

Case 5.1 – Brainstem of an adult horse – lesions extended into the rostral spinal cord.

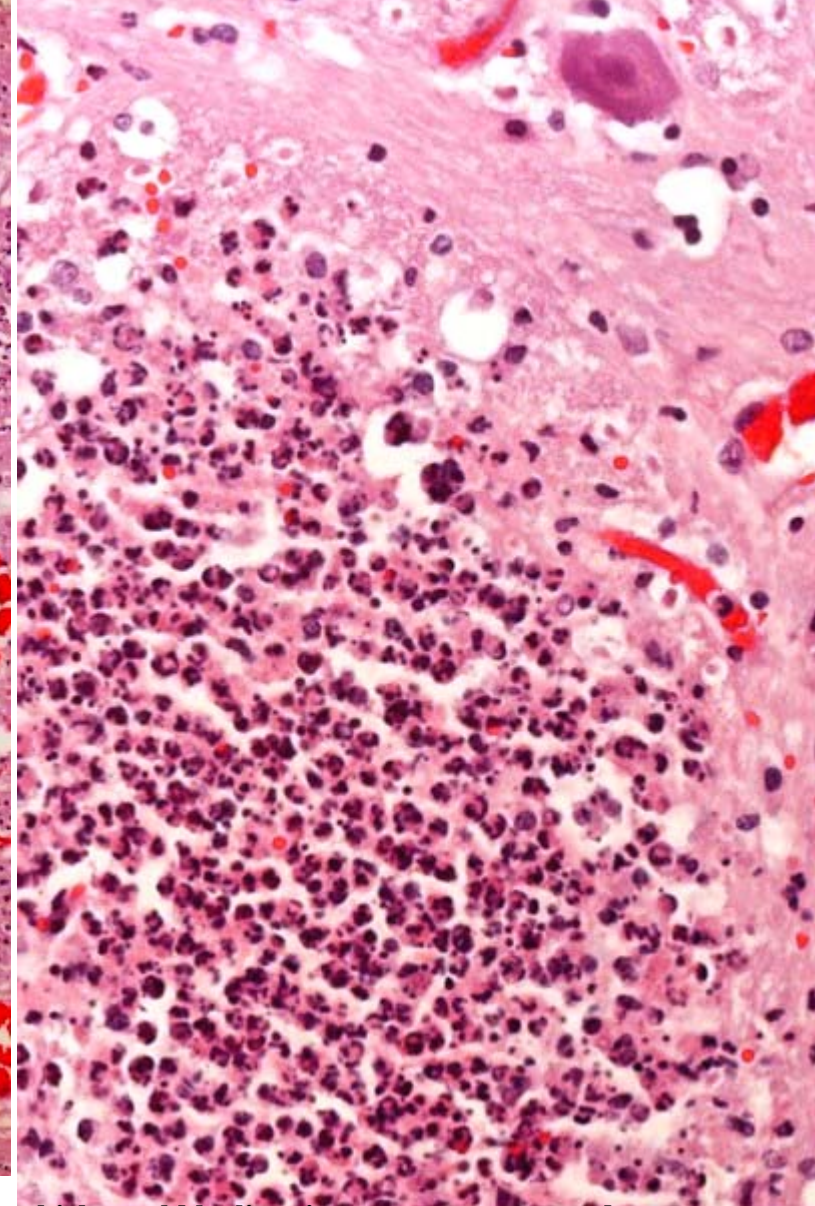
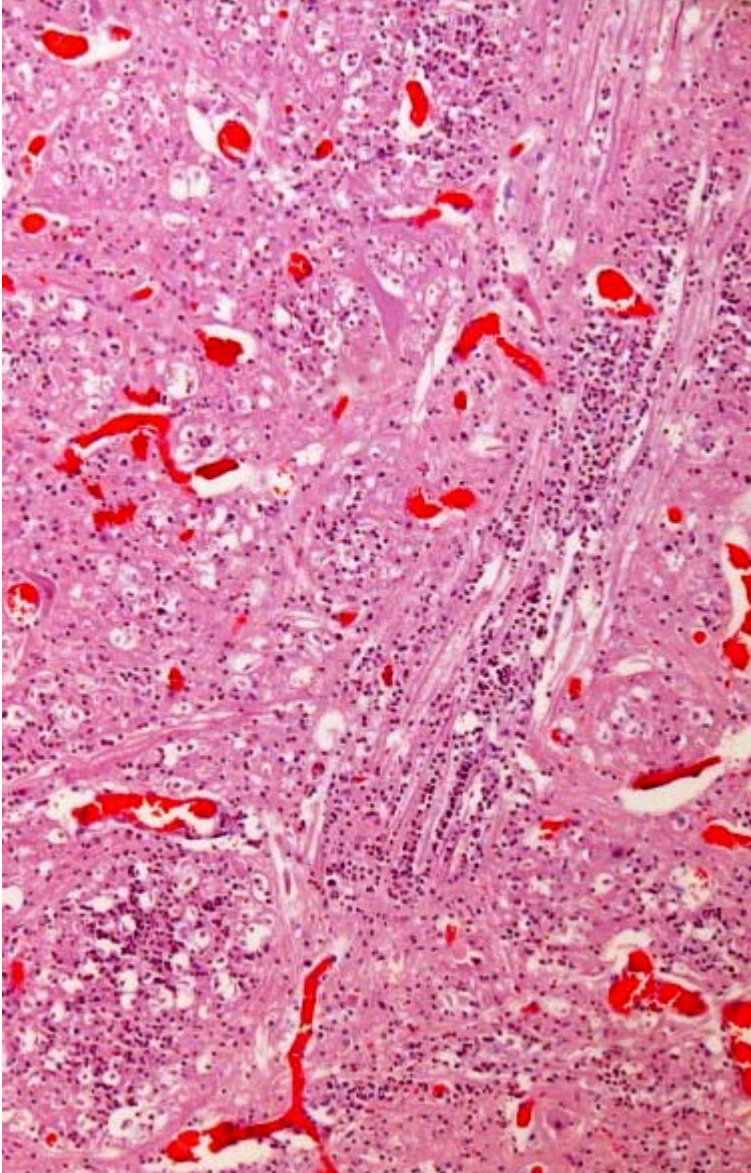
Review –

1) – Abnormalities evident include vascular congestion (non-specific) and focally variable

hypercellularity of the neuropil with associated tissue destruction.

