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## THE CLINICAL SIGNIFICANCE OF ENCEPHALITOOZON CUNICULI IN YOUNG DOGS WITH NEUROLOGICAL SIGNS

### Introduction

Encephalitozoon cuniculi is a microsporidium belonging to the phylum Microspora and is believed to cause an opportunistic infection in young and/or immune-compromised animals and humans. Earlier, seroprevalence was found to be 21% in an American<sup>(1)</sup> and Japanese population<sup>(2)</sup> of house held dogs and has been found to cause clinical and neurological problems in young dogs<sup>(3)</sup> <sup>(4)</sup>.

### Aim of the study

To evaluate the presence and clinical significance of *E. cuniculi* in a cohort of young dogs with neurological signs.

### Material and Method

During a time frame of one year all young dogs (< 3,5 yrs) that were referred with neurological signs were examined on the presence of *E. cuniculi* (42 dogs). Dogs were selected if a urine or EDTA blood sample was found to be positive for the parasite using PCR or serum IgM was clearly elevated. If found positive all dogs were treated with fenbendazole during a period of at least ten days. Clinical outcome was evaluated afterwards.

### Results

In total 16 out of 42 dogs were found to have either an elevated IgM titer (2 dogs) or EDTA sample (14 dogs). The dogs showed among others focal seizures (one dog), generalised seizures (7 dogs), ataxia (6 dogs) and a postural head tremor (10 dogs). MRI scans were made in 9 out of 16 dogs and did not reveal any abnormality. Although all dogs were treated only 5 dogs responded to treatment. Six dogs did not respond and 5 had to be euthanatized as their neurological problem deteriorated. Two of these dogs were necropsied but showed no pathological abnormalities.

### Conclusion

*E. cuniculi* was found in a group of young dogs that showed a variety of neurological signs. MRI scans did not reveal any abnormality and histopathology was not abnormal in two of the dogs that were euthanatized. As only a limited number of dogs responded to treatment it is questioned whether *E. cuniculi* is a true pathogen for dogs. Further research is needed to investigate its significance in dogs.

### Literature

1. Cray C, Rivas Y. Seroprevalence of *Encephalitozoon cuniculi* in dogs in the United States. *J Parasitol.* 2013;99(1):153-4.
2. Sasaki M, Yamazaki A, Haraguchi A, Tatsumi M, Ishida K, Ikadai H. Serological survey of *Encephalitozoon cuniculi* infection in Japanese dogs. *J Parasitol.* 2011;97(1):167-9.
3. Nell B, Csokai J, Fuchs-Baumgartinger A, Maass G. *Encephalitozoon cuniculi* causes focal anterior cataract and uveitis in dogs. *Tierarztl Prax Ausg K Kleintiere Heimtiere.* 2015;43(5):337-44.
4. Snowden KF, Lewis BC, Hoffman J, Mansell J. *Encephalitozoon cuniculi* infections in dogs: a case series. *J Am Anim Hosp Assoc.* 2009;45(5):225-31.