UCDAVIS
VETERINARY MEDICINE
California Animal Health and Food Safety Laboratory System

CAHFS CONNECTION

January 2016

Inside this issue:

Holiday Schedule

In observance of the University of California's Martin Luther King holiday, CAHFS will be closed on **Monday, 1/18/16.**

Please contact your laboratory to plan your testing needs accordingly as some test set ups will be changed or reduced.

Welcome to CAHFS...

CAHFS would like to introduce Drs. Peter Chu and Karina Fresneda.


Dr. Peter Chu

Dr. Chu joined the Davis laboratory in August 2014 as a contract pathologist. He received is DVM degree from Western University in 2011 and completed a pathology residency at the University of Kentucky Veterinary Diagnostic Laboratory in 2014.


Dr. Karina Fresneda

Dr. Fresneda began her pathology residency program in January 2015 at the San Bernardino laboratory. She received her DVM degree from the Universidad Nacnal del Centro de la Provincia de Buenos Aires (UNICEN), Argentina in 2000.

Bovine

***Histophilus somni* septicemia** was diagnosed in an 8-month-old beef steer. Multifocal hemorrhages were seen in the brain, heart, esophagus and skeletal muscles. Histologically lesions were characteristic of *Histophilus somni* infection, consisting of fibrinoneutrophilic thrombosis and vasculitis with intralesional bacteria. *H. somni* was isolated from the lung.

Coronavirus, the third most common cause of **calf diarrhea**, had a seasonal distribution on review of 2015 cases from calves' under one month of age. Peak coronavirus months were October to December with 55-65% of cases submitted testing positive compared to range of 32-43% in other months. Cryptosporidia was the most common agent followed by rotavirus with monthly ranges of 34-71% and 36-62% of cases respectively. Neither of these agents nor *Salmonella* sp., K99 *E. coli* or attaching and effacing *E. coli* had a seasonal distribution. Salmonella was found in 12-34% of cases.

Small ruminants

Vitamin E deficiency was the cause of severe **cardiomyopathy** in a 20-month-old Nigerian dwarf goat buck. The animal had acute onset of teeth grinding, severe abdominal discomfort and screaming sounds, and died 24 hours after the onset of signs. On necropsy, the lungs were diffusely expanded and meaty but not consolidated, and the trachea and airways had abundant foam. There were approximately 600 cc of serous fluid in the thoracic cavity. Histologically, there was severe, polyphasic myocardial degeneration and necrosis, pulmonary congestion and edema. Vitamin E levels in liver were 1.2 ppm, well below the > 3.6 ppm normal value, and selenium was within normal range. Bluetongue virus and ionophore testing was negative.

Campylobacter jejuni was the cause of multiple **abortions** in two flocks. In one flock, eight of 15 ewes aborted late term fetuses; the other flock had three abortions of four to five months gestation fetuses. Placentitis was found in four fetuses submitted from the two flocks and *C. jejuni* was isolated from the abomasal fluid and placenta of all four cases. One fetus had interstitial pneumonia, another had hepatitis and three had mild meningitis.

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Your feedback is always welcome. To provide comments or to get additional information on any of the covered topics or services, please contact Sharon Hein at slhein@ucdavis.edu.

We're on the Web
www.cahfs.ucdavis.edu

Pig

***Actinobacillus pleuropneumoniae* and influenza virus** co-infection caused the death of market hogs from a group of pigs exhibiting difficulty breathing. Eleven in a group of 15 died. Affected animals were from a single source but co-mingled in a multi-source load shipped from out-of-state. Pigs at the origin premises were free of disease. The pigs developed signs after arrival at their final destination and were probably naïve when mixed for shipment. Two pigs submitted had severe pleuritis and pneumonia. *Actinobacillus pleuropnuemoniae* and influenza virus H1N1 were isolated from the lung of both pigs and H1N2 was also isolated from one of the two pigs.

Equine

Aortic rupture and subsequent **cardiac tamponade** caused the death of a Friesian gelding with a history of acute colic and suspected adverse drug reaction. On necropsy, the pericardial sac was markedly distended with clotted blood and translucent orange fluid. The heart base, external to the pericardial sac, also had a large, well contained hematoma surrounding the pulmonary artery and the large blood vessels. The aorta had ruptured at the aortic arch, close to the ligamentum arteriosum, a classic site for aortic ruptures in Friesian horses.

Poultry and Other Avian

Necrotic enteritis was diagnosed in two adult leghorn chickens which had distended small intestines with fibrinous exudation. Histologically the lesions consisted of mucosal necrosis and hemorrhage with numerous coccidia and gram positive rods compatible with *Clostridium perfringens*. These two agents are commonly associated with this syndrome. There have been 10 cases of necrotic enteritis in chickens diagnosed at CAHFS since October 1, 2015 in birds ranging from 17 days to 23 weeks of age and one case in 36-day-old turkeys. Several cases had concurrent necrotic hepatitis in a few birds.

Osteomyelitis was diagnosed in 9- and 10-week-old, brown feathered, meat type chickens. The birds were submitted with a history of ongoing mortality going up and down and limping. At necropsy most of the birds had accumulation of exudate in the bone marrow of the tibiotarsus, from which *Staphylococcus aureus* was isolated. Additionally, the birds had small bursa of Fabricius and scratches on the skin, which may have predisposed the birds to osteomyelitis.

Rickets caused clinical signs at about 4-weeks of age in more than 2% of the chukar partridges in a commercial flock. Birds were down on their legs, reluctant to move, stumbling and trembling. Mortality was mild (2-4 birds per day). Necropsy examination revealed extreme bone flexibility and elasticity, especially femur, tibiotarsus, wings and beaks which would bend without breaking. Histology of the femur and tibia revealed lesions consistent with rickets. Calcium and phosphorus concentrations were in the expected range in the submitted feed.

Toxicology

Paraquat exposure and likely intoxication causing **lung damage** was confirmed in a 2-year-old, mixed breed **dog** with dyspnea, tachypnea and cyanotic mucous membranes after being inappetent and lethargic for 48 hours. Thoracic radiographs showed diffuse bronchointerstitial pneumonia-like pattern. The SpO_2 was 75-80% at room air consistent with hypoxia. Hypoxia and dyspnea improved with oxygen supplementation initially but became worse later with a subsequent thoracic radiograph depicting transition to a patchy alveolar pattern. The radiographic changes suggested paraquat intoxication as a possible cause, although there was no history of exposure to this substance. The animal was euthanized and lung tissues were submitted for toxicology. LC-MS/MS analysis of lung tested positive for paraquat. This substance belongs to the class of dipyridyl herbicides often used for weed control and is a known **pulmonary toxicant**. **It accumulates and persists in lung tissue** thus making lung the sample of choice for testing. Paraquat has been used to maliciously poison pets.