Higher magnification reveals collections of degenerate neutrophils in some of these foci.

2) – Pathologic processes are extensive subacute inflammation with necrosuppurative foci. An acceptable MDx could thus be “Encephalitis, subacute, extensive and multifocally necrosuppurative”.



3) - The changes certainly are suggestive of a bacterial agent, one possibility for which would be listeria monocytogenes, and this was the diagnosis in this case.

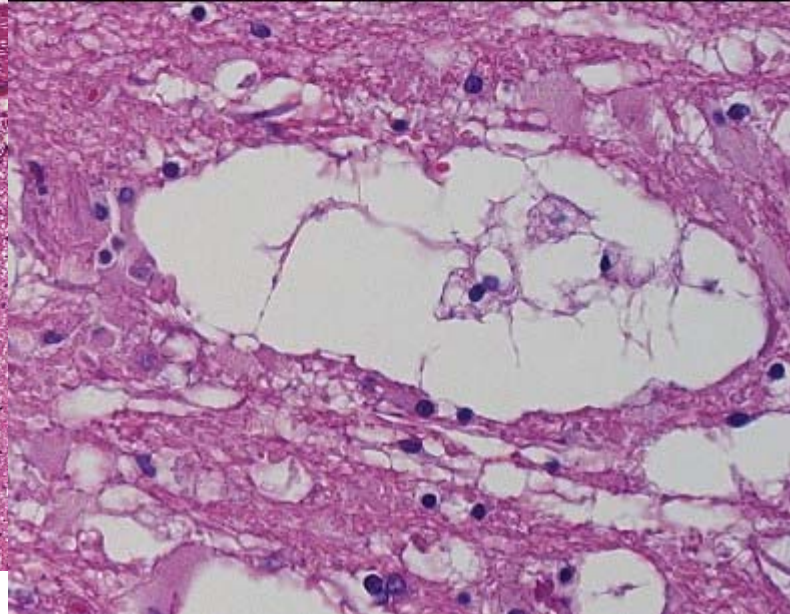
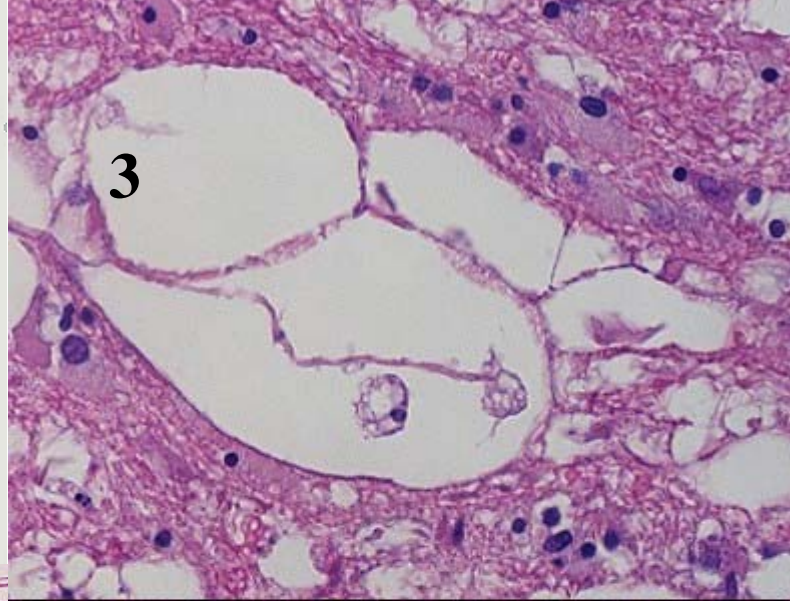
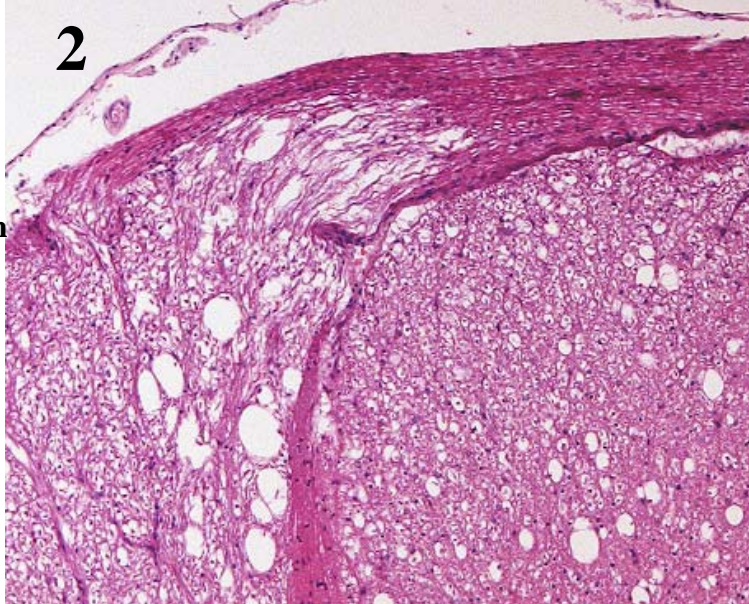
4) – Other expected features would be lymphoplasmacytic perivascular cuffing, meningitis and limitation of the lesions to the areas mentioned. Sensory ganglionitis (trigeminal ganglion) might also be present. Organisms can be identified by specific immunohistochemistry

Comment: Listeriosis is not commonly diagnosed in horses

Case 5.2 – Spinal cord of a 1yo cat with a Hx of paraplegia after 3 weeks of progressive paraparesis.

