NPMS 2020, Case #1 (Labeled 20-30320-3)

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History/Signalment: A 10-year and 7-month-old, spayed female, Basset Hound dog presented to the referring DVM with a history of progressive seizures beginning in June 2017. The dog was started on potassium bromide therapy in December 2018. In July 2019, the dog developed a painful, stiff neck and was started on prednisone and cyclosporine treatment. A neurologist was consulted in November 2019, where all performed lab work and potassium bromide levels were within normal limits and the CSF tap revealed blood. At this time, strokes were considered a possibility, seizure medications were altered, and the animal was weaned off prednisone. The seizures continued to progress and the dog was euthanized on January 6th, 2020 at the rDVM. Other antemortem conditions included: hypothyroidism, previous urinary tract infections, and skin rashes.

Gross findings: On gross examination, the brain was unremarkable.
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History/Signalment: 24 year old, female, Fjord horse. Patient presented with a two month history of progressive inappetence, weight loss, and lethargy in the summer. Patient also had a history of suspected trauma to the eye. Two weeks prior to presentation, the referring veterinarian noted the patient had ventral edema and an abnormally long hair coat, with concurrent hematology and serum biochemistry test revealing a marked anemia. Owners also reported that in the last two weeks the patient appeared to be drinking and urinating more than normal and to have difficulty ‘seeing’ (hesitant to walk and frequently get stuck in corners). Over the week leading up to presentation, owners also observed mucopurulent discharge from the left nostril. Patient had been with the current owners and kept on the same property for the last five years. Patient was housed with sheep and goats on the property, fed a mix of concentrates, pasture grass and hay with Vitamin E and selenium supplements and salt licks, and up to date on vaccination and anthelmintic treatment. At presentation, the patient was quiet, dull and not normally responsive. She was in poor body condition (body condition score of 3/9) with marked loss of muscle mass, abnormally long hair coat relative to the season and breed and ventral edema. There was left phthisis bulbi, corneal vascularization, hyphema and miosis, with an absent menace response and pupillary light reflex. The right eye was normal. The left nostril had a mucopurulent discharge. Thoracic auscultation and percussion revealed an absence of audible lung sounds and a uniform dull resonance respectively. Ultrasound revealed marked enlargement of lungs. Serum biochemistry revealed severe hypoglycemia and hypoalbuminemia. Patient was humanely euthanized and the body submitted for necropsy the same day.

Gross findings: Effacing the hypothalamus was a yellow-tan, firm mass that extended ventrally into the pituitary gland. The pituitary gland was mildly enlarged. Both adrenal glands were mildly decreased in size and retained corticomedullary distinction. Several lymph nodes (particularly the tracheobronchial, lumbar aortic and renal lymph nodes) were moderately to markedly enlarged. The cornea of the left eye was irregularly thickened and dark brown-red. The center of the pupil was surrounded by a 2.5cm long x 1cm long, curvilinear, dark brown area. The caudal maxillary sinus and ventral portion of the nasal cavity was filled with viscous pale yellow material. There was a 6cm x 5cm x 4cm ovoid, firm, pale yellow mass in the right guttural pouch. The lungs were severely diffusely enlarged, emphysematous and beige-pink.
NPMS 2020, Case #3 (Labeled 1413-3)

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History/Signalment: 4-month-old male K18-hACE2 mouse (Mus musculus) representative of this model euthanized at 7 days post-infection. K18-hACE2 transgenic mice were infected intranasally with 10⁶ plaque forming units (PFU) of SARS-CoV-2 (2019-nCoV/USA_WA1/2020). Disease was characterized by weight loss (>10%), hunched posture, piloerection, orbital tightening, and reduced activity. Multiple neurological abnormalities were often present at terminal stages of disease occurring between 5–7 days post-infection, which included depressed mentation, ataxia, gait disturbances, and proprioceptive deficits. Animals displaying neurological abnormalities also had hypothermia with intraperitoneal implants routinely registering temperatures <30°C (normal ~33-37°C). Animals during the critical phase may display respiratory signs such as dyspnea and abdominal effort during inspiration.

Gross findings: The lungs had bilateral multifocal dark red discoloration affecting approximately 30-40% of the parenchyma. The lungs sank when placed into 10% neutral buffered formalin, suggestive of consolidation. The urinary bladder was greatly distended. No other significant gross findings were observed.
NPMS 2020, Case #4 (Labeled 102281-18)

**Authors:** Jacqueline L. Marr, DVM (Cornell University); Andrew D. Miller, DVM Dipl. ACVP (Cornell University)

**History/Signalment:** 7-year-old spayed female French bulldog. No clinical history provided. MRI revealed an intradural mass at the level of the L3 vertebra.

**Gross findings:** At surgery, overlying the body of the L3 vertebra, a purple-red, well-demarcated, nodular mass occupied the subdural space and appeared to extend into and efface the spinal cord parenchyma. Post-fixation, the submitted tissue comprised of a firm, dark tan nodule without apparent associated meningeal or spinal cord tissues.
NPMS 2020, Case #5 (Labeled 20B-0008)

Authors: Erika Hoffeld, DVM and LaTasha K. Crawford, VMD, PhD, DACVP

History/Signalment: 13-year-old, spayed female Siberian husky. The patient had a 1 year history of increased sneezing with progressive stertor and intermittent dyspnea for 4 months. Computed tomography (CT) at initial presentation, along with CT and magnetic resonance imaging (MRI) two weeks later, revealed a right-sided nasal mass with destruction of the caudal nasal turbinates, extension into the left nasal cavity and nasopharynx. The cribriform plate was misshapen and the left aspect of the cribriform plate is absent (probable congenital craniofacial malformation) with associated dilation of the cavity of the olfactory bulbs. Definitive radiation therapy (10 sessions at 4.2 Gy each, total of 42 Gy) was performed and a stable partial response was documented on computed tomography 4 and 8 months later. Nine months after initial presentation, dorsal rhinotomy and nasal exenteration was performed and tissues were submitted for histopathology.

Gross Description: Fifteen pieces of tissue were submitted, originating from the right nasal cavity, nasal septum, left nasal cavity, and left nasal turbinates. Post-fixation samples ranged from firm to hard, tan to dark brown, and 2.2 x 1.7 x 1.5 cm to 0.8 x 0.4 x 0.3 cm.