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Detections of botulism type C toxin at CAHFS

Botulism type C toxin was detected in alfalfa cubes that were submitted to CAHFS from out of state, and which were associated with multiple cases of suspected botulism in horses from several different states (but not from California). Botulinum toxin has not yet been detected in gastrointestinal or liver samples from any of many horses tested so far. CAHFS is part of the Veterinary Laboratory Investigation and Response Network (Vet-LIRN) of the Food and Drug Administration, and it is via participation in this network that some of the out-of-state samples get submitted to our lab. Investigation of these cases is ongoing. CAHFS is one of the few laboratories in the US that offer botulism testing.

Bovine

Vegetative valvular endocarditis was the cause of clinical signs in a 5-month-old Angus steer euthanized after a one month history of hind limb paresis followed by one week of hind limb paralysis and brisket edema. Tissues from a field necropsy revealed right atrioventricular (AV) endocarditis, bilateral AV endocardiosis, hepatic passive congestion and multifocal pulmonary abscesses. Trueperella pyogenes was isolated from both the liver and the lung, likely having reached those organs by vascular spread from the heart valve lesions. Although spinal cord was not submitted, it is possible that this organ was also affected by embolic lesions, which were responsible for the neurologic signs observed.

Pine needle exposure was the probable cause of abortion in three fetuses submitted from a 35-cow beef herd in which 10 cows aborted in one week. Fetuses submitted were 6- to 8-month gestation with evidence of in-utero hypoxia. Using a newly developed, in-house assay under validation, tetrahydroagathic acid, a marker for pine needle exposure, was detected in thoracic fluid of two fetuses and abomasal fluid of the third. Excess pine needle ingestion may be associated with fetal hypoxia leading to abortion, birth of weak calves, poor uterine contractility and retained placentas.

HOLIDAY SCHEDULE

CAHFS will be closed on Monday February 20 in observance of President’s Day.
Small Ruminants

An outbreak of bluetongue virus (BTV) occurred in a 470-Rambouillet sheep flock from southern California between mid-October and early November 2022. Approximately 20 sheep died after developing runny noses, heavy breathing and foam coming out of the mouth. Two adult sheep were submitted for necropsy and diagnostic work up. One had severe pulmonary edema, hydrothorax, and subacute myocarditis, while the other had ulcerative lesions in the alimentary tract, including stomatitis, glossitis, rumenitis, omasitis, and abomasitis. RT-qPCR performed at CAHFS detected BTV in both animals, and the National Veterinary Services Laboratories (Ames, IA) identified the BTV as serotype 11. This serotype had been detected in California before; other BTV serotypes detected previously in California are 10, 13, 17, and, less commonly, 2. BTV infection is endemic in California and the majority of the clinical cases occur in late summer and fall, when the activity of the vector (Culicoides midges), is higher. Vaccination can be performed during the spring and helps to protect sheep flocks from being severely affected by BTV.

Copper toxicosis was the cause of death in an adult Barbados sheep. Postmortem findings included icterus, brown urine, dark gray kidneys and yellow liver with necrosis. Toxic levels of copper were found in the liver (230 ppm, normal 25-100 ppm) and kidney (80 ppm, normal 4-5.5 ppm).

Pigs

Meningoencephalitis extending from an abscess at the base of the brain resulted in sudden onset of seizures, abnormal gait and illness in a 6-month-old Berkshire pig. Trueperella pyogenes and Klebsiella pneumoniae were isolated from the brain.

A vertebral abscess leading to spinal cord compression caused a 2-month-old female pig to lose the ability to use the back legs prior to euthanasia. The 4 cm abscess in the body of the first lumbar vertebra protruded into the spinal canal and compressed the spinal cord.

Poultry

Infectious coryza, polyserositis and aspergillosis were diagnosed in a group of 27-week-old layers from a flock experiencing increased mortality, weight loss, listlessness and swollen eyes. On post-mortem examination, conjunctivitis, rhinitis, polyserositis and sinusitis were observed. Avibacterium paragallinarium was detected by qPCR in sinus and tracheal pools. Avibacterium sp. (most closely related to Avibacterium avium by 16S RNA) was isolated from heart and air sacs. One bird also had gross and microscopic lesions compatible with infection by Aspergillus spp.

Low pathogenic avian influenza (LPAI) virus subtype H6N2 was detected in 7-month-old ring-necked pheasants (Phasius torquatus) submitted from a 20,000 bird flock with a reported mortality of 1% and morbidity of 5%. Clinical signs included weight loss, sneezing and difficulty breathing, followed by death approximately one month after the onset of signs. The main lesions noted in the pheasants submitted were conjunctivitis, rhinitis and sinusitis. The lesions were complicated by Escherichia coli infection of the upper respiratory tract.

Other Avian

Rodenticide intoxication was diagnosed in two avian wildlife cases. The first case involved a great horned owl that had the remains of a songbird and milo seeds in the stomach. Strychnine was found in gastrointestinal (GI) contents confirming intoxication by this substance. The second case involved the mortality of at least 45 cackler geese (a species closely related to, but distinct, from Canada geese). Strychnine was found in gizzard contents. The second case involved the mortality of at least 45 cackler geese (a species closely related to, but distinct, from Canada geese). Phosphine was detected in gizzard contents. The Lesions were complicated by Escherichia coli infection of the upper respiratory tract.