



NECROTIZING MENINGOENCEPHALITIS IN A MALTESE DOG



S. Nešić¹, N. Andrić², I. Vučićević¹ and S. Aleksić Kovačević¹

¹Department of Pathology, Faculty of Veterinary Medicine, University of Belgrade, Republic of Serbia

²Department of Equine, small animal, poultry and wild animal diseases, Faculty of Veterinary Medicine, University of Belgrade, Republic of Serbia

Introduction

Necrotizing meningoencephalitis (NME) is a fatal, non-infectious inflammatory disease of unknown aetiology in dogs. It is considered a breed specific disease and has only been reported in selected breeds including Pug, Pekingese, Chihuahua, Maltese, Coton de Tulear, Shih Tzu, Papillon, and Boston Terrier.

Material and methods

The brain of a 20-month-old female Maltese dog submitted for necropsy was fixed in 10% neutral formalin for 72 hours. Transverse sections (4-5 mm) of the frontal cortex, parietal cortex, thalamus, cerebellum, and medulla oblongata were prepared, grossly examined, and further formalin fixed, then routinely processed. HE stained sections (5 µm) were prepared and examined.

Results

Grossly, multiple asymmetrical small foci of malacia were found in the cerebral hemispheres. Microscopic examination revealed necrotic changes in the brain parenchyma, together with perivascular lymphocytic cuffing. Perivascular cuffs were noticed in the meninges and grey and white matter of the frontal and parietal lobes. The perivascular cuffs were abundant and consisted of lymphocytes and plasma cells. Microscopically, perivascular edema, astrogliosis, astrocytosis, satellitosis, and neuronophagia were also observed in the damaged tissue.

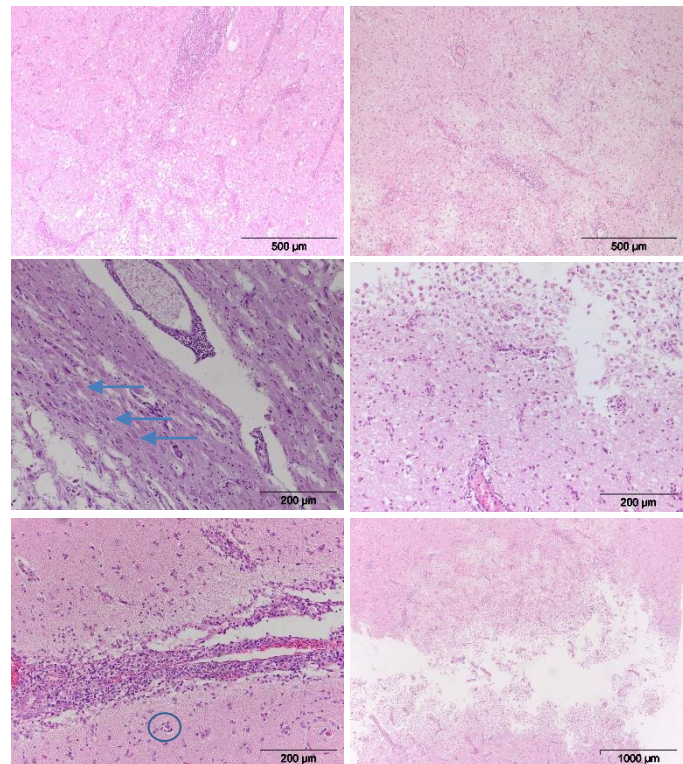


Figure 1. HE, brain of dog, Maltese, female, 20 month old: **A-** Frontal section - perivascular cuffs and encephalomalacia, **B-** parietal section - perivascular cuffs and encephalomalacia, **C-** frontal section - perivascular cuff, astrogliosis and astrocytosis (blue arrows), **D-** parietal section - perivascular cuff, astrogliosis and astrocytosis, **E-** frontal section - mononuclear infiltrate in the meninge, satellitosis and neuronophagia (blue circle), **F-** parietal section - encephalomalacia

Conclusions

The localization of the changes is consistent with the clinical findings. These changes can be significant for the differential diagnosis in relation to other necrotic encephalitis conditions. This case revealed that the presence of NME-related seizures is significantly associated with a poor outcome. Considering the multifactorial etiology of NMO, additional molecular research will be valuable to determine the potential infectious agent.