Neuropathology Mystery Slide Session 2017

Case #1

DIGITAL SLIDE

Contributors: Jo Moore, Justin Greenlee

History/Signalment:
Seven year old male Suffolk sheep. Euthanized after an 11 month history of intermittent lameness. Sheep had been treated with Meloxicam (oral, nonsteroidal anti-inflammatory drug), Coppernate (topical, copper naphthenate), and Restflor Gold (florfenicol and flunixin meglumine).
This sheep was one of a flock of ten Suffolk sheep that had access to indoors and outdoors. Previously one sheep in the flock had been found dead and three sheep were euthanized with clinical signs including inappetance, recumbency and ataxia.

Gross: No significant CNS lesions.
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Case #2

 Presenter: Nathan D. Helgert, VMD
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 Collaborators: Kim Newkirk, DVM, PhD, DACVP
                Shelley Newman, DVM, DVSc, DACVP
                Brian Summers, PhD, MRCVS, FRCPath, DACVP

 Signalment: 10-month-old, intact female Radoll cat

 History: The patient was presented for tremors and cervical hypersensitivity and showed no improvement following empiric treatment with analgesics and antibiotics. Referral to neurologist provided neuroanatomical localization to basal nuclei. Serology for Toxoplasma gondii and Cryptococcus sp. was negative. Serology for feline Coronavirus was positive at 1:400 and 1:1600.

 Histologic Findings: Throughout the brain, but most pronounced in the gray matter of the optic tract, cochlear nuclei, and reticular formation, there are many extracellular and intracellular globular to angular amorphous, well-demarcated, eosinophilic accumulations. These accumulations are often brightly eosinophilic centrally. Scattered throughout these areas, there are occasional astrocytes with increased amounts of eosinophilic cytoplasm and slightly enlarged nuclei.
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Case 3 (Institutional case number: T17-02365).

Presenters: Ian K. Hawkins and Daniel R. Rissi

Signalment: A 4-year-old intact female pointer dog.

Clinical and gross findings: This dog was a working animal used on a hunting plantation in South Georgia and had presented to the referring veterinarian with acute central neurological signs. Vaccination history was unknown. The primary differential diagnoses were rabies and pseudorabies. The dog was euthanized and submitted to the Tifton Veterinary Diagnostic and Investigational Laboratory for necropsy. No significant gross changes were observed in the carcass at necropsy.

Histopathology: Sections of brain and cranial spinal cord had a moderate to marked degree of inflammation. The leptomeninges were expanded by predominantly perivascular, moderate to large numbers of lymphocytes with fewer plasma cells and macrophages. Blood vessels throughout the grey and white matter of the telencephalon, cerebellum, brainstem, and cervical spinal cord were surrounded by accumulations of lymphocytes with fewer macrophages, plasma cells, and rare neutrophils. Similar inflammatory cells and multiple foci of microgliosis were also present within the neuroparenchyma. Hippocampal neurons and Purkinje cells contained 2 to 4 μm diameter, ovoid to round, intracytoplasmic, eosinophilic inclusions. Occasionally in spinal cord sections, the nerves were surrounded by low to moderate numbers of lymphocytes and macrophages.
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**Case Number: 4 (DIGITAL SLIDE)**

**Presenter:** Mutsumi Yamazaki\(^1\), DVM, BSC

**Co-Presenters:** Natsuho Nishiki\(^1\); Koji Nishida\(^2\), DVM; Fuyuki Kametani\(^3\), PhD; Nobutaka Arai\(^3\), DM, PhD; Kinji Shirota\(^1\), DVM, PhD, JCVP; Yumi Une\(^1\), DVM, PhD, JCVP

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**Signalment/History:** An 18-year-old female mixed-breed cat showed decreased physical activity and neurological signs including an asymmetric pupillary reflex (right: mydriasis, left: miosis), poor balance on the left body side, and involuntary movement of the right leg. “Decreased emotion” had also been noted in this cat.

**Gross Findings:** The brain showed moderate atrophy.
NPMS 2017, Case 5

Authors: Andrew D. Miller, DVM, Dipl. ACVP (Cornell University); Mason Jager, DVM (Cornell University), Joseph Eagleson, DVM, Dipl. ACVIM (Neurology); Veterinary Specialty and Emergency Center, Levittown, PA

History/Signalment: 7 year old male neutered Springer spaniel. Approximately 5-month history of progressive C1-C5 myelopathy. Initially responded to prednisolone, but slowly declined after several weeks. Imaging revealed intramedullary T2 hyperintensity and meningeal enhancement throughout the cervical cord.

Gross findings: Grossly the meninges were markedly thickened and often enmeshed in a loose matrix that was circumferentially tethered to the cord. The spinal cord parenchyma was mildly atrophied.
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Contributors:  B. Wade Edwards, DVM, Diplomate ACVP  
                Karen A. Terio, DVM, PhD, Diplomate ACVP  
                Kami Z. Fox, DVM (Fort Wayne Children’s Zoo)

Signalment:  
Zoo housed, 5-year-old, intact male, Javan gibbon (*Hylobates moloch*).

Clinical History:  
This animal was evaluated for progressive neurologic dysfunction presenting as inappropriate mentation, right-sided hemiparesis, head tilt, and periodic self-mutilation. During a 4-month course of disease progression, the animal received antibacterial and antifungal therapy with no clinical improvement. Humane euthanasia was elected.

Gross Findings:  
Bilaterally the frontal lobe white matter had multiple coalescing, pinpoint, dark red to brown foci that in the most severely affected areas had central cavitations. The left hemisphere was more severely affected than the right with collapse of the parenchyma due to white matter loss.

Microscopic Findings:  
Multifocally, much of the cerebral white matter extending from the centrum semiovale to the corona radiata was affected by a marked degenerative process with extensive vacuolation and/or cavitation of the neural parenchyma. Affected areas were markedly hypercellular with numerous gemistocytic astrocytes, some of which had karyomegaly and/or were multinucleated.
NPMS 2017

Case 7 (Institutional case number: A15-38013)

Presenters: Brittany McHale, Lorelei L. Clarke, Anibal Armien, and Dan R. Rissi

Signalment: A wild adult male goose in good body condition was submitted for necropsy.

Clinical Presentation: The goose was found wandering aimlessly on a farm with severe lethargy and reduced vision. Antibiotic therapy was not successful and euthanasia was elected due to suspicion of avian influenza.

Gross Findings: A focal, bright red, soft, homogeneous, 5 mm in diameter nodule was present on the ventral aspect of the brainstem, extending from the pons to the level of the optic chiasm. Coronal sections of the brain revealed that the lesion extended into the dorsal parenchyma, including brainstem, hypothalamus, and basal nuclei.

Histopathology: The nodule consisted of an extensive, well-defined, locally infiltrative neoplasm extending to the same areas described above. In addition, neoplastic cells were also present in the hippocampus and leptomeninges.