Review –

1) – In #1 there is bilateral symmetrical vacuolation of white matter in all funiculi which is more intense centrally than peripherally. In #2 there a sharp cutoff in vacuolation where Schwann cell myelination changes to oligodendrocytic myelination in a spinal nerve rootlet. Many axons appear intact. In #3 macrophages can be seen adjacent to intact axons within a vacuole, and adjacent glial cells are reactively enlarged.



2) – The changes suggest a “spongiform myelinopathy“ in which myelin is first disrupted and in this case then phagocytosed, to leave axons unmyelinated and surviving at least for a time.

3) - For spongy vacuolation aetiopathogenetic factors might include toxins which destabilise myelin, such as hexachlorophene or organic tin compounds (and some plant toxins and anthelmintics in herbivores). Hepatic or renal failure might also be considered. In all these, degeneration and phagocytosis of myelin is not typical in the acute phase. In cats, lesions of the type illustrated have been ascribed to chronic FeLv infection. Other than that some inherited metabolic disorder might be suspected.

Case 5.3 – Spinal cord of a cat.

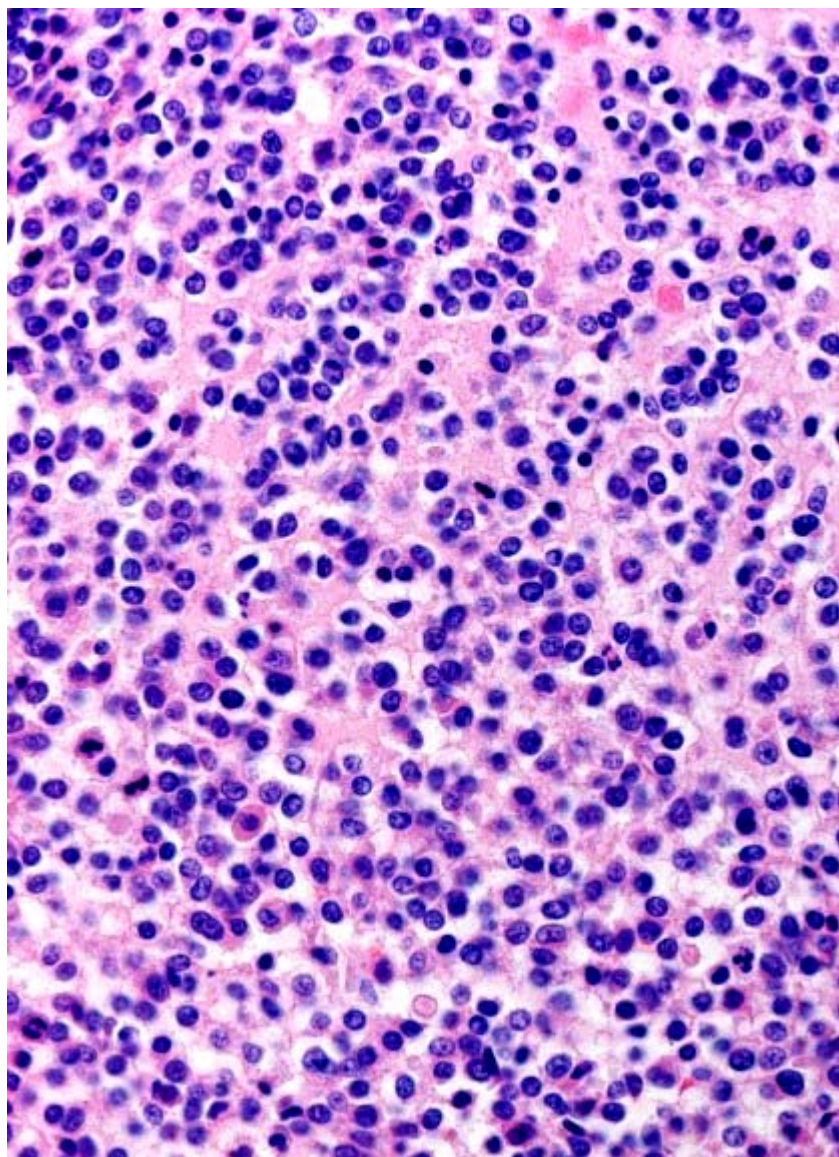
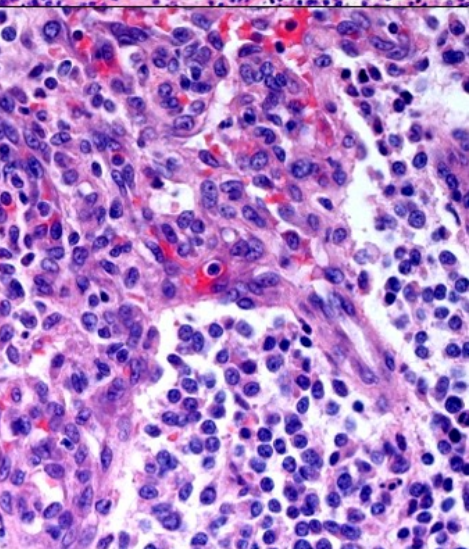
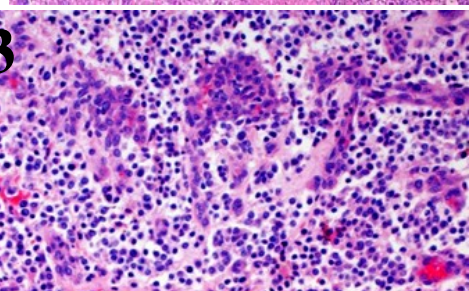
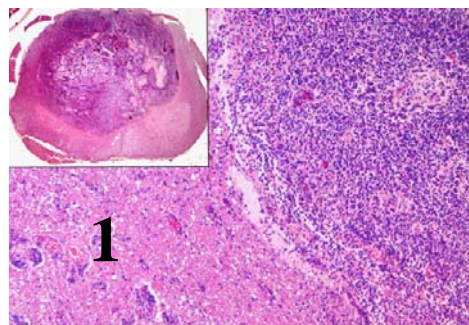
Review – with supplementary image to show cell phenotype

