



UC DAVIS

VETERINARY MEDICINE

California Animal Health and Food Safety Laboratory System

CAHFS CONNECTION

LEADING DIAGNOSTICS NATIONALLY, PROTECTING CALIFORNIA LOCALLY • MAY, 2017



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HOLIDAY CALENDAR

In observance of Memorial Day, CAHFS will be closed on Monday, May 29, 2017.

Diagnosis of Enterotoxemia in Small Ruminants

Clostridium perfringens type D enterotoxemia is a frequent cause of death in sheep and goats. The disease is often associated with a sudden diet change to a feed rich in highly fermentable carbohydrates (hence the name “overeating disease”). The confirmation of the diagnosis in both sheep and goats should be based on detection of epsilon toxin in intestinal contents (preferably small intestine) or feces by ELISA, a test offered by CAHFS. The intestinal content (minimum 5 ml) should be submitted refrigerated in a clean plastic or glass container (NOT in a tied up intestinal loop). If the sample will not reach the laboratory in ~ 48 hours, freezing is preferred. No additives should be added. Approximately 95% of sheep (and only a handful of goats) with enterotoxemia develop characteristic microscopic perivascular edema in the brain, a lesion which is pathognomonic of the disease. At least half brain in formalin should be submitted to the lab. In summary, the two samples that should always be submitted to the laboratory for a diagnosis of enterotoxemia are: intestinal content or feces (refrigerated or frozen) and brain (in formalin).



Equine

Uterine artery rupture in a late-term pregnant mare resulted in death due to exsanguination. A uterine artery aneurysm with perforation was identified in this aged multiparous mare that had a short history of weakness and recumbency.

Electrocution was the presumptive cause of death in four horses of various ages found dead in one barn within one hour of each other. A fifth horse in the same barn that was still alive and taken to the veterinarian for monitoring and treatment for potential toxins, never developed clinical signs. No significant gross or microscopic lesions were found in the one horse submitted for necropsy. The owner mentioned that the lights in the barn happened to be flashing at the time when the horses died. After further investigation, a few charred areas were noticed on the floor of the barn.

Blackleg was diagnosed in a 2.5-month-old beef calf with severe cardiac and moderate diaphragm gross and microscopic lesions compatible with clostridial myositis. The calf had a history of lethargy and died within 24-hours of the onset of clinical signs. The diagnosis was confirmed by positive *Clostridium chauvoei* fluorescent antibody test and culture of this microorganism from samples of the heart and diaphragm. Blackleg is most common in animals older than 6-months and is only rarely observed in younger animals.

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Bovine

Coronavirus infection was diagnosed on tissues from three calf ranch calves with no reported history or gross observations from the field necropsy. Microscopically, all calves had widespread severe necrotizing cryptitis in the colon. Coronavirus was detected by PCR in all calves and this was considered to be the primary problem.





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Lab Locations:

CAHFS – Davis

University of California
620 West Health Sciences Dr.
Davis, CA 95616
Phone: 530-752-8700
Fax: 530-752-6253
daviscahfs@ucdavis.edu

CAHFS – San Bernardino

105 W. Central Ave.
San Bernardino, CA 92408
Phone: 909-383-4287
Fax: 909-884-5980
sanbernardinocahfs@ucdavis.edu

CAHFS – Tulare

18830 Road 112
Tulare, CA 93274
Phone: 559-688-7543
Fax: 559-686-4231
tularecahfs@ucdavis.edu

CAHFS – Turlock

1550 N. Soderquist Road
Turlock, CA 95380
Phone: 209-634-5837
Fax: 209-667-4261
turlockcahfs@ucdavis.edu

Small Ruminant

Pregnancy toxemia was diagnosed in a 2-year-old ewe that was pregnant with two, close-to-term fetuses. The liver had severe, diffuse lipidosis; degenerative lesions were also observed in the brain. Pregnancy toxemia affects ewes during the last few weeks of pregnancy. The condition occurs as the result of an inadequate supply of energy at a time when the ewe's demands for energy are very high because of the rapid growth of the fetuses.

Nutritional myopathy was diagnosed in tissues of a yearling goat submitted for analysis. The tongue had multifocal muscle necrosis with mineralization, consistent with vitamin E/selenium deficiency. The concentration of selenium in the liver was well below normal values. The clinical history indicated that a living herd mate was noted to be drooling and lethargic with an irregular heart rhythm.

Pig

Lawsonia intracellularis was the cause of proliferative enteritis that resulted in death of a 6-week-old, female piglet. Grossly, the wall of the last portion of the jejunum and the ileum were moderately thickened and the mucosa was light green to gray, had a rugose, dull appearance and was multifocally covered by a thin, lightly attached, light green pseudomembrane. The diagnosis was confirmed by routine histopathology and special stains, which showed compatible lesions and *Lawsonia intracellularis*-like organisms present in the apical cytoplasm of enterocytes. The only other piglet on the premises was not affected.

Poultry and Other Avian

Mycobacteriosis was detected in four Bourke's parakeets that developed blepharospasm, conjunctivitis and chemosis; one of them also developed head tilt. Two of these birds were euthanized and submitted for necropsy. A small number of epithelioid cells with intracytoplasmic acid-fast bacilli compatible with *Mycobacterium* were detected in the eyelids, intestine and liver of one bird confirming a diagnosis of mycobacteriosis.

Focal duodenal necrosis (FDN) was diagnosed in a group of 58-week-old, commercial layer chickens with a history of sudden drop in egg production. At necropsy, foci were noticed in duodenal mucosa of a few birds. Microscopic evaluation of intestine revealed coagulative necrosis of the upper portion of the villi associated with large rod-shaped, gram positive bacteria. FDN is a poorly understood enteric condition first described in 1997, which has been observed in cage, cage-free and organic flocks of both brown and white layer chickens. Small, pale combs and poor performances (drop/decreased egg production and decreased egg weight), due to an impaired absorption of nutrients, are the only clinical signs observed. Necrotic/ulcerative lesions are localized in the duodenal mucosa. Its exact etiology is not completely understood but *Clostridium perfringens* and *Clostridium colinum* are thought to be involved.

Aquaculture

Edwardsiella ictaluri was isolated from liver and kidney of channel catfish fingerlings submitted with a clinical history of increased mortality following movement from one pond to another. Gross findings included ulcers in skin of the head, cutaneous hemorrhages, and ascites. Microscopically, there was necrosis and granulomatous infiltrates in multiple organs, including the brain, associated with small numbers of intracellular short gram-negative rods. *E. ictaluri* infection, also known as enteric septicemia of catfish, is one of the most important diseases of farm-raised catfish affecting primarily fingerlings. Mortality can vary from 10 to 50%.

