

Feline herpesvirus-1-associated dermatitis: viral load assessment by real time PCR for diagnostic purposes

M. MAZZEI¹, S. VANNINI¹, M. FORZAN¹, V. MARCHETTI¹, F. ALBANESE² and F. ABRAMO¹

E-mail: maurizio.mazzei@unipi.it

¹Department of Veterinary Science, University of Pisa, Viale delle Piagge 2, 56124 – Pisa (I), Italy

†Private Veterinary Laboratory "La Vallonea", Alessano (LE), Italy

Introduction

Feline herpesvirus-1 (FHV-1)-associated dermatitis is a facial and nasal ulcerative and necrotic disease. Its clinical presentation overlaps with that of other feline dermatoses including hypersensitivity disorders, therefore providing a correct diagnosis is required to rapidly start antiviral therapy. Histopathological diagnosis relies on the detection of nuclear inclusion bodies but their rarity may lead to misdiagnosis. The aim of this study was to use real time PCR (qPCR) for the diagnosis of FHV-1-associated facial dermatitis.

Material & Methods

We conducted a retrospective histopathological study on 25 paraffin-embedded feline skin samples. Based on histopathological features, four groups were generated: Group 1: samples with a diagnosis of herpesvirus dermatitis (n=7); Group 2: samples with nonherpetic facial dermatitis (n=6); Group 3: samples with facial dermatitis of ambiguous nature (allergic or viral) (n=8), and, Group 4: samples from apparently healthy cats (n=4) (table 1). We applied a qPCR assay and results expressed as the fold change of FHV-1 target gB viral gene copies per copies relative to *Felis catus* 28S reference gene ($2^{-\Delta\Delta Cq}$).

Group	Breed	Age (ys)	Gender	Location	
1	1	CE	15	FS	Nose
2	1	CE	1	MC	Nose
3	1	CE	6	ND	Face
4	1	CE	15	F	Nose
5	1	CE	8	MC	Muzzle
6	1	CE	1	M	Face
7	1	Maine Coon	6	M	Nose, periorbital
8	2	CE	3	FC	Cheek
9	2	CE	14	MC	Periorbital
10	2	CE	3	F	Superior lip
11	2	CE	2	MC	Cheek
12	2	CE	1,5	ND	Nose
13	2	CE	5	F	Cheek
14	3	CE	2	MC	Face
15	3	CE	ND	ND	Face
16	3	CE	11	M	Muzzle
17	3	CE	9	FC	Nose
18	3	CE	ND	F	Nose
19	3	CE	6	M	Narix
20	3	CE	1	M	Face
21	3	CE	1	ND	Face
22	4	CE	10	FS	Nose
23	4	CE	14	FS	Nose
24	4	CE	10	ND	Nose
25	4	CE	ND	ND	Nose

Table 1. Data on signalment for each group

Results

All specimens from the Group 1 showed $2^{-\Delta\Delta Cq} > 20,000$, while for specimens belonging to Groups 2 and 4 was $< 2,000$. In Group 3, two samples showed high values of $2^{-\Delta\Delta Cq}$ that were comparable to those of Group 1, three had $2^{-\Delta\Delta Cq} < 2,000$ and three samples had negative results. The fold changes of viral genomes normalised to reference gene are reported in the box plot (fig.1).

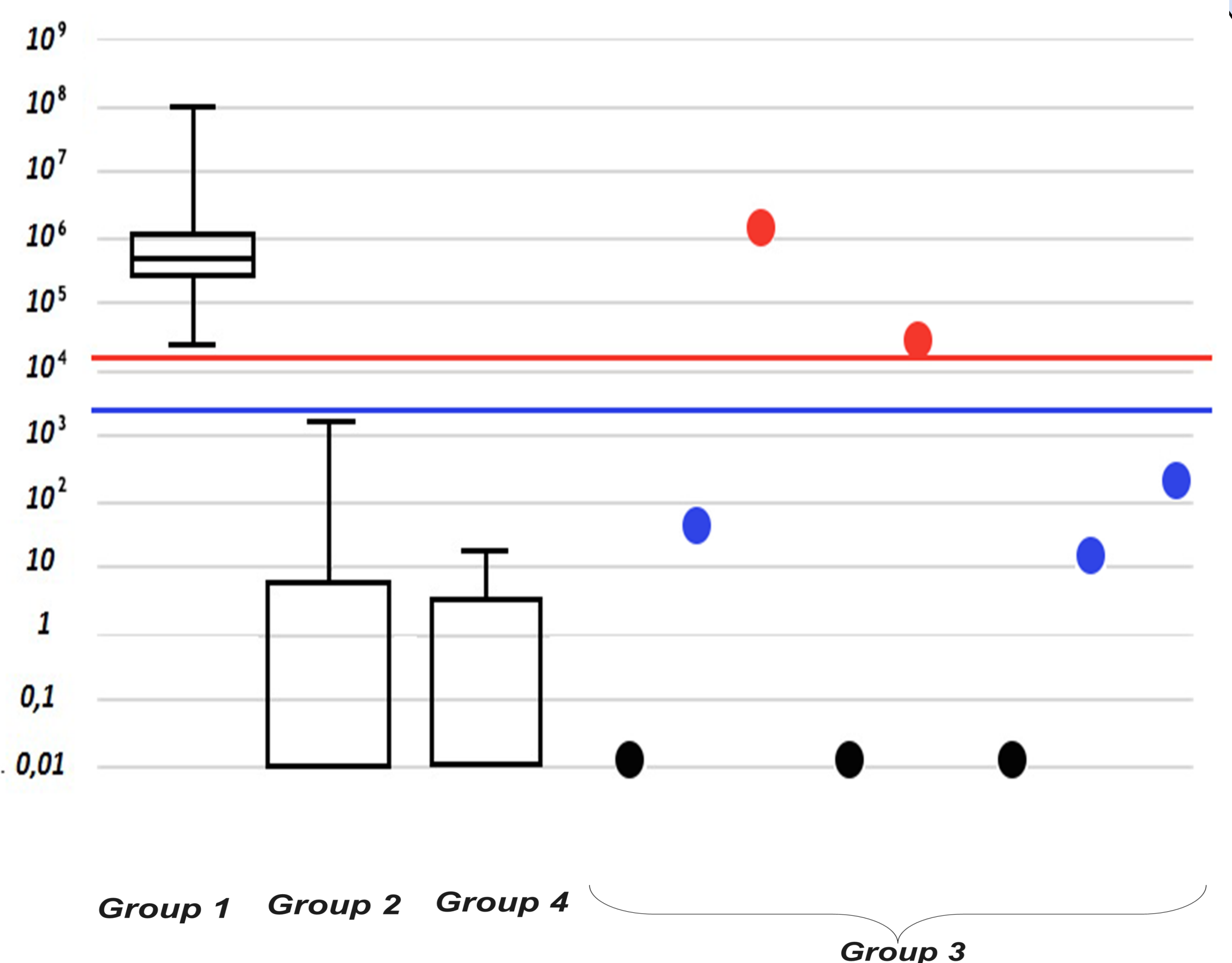


Figure 1: Box plot representing results of $2^{-\Delta\Delta Cq}$ for the examined groups, red and blue line represent proposed upper and lower limit of undeterminable results.

Discussion & references

Our qPCR results show good correlation to histopathology results for Groups 1, 2 and 4, thereby indicating that this qPCR method can be used for the diagnosis of FHV-1-associated dermatitis; values $< 2,000$ might indicate a latency of the virus.

Hargis AM et al., *Vet Dermatol* 1999 10: 267-74

Persico P et al., *Vet Dermatol* 2011 22: 521-527