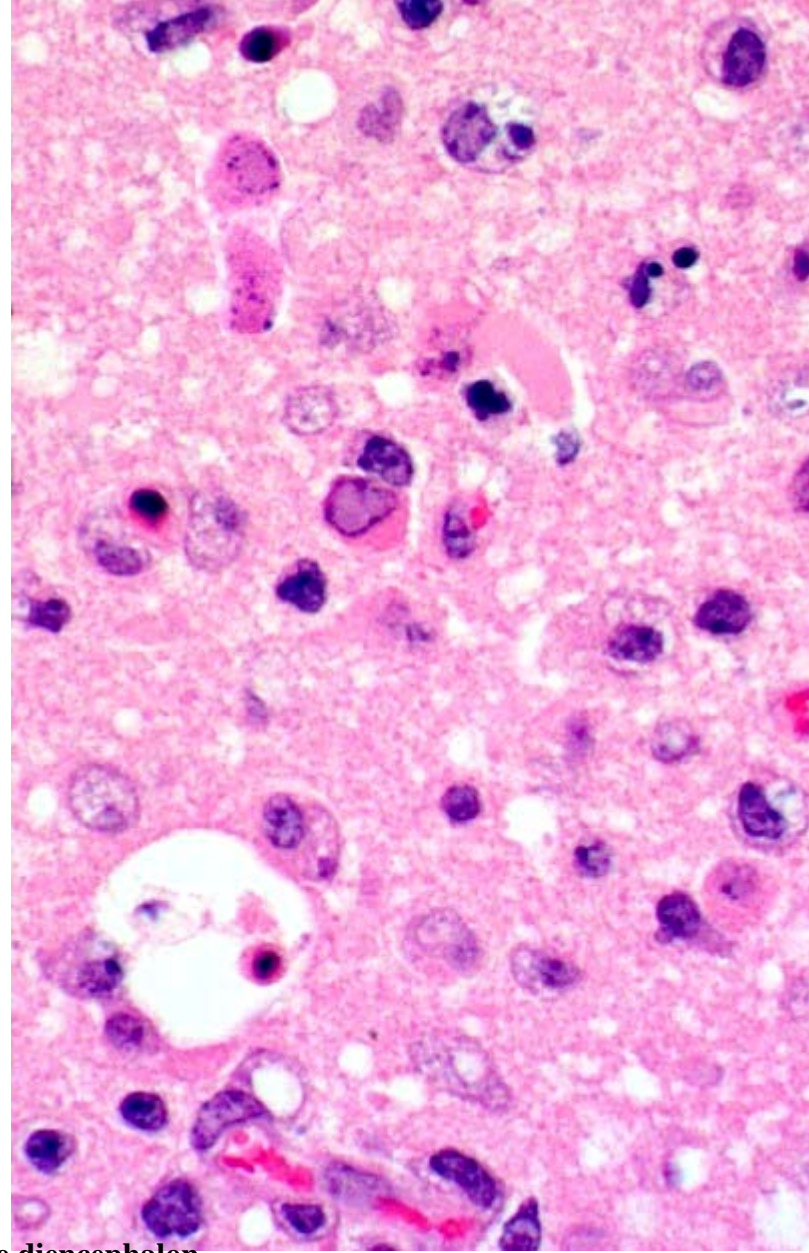
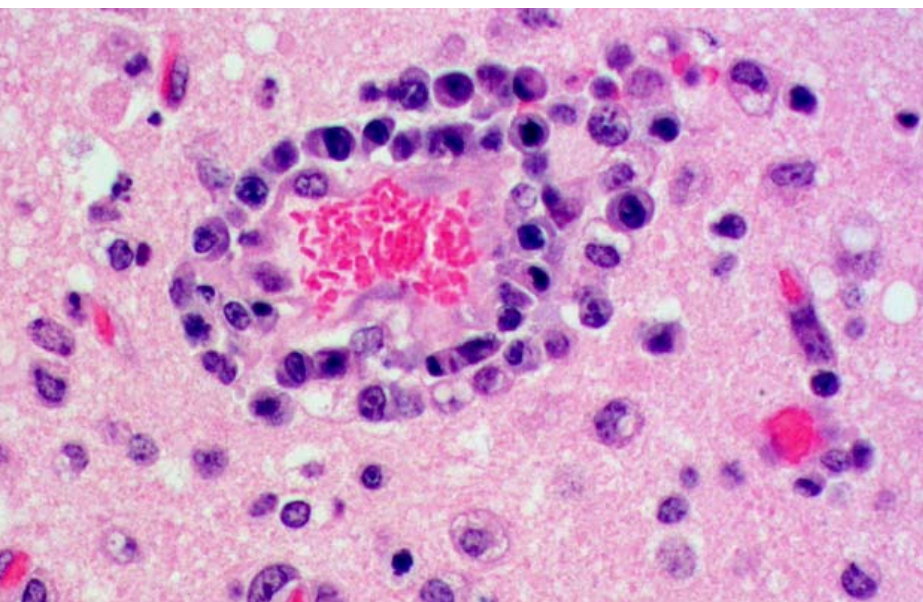
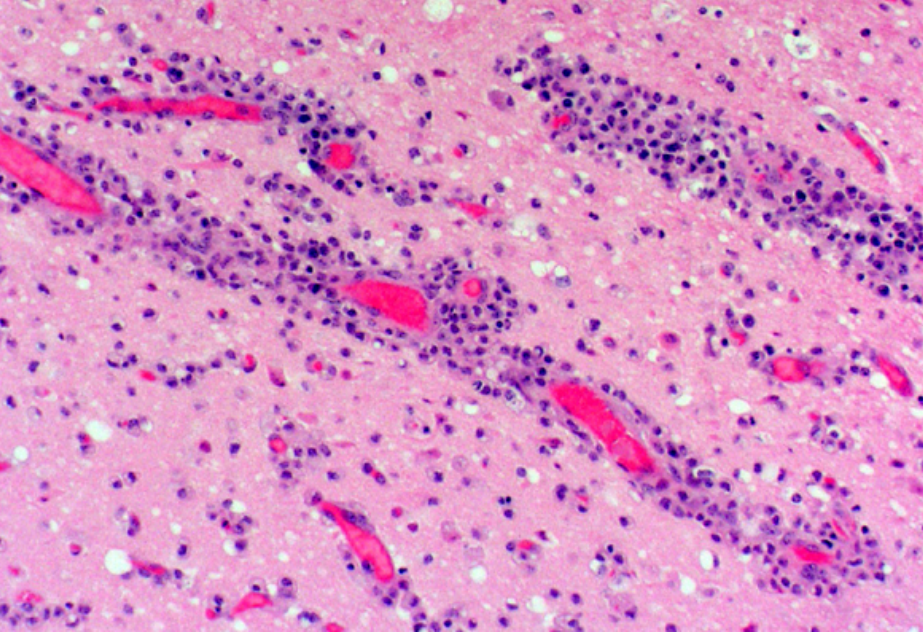
1) – Image#1 – there is an intramedullary, variegated cellular mass with an indistinct margin which replaces 75% of the neuroparenchyma. Some perivascular hypercellularity in adjacent parenchyma; Image#2 – multiple intramass foci of cellular debris with a surrounding increase in cellular density; Image#3 – “glomeruloid“ clusters of new capillary blood vessels amongst a round cell population.

