



ECVP/ESVP Summer School in Veterinary Pathology



Marie Curie Training Courses

Summer School 2006 – Animal Models 506/06 A & B

506/06 A and B Sheep

Midbrain and Brainstem. Diffusely within the gray matter there are numerous, irregularly sized (5-40 micron in diameter), well demarcated empty vacuoles within neuronal processes and rarely within neuronal bodies (the latter only in the brainstem); the associated neuropil is loosely arranged due to irregular clear spaces (spongiform state). Occasionally perikarya are shrunken, angular and hyperchromatic (necrosis). Some neuronal bodies are slightly increased in size and rounded, with peripheralization of Nissl substance (central chromatolysis) and scant cytoplasmic pigmentation with brownish material (lipofuscin). Diffusely, glial cells (consistent with astrocytes and microglia) are increased in number; astrocytes appear occasionally hypertrophic and microglial cells are occasionally grouped around perikarya (satellitosis). Perivascular empty space is frequently evident (perivascular edema). Within the neuropil there is a single thin walled cystic structure (70-80 micron in diameter) containing numerous oval basophilic nucleated elements (bradyzoites) (possibly consistent with *Toxoplasma* spp. cyst).

Morphological diagnosis:

Midbrain and Brainstem: spongiform change, diffuse, moderate, with neuronal vacuolization, degeneration, and necrosis, diffuse, mild; astrocytosis/microgliosis diffuse, mild; with single protozoan cyst (possibly *Toxoplasma* spp.)

Etiologic Diagnosis: 1) prion spongiform encephalopathy 2) central nervous system *Toxoplasma* spp. cyst

Name of disease: 1) scrapie / ovine spongiform encephalopathy

Cause: non-conventional agent / *Toxoplasma gondii*

Differential Diagnosis:

Some storage diseases with vacuolization of neurons

Bovine spongiform encephalopathy - experimentally transmitted to sheep

Neuronal vacuolar degeneration of Angora goats