‘*Candidatus* Mycoplasma turicensis’ infection: attempted reactivation and tissue loads in chronic carrier cats

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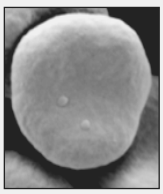
Introduction

Hemotrophic mycoplasmas (aka hemoplasmas) are small cell-wall-free bacteria that attach to red blood cells and may cause fatal infectious anemia in a variety of mammalian species (1).

In cats, three hemoplasma species have been recognized (2, 3, 4):

1. *Mycoplasma haemofelis*
2. ‘*Candidatus* M. haemominutum’
3. **‘*Candidatus* M. turicensis’ (CMt)**

The pathogenesis and kinetics of CMt infection, particularly a possible tissue sequestration and reactivation of the infection, are still poorly understood.



Electron microscopic imaging of CMt (Willi et al., submitted)

Aims:

- ✓ **Provoke and investigate reactivation of CMt**
- ✓ **Demonstrate potential sequestration sites**
- ✓ **Monitor humoral response of chronic infection**

Results

1) Sufficient amounts of amplifiable DNA and absence of PCR inhibition were confirmed using fGAPDH real-time PCR.
2) All blood samples tested PCR-negative throughout the study, except for one sample (cat S1) collected one week after MPA (see Table 1).
3) Two cats were PCR-positive in tissues (liver, salivary gland) one week after MPA (Table1).
4) Group 1 had significantly higher blood glucose levels (Fig. 1) and lower body weight than group 2 (P<0.0001; Fig. 2) after methylprednisolon administrations.
5) All chronically infected cats showed high antibody levels.

Table 1: PCR results of tissue samples

	Group 1 (MPA)					Group 2 (control)				
Time point	A2	X4	R2	S1	T1	A1	X5	R1	S2	T2
Before MPA	-	-	+ SG	-	-	-	-	-	-	-
1 week after MPA	-	-	+ L SG	+ Blood	+ L	-	-	-	-	-
4 weeks after MPA	-	-	-	-	-	-	-	-	-	-

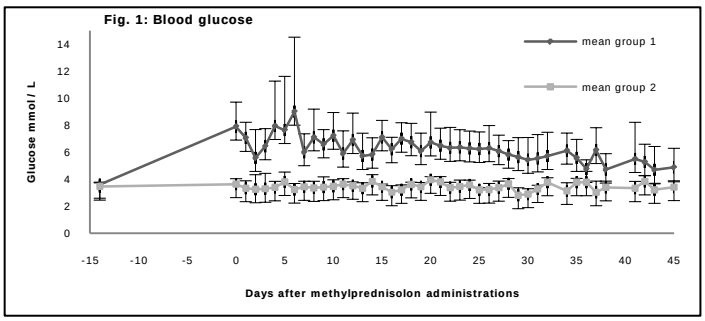
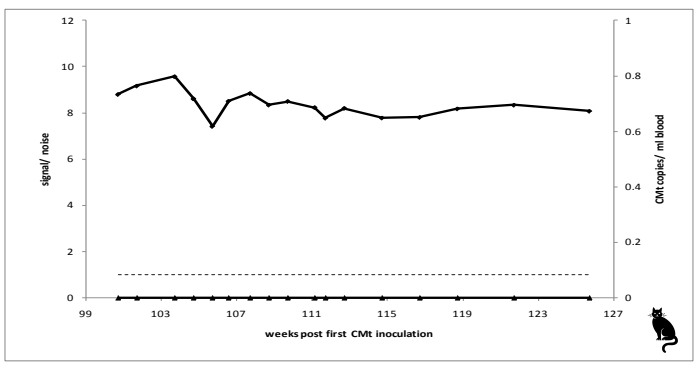
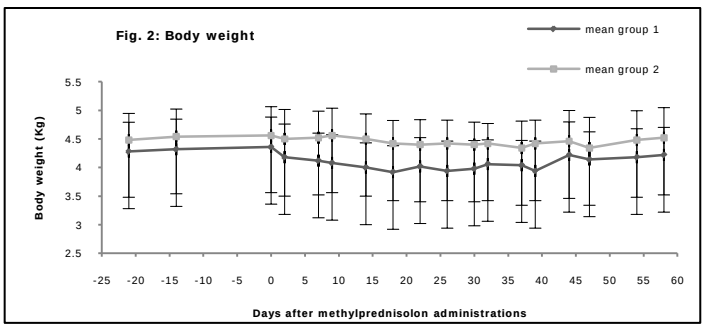


Fig. 3: ELISA result of serum samples cat A2 (group 1)





Conclusion

The present study reports for the first time the presence of CMt in tissues of chronically infected cats in the absence of bacteremia, although at low levels. In addition, CMt antibody levels remained at high levels during all the monitoring time. The attempted immunosuppression did not lead to a reactivation of CMt infection. The results of this study enhance the knowledge on the not well investigated carrier state.

Materials & Methods.

Cats and attempted reactivation

Ten specified pathogen-free cats recovered from CMt acute infection. Five cats received methylprednisolon (MPA 10 mg/kg IM) in 3 consecutive weeks (first injection = Day 0) in an attempt to induce an immunosuppression and potential reactivation of CMt infection (group 1), while five cats served as controls (group 2).

Blood samples and CMt tissue loads

The cats were monitored by weekly blood collection. Tissue samples were collected by fine needle aspiration of kidney (K), liver (L) , and salivary glands (SG). Bone marrow aspiration was performed and saliva swabs were sampled (for time points see Table 1).

Total nucleic acids extraction

Total nucleic acids (TNA) were extracted as described (4). For nucleic acid extraction from tissue samples, the DNA Micro kit (Qiagen) was used.

Real-time PCR

All DNA were analyzed by CMt TaqMan real-time PCR as described (4). To verify the presence of amplifiable DNA the feline GAPDH gene was used (8, 9).

Serology

Serum samples were analyzed by a recombinant feline hemoplasma protein (Wolf-Jäckel et al., submitted).

Acknowledgements

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