2) – Pathologic processes evident include destructive cellular proliferation/infiltration with focal necrosis and vigorous neovascularization.

3) – A general MDx could be: “malignant neoplasia, anaplastic, with marked glomeruloid neovascularization“. More specifically: “Anaplastic glioma – probably oligodendroglioma on the basis of the additional image provided.

Comment: Anaplastic gliomas often feature “pallisading“ of tumour cells around necrotic foci and “glomeruloid“ angiogenesis. The degree to which an astrocytic or oligodendroglial phenotype is expressed may vary and may be mixed. Primary lesions are more common in the brain than in the spinal cord

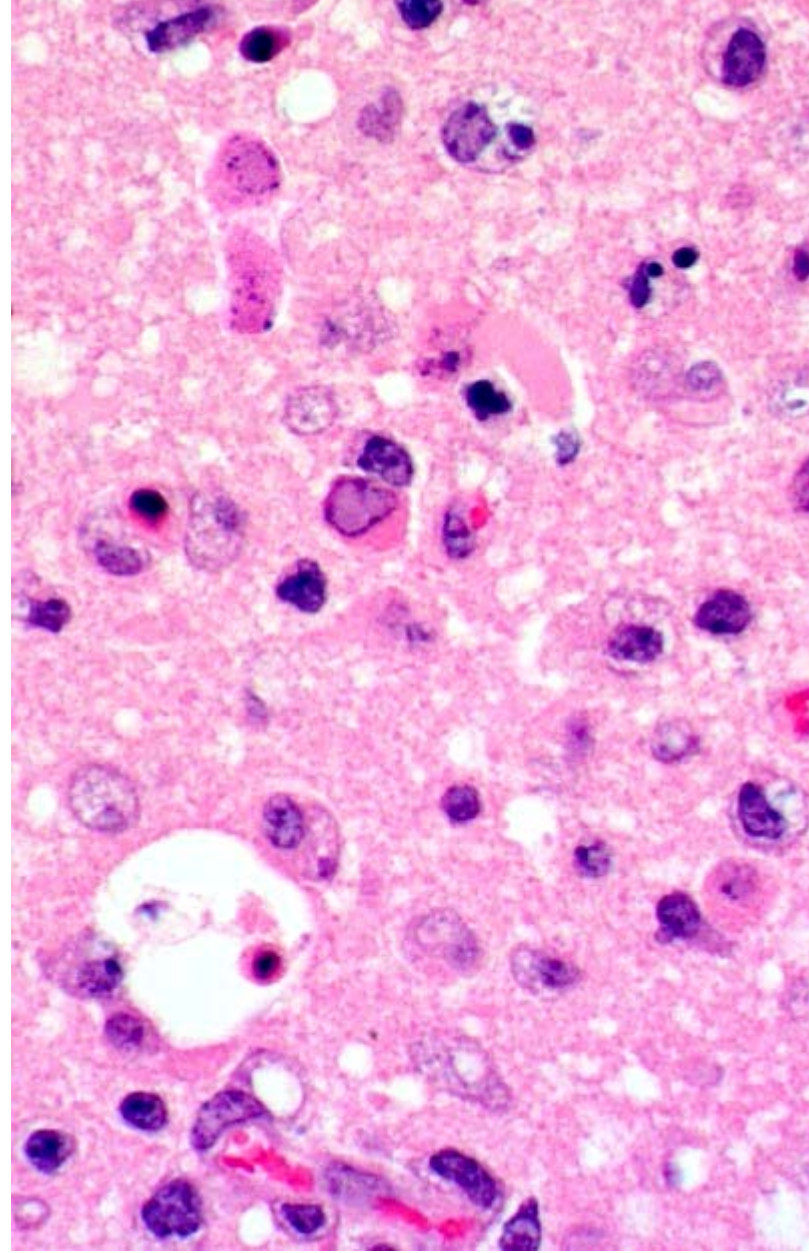
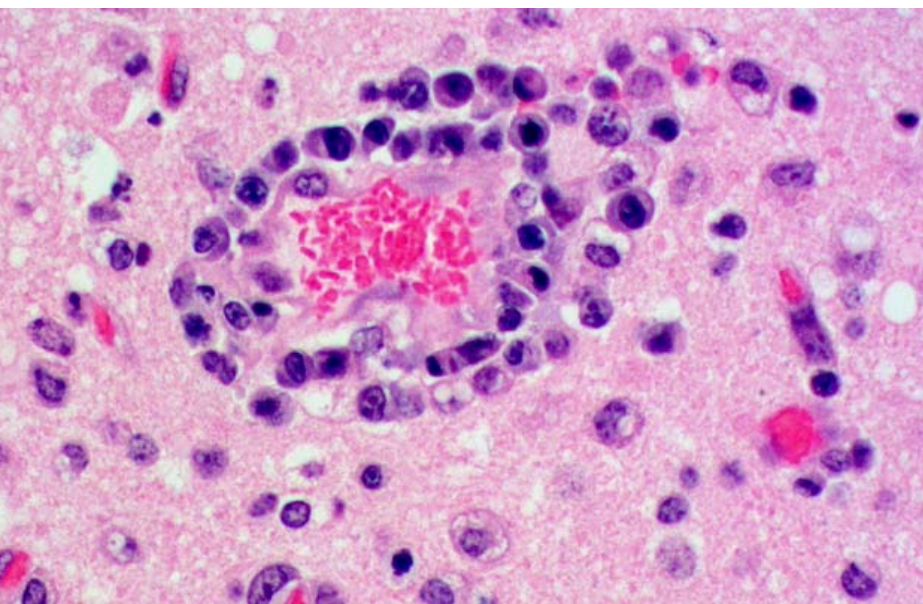
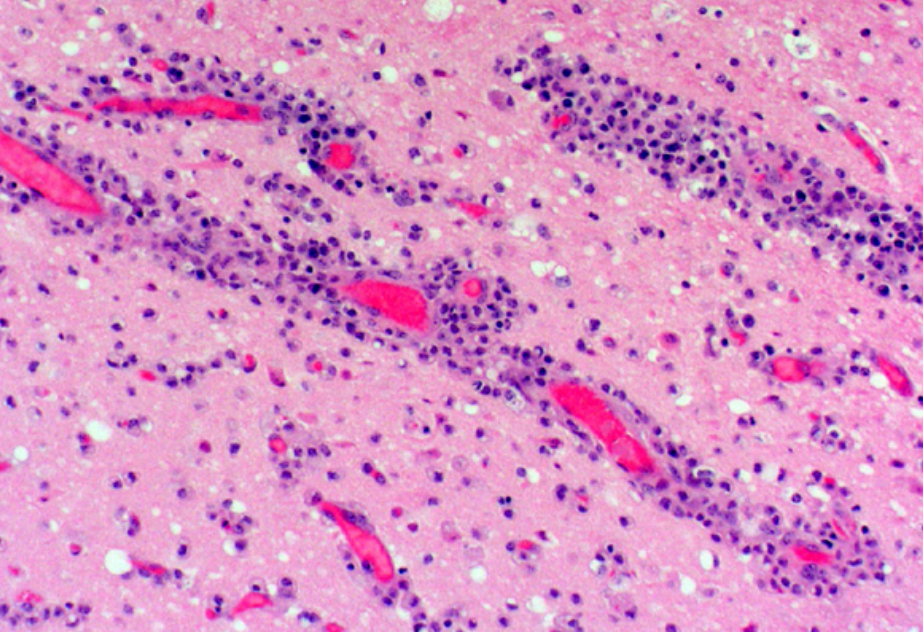




