen, particularly parasitic leading to hemolysis. Liver examination (echography and Bromsulftalein) highlighted the healthiness of the organ, having a major part in anemia prevention.

Seven days later, the cat's state degrades and becomes more critical, diarrhea occurs and lesions appear in other locations (Fig. 1) (idiopathic ulcer, hair loss, gum and periodontitis).

A symptomatic treatment was applied, but with no sustaining result. So, sulfamides associated with trimethoprim Sulfaprim<sup>®</sup> and Aluminal<sup>®</sup> were used to fight diarrhea, of the non-steroidal anti-inflammatory Lhiflunex<sup>®</sup> associated with appetite-stimulants to heal periodontitis and deal with the resulting anorexia Methi al B12<sup>®</sup>, the member alopecia was not responsive to the antiparasitic treatment Ivermectine<sup>®</sup> in relation to the ear mite infection sequelae. The seriousness of the clinical picture, the lesions that are rebellious to treatment, the epidemiology and the subject's character led us to suspect feline immunodeficiency.



**Fig. 1. Depilation, Cachexia, Idiopathic ulcer, Pale gum and periodontitis, Pale ocular conjunctiva**

An ELISA Kit Speed Duo® (FIV- FeLV) based on the immunochromatography principle provided by Virbac laboratories (France) was used following the manufacturer's instructions. Blood was collected from radial vein in heparinized sampling tube.

The immunochromatography revealed the presence of immune complex indicating seropositivity in blood, serum and milk.

## RESULTS AND DISCUSSION

The immunochromatography gave a positive result for FIV, and negative for FeLV; this result collaborate with Ravi and collaborators [3] in their study where, examined cats were FIV positive but FeLV Negative.

This result showed that the clinical picture were not specific as reported by other authors [3] but very suggestive and

could lead the diagnosis, hence the importance of its careful study. Epidemiologic enquiry is also essential to complete it.

This result, proven to be positive after the study of only one case due to kit shortage, highly indicates that the prevalence should be important comparatively to reported results by other authors as (5.5%) were positive for FIV antibody. In another hand, prevalence in males seems to be higher than in females [3] but we cannot compare our results because of test was apply on one cat but in our case the animal is also male gender this can lead to collaborate with results.

Risk groups for infection with FIV is mainly associated with males, free access to streets and bites inflicted during fights for territory [6], that what it is joint the behavior of our subject.

Infection might be the result of contact with stray cats, since stray cats and those who have access to the outside are more prone to infections than indoor or neutered cats because they lose their instinct, which reduces bites and aggressiveness [7]. So, as prophylaxis against infection of FIV castration is recommended [6]. Cats intensive and random rearing, with no clear generation traceability, along with the absence of a preventive vaccine in place of determining the viral subtype, could also justify our hypothesis.

The mean age of male FIV cats is approximatively eight years in a previous study [3], while cat tested in our case is 4 years old. Our result leads to said that the age is not necessary a risk factor but in fact the animal accessed to outside that what in favor to an infection by contact with stray cats; these results corroborate with those found by other authors [3] and that the transmission occurs mainly through bites during fights for territory [1,6].

Seropositivity is also associated to lethargy and periodontitis as revealed by authors [3] and sustained in our case.

Other studies have also revealed a prevalence of 80% in FIV+ cats while gingivitis was observed with a prevalence of 52% and gingivitis associated with an ulcer at a rate of 28% [5].

Infection could be the consequence of a contact with a stray cats, taking into account the fact that stray cats and those having access to the outside are more subject to the infection than indoor cats [7] or castrated males because of loss of their instinct which reduces bites and aggressiveness [8] and bites [3]. Cats intensive and random rearing, with no clear generation traceability, along with the absence of a preventive vaccine in

place of determining the viral subtype, could also justify our hypothesis.

This datum shall certainly reach veterinarians' scientific interest, and will be a warning bell to cat owners. It will spark off the drafting of preventive and fight measures, until a more detailed epidemiology in order to implement an effective action plan.

Determining the viral subtype remains a crucial key given that vaccination confers 86% of protection against A and D subtypes, as is the case in the United States and in Australia.

## CONCLUSION

Feline immunodeficiency in Algeria might represent a great danger for cats, given the complexity of the disease.

As there is no available vaccine to FIV screening and appropriate sanitary measures would be helpful in fighting FIV. This study provides a case data for the first time about FIV infection in Algerian cat which will be useful for guiding future studies on FIV infection in Algeria.

## ETHICAL APPROVAL

Animal Ethic committee approval has been taken to carry out this study.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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