Case 5.4 – Brain of a young adult bovine. This lesion was focally extensive in the diencephalon.

Review –

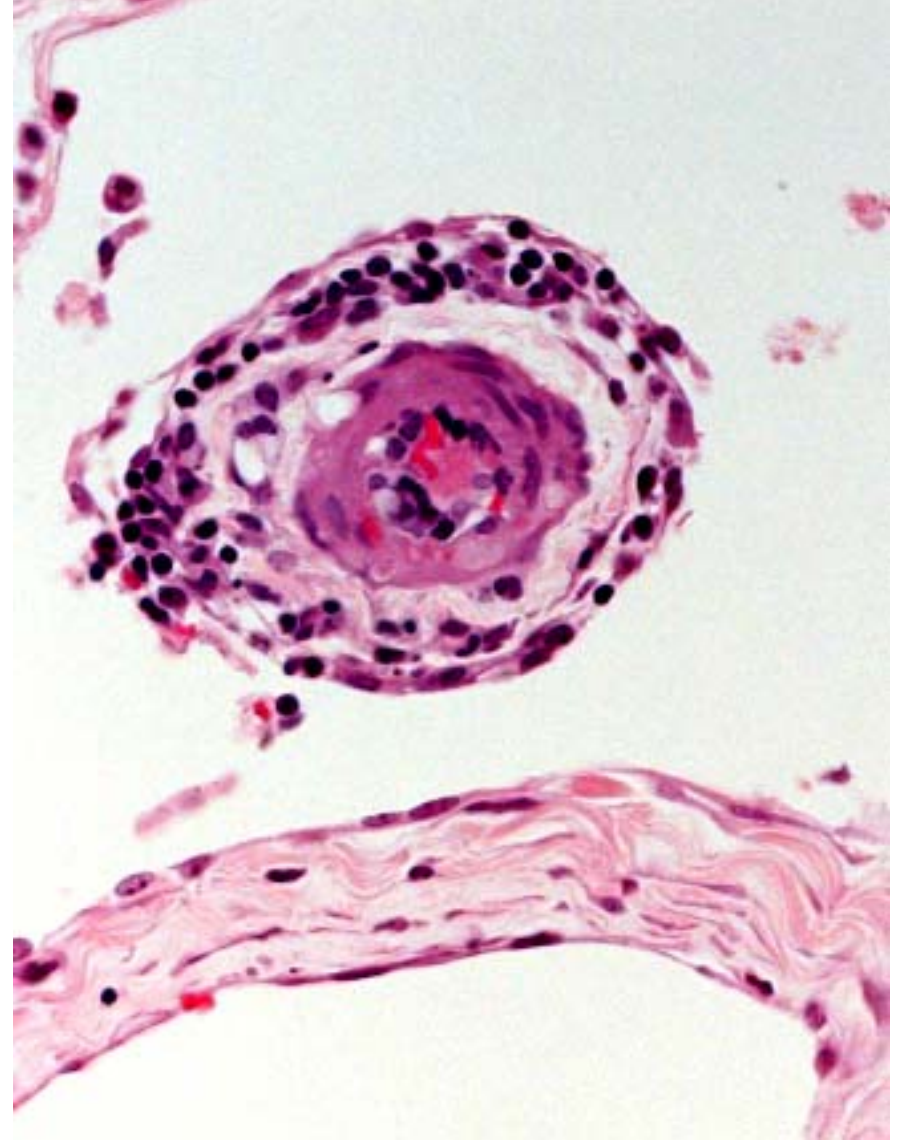
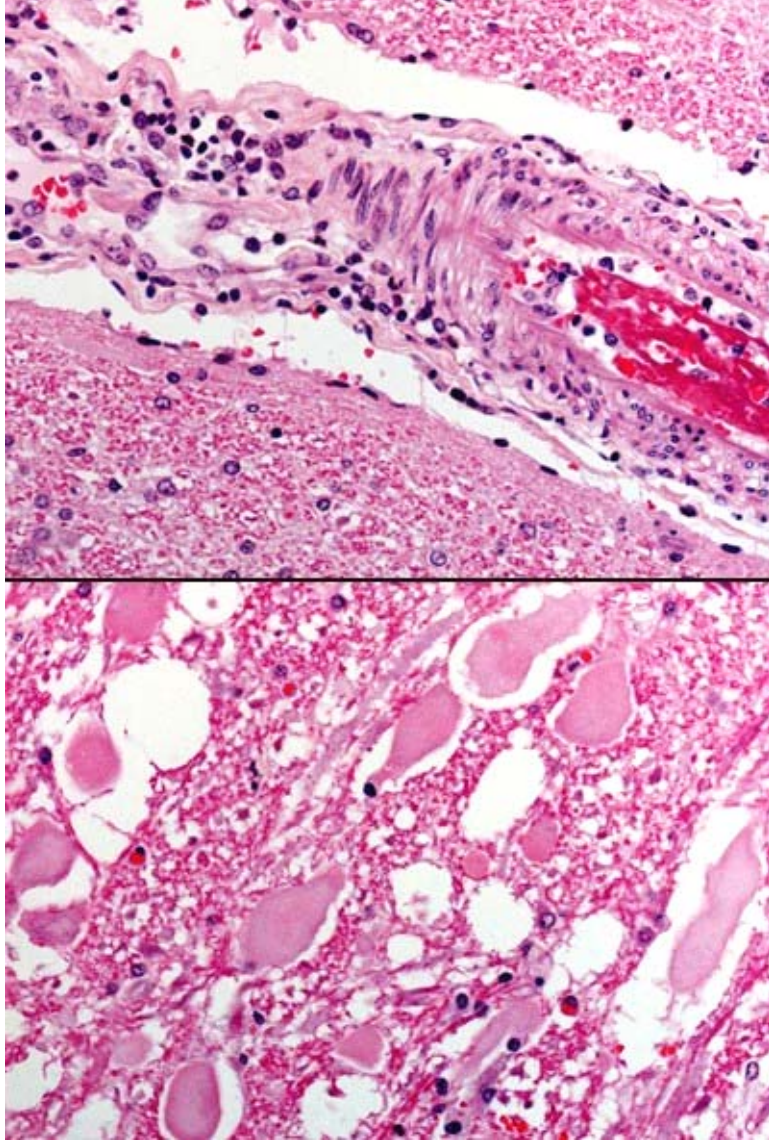
- 1) – Significant features illustrated are: Perivascular cuffing by large mononuclear cells; scattered neurons with eosinophilic cytoplasm and nuclear rhexis with margination of chromatin and amphophilic staining.**
- 2) – Pathologic processes evident are acute perivascular inflammation with neuronal necrosis (continued next slide)**



(continued from previous slide)

3) – An acceptable MDx could be “Encephalitis, acute non-suppurative with individual neuron degeneration and necrosis, and amphophilic intranuclear inclusion bodies“

4) - A likely aetiologic agent is Bovine Herpesvirus V – which was the diagnosis in this case. In some countries a differential Dx might be Herpesvirus suis.

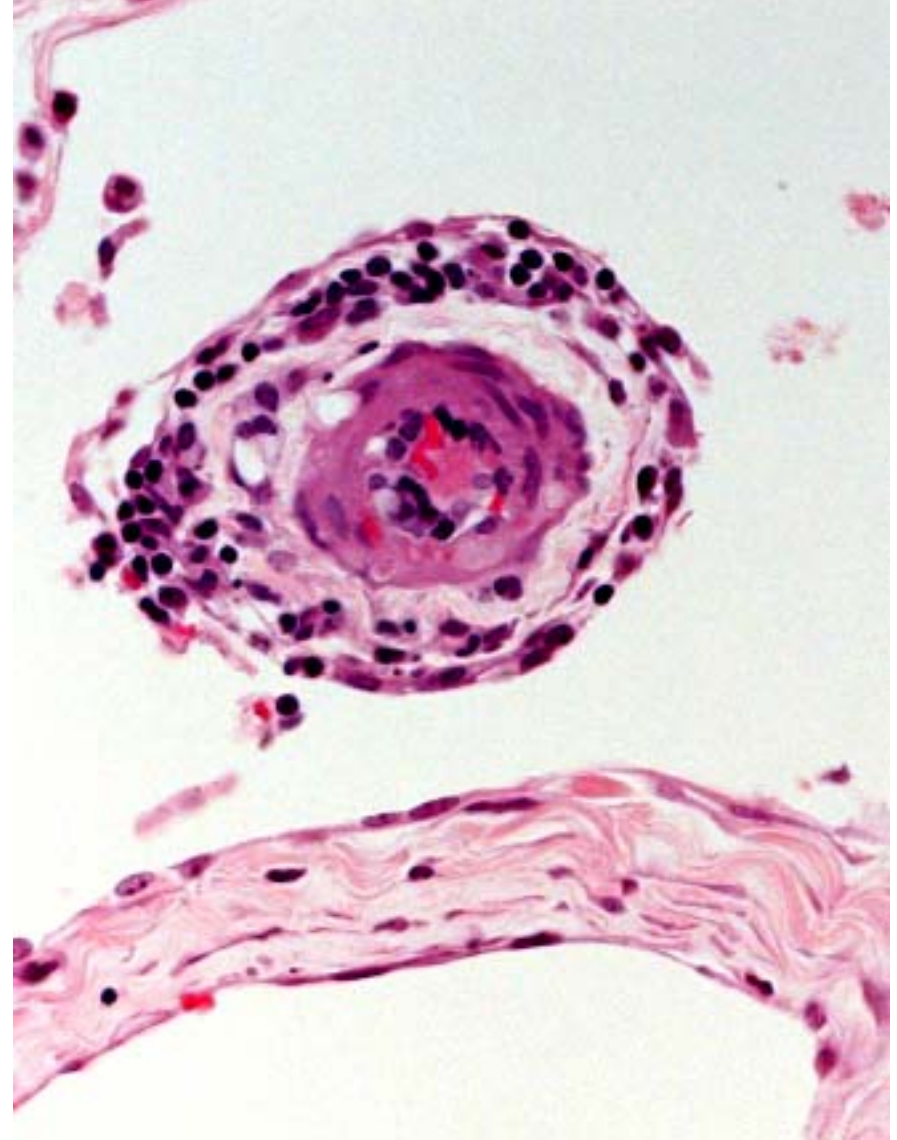
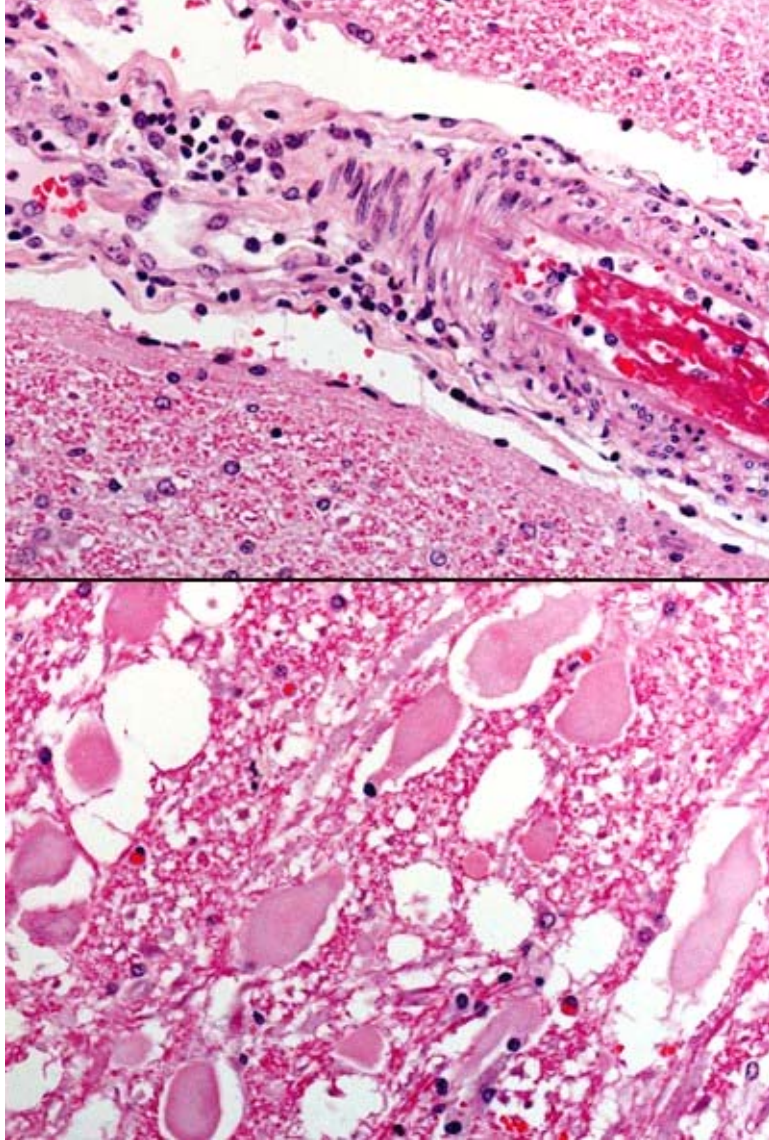


Case 5.5 – Caudal brainstem of an adult mare.

Review – with supplementary image – meningeal arteriole

1)– Major changes seen are: locally extensive “loosening“ of neuroparenchyma, with numerous eosinophilic axonal swellings and extravasated red cells; a light infiltrate of mononuclear cells in the adventitia of a meningeal arteriole, which also contains a probable thrombus. In the extra image provided here another arteriole has additionally intramural red cells and oedema

2) – An acceptable MDx could be: Meningeal arteritis, subacute, moderate, with thrombosis and associated ischaemic axonal degeneration and haemorrhage in adjacent brain tissue. (continued next slide)



(continued from previous slide

3) – A likely aetiology is Equine Herpesvirus I, which was the case.

Comment: Multifocal lesions of this character occur in the spinal cord and brainstem in this disease, involving meningeal and perforating arterioles. **NOTE** that the vasculitis is typically **MILD**, thrombosis may not be particularly conspicuous **AND** inclusion bodies in endothelial cells are rarely found. Viral antigen can be demonstrated in endothelial cells by immunocytochemistry. There is no inflammation in the neuroparenchyma, merely ischaemic degeneration/infarction