

respond favourably to atropine, whereas cattle exposed to chlorinated hydrocarbons such as lindane show little response to atropine. Sedation and symptomatic treatment are recommended. Blood cholinesterase activity in live animals or brain cholinesterase activity in necropsy submissions can be useful to identify exposure to carbamates or organophosphates. Cholinesterase activity is not altered significantly by organochlorine exposure. Analysis of rumen contents or tissue for organochlorine residues is essential to confirm a diagnosis of organochlorine poisoning.

Reference

1. Osweiler GD, Carson TL, Buck WB, vanGelder GA. *Clinical and Diagnostic Veterinary Toxicology*, 3rd ed. Kendall/Hunt Publishing Company, Dubuque, Iowa, 1985.

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Alberta

Placentitis due to *Salmonella hadar*

A pure, heavy growth of *Salmonella hadar* was isolated from an inflamed placenta, the only tissue submitted from an aborted seven-month-old bovine fetus. This was the only abortion in this 100-cow herd.

Histopathological findings consisted of marked edema of the chorioallantois with regionally prominent, mild, mixed mononuclear cell infiltrations as well as multifocal cotyledonary necrosis and local suppuration. The cytoplasm of most trophoblasts was distended with a basophilic granular matrix which was identified as phagocytosed bacteria. Our findings were consistent with those of a mild, necrotizing placentitis which was likely responsible for the abortion.

S. hadar entered Canada in the late 1970's through the importation of turkey poults from England (1). During 1987, this serotype was isolated in Alberta from broiler breeders, turkeys, and a kangaroo.

The farm from which the placenta was obtained had turkeys in confinement in 1985. In addition, within one mile there is a broiler operation which buries its dead birds. On numerous occasions, the beef producer found remains of broilers in his pasture.

Reference

1. Rigby CE, Pettit JR, Papp-Vid G, Spencer JL, Willis NG. The isolation of salmonellae, Newcastle disease virus, and other infectious agents from quarantined imported birds in Canada. *Can J Comp Med* 1981; 45: 366-370.

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Monensin toxicity in dogs

A presumptive diagnosis of monensin toxicity in four dogs belonging to two different owners was made after analysis of samples from two suspect bags of feed. The feed was produced by a local company and was based on one formulated for use in swine. The company reported that four owners had complained of illness in dogs fed this ration. Clinical signs, which included initial feed refusal at the evening feeding,

were noted by the following morning. These signs included severe dyspnea, listlessness, weakness, incoordination, and, in one animal, hemoglobinuria that developed five days after the feed was introduced. Three affected dogs recovered but a fourth animal became comatose and died. A post mortem examination was not performed.

The analytical procedure, which was developed by staff of the Toxicology Section, Animal Health Division, Edmonton, demonstrated monensin in the two bags of feed at levels of 350 and 710 mg/kg (ppm).

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Interstitial pneumonia associated with Bovine Respiratory Syncytial Virus in a grazing reserve

In the months of June and July of 1987, a grazing reserve in northern Alberta, consisting of six cattle herds, experienced a serious outbreak of respiratory disease. The disease spread sequentially to eventually involve four of the six herds, all consisting of cows, calves, and yearlings. All ages of animals were affected, with the highest mortality rate in sucking calves. Of the 1907 head in the reserve, 53% of all cattle in four herds were clinically affected, with a case fatality rate of 3.4%. The mortality rate was highest in the calves but occurred in mature cows and yearlings as well. Each involved herd was in a separately fenced area but the same processing corrals were used for all of the cattle prior to the outbreak.

Typical clinical signs included hyperthermia (>40°C), expiratory dyspnea with open-mouth breathing, serous nasal discharge, coughing, depression, and inappetence. Several animals also had subcutaneous emphysema of the dorsal trunk. Typical gross postmortem lesions included diffusely voluminous, heavy lungs with anteroventral consolidation and caudodorsal "meatiness", as well as subpleural and interlobular emphysema. Several animals had coexisting fibrino-necrotizing pleuropneumonia in

cranioventral areas.

Paraffin blocks of lung submitted to the Western College of Veterinary Medicine revealed an exudative and proliferative alveolitis with a subacute bronchiolitis and bronchiolitis obliterans. The Avidin-Biotin-Immunoperoxidase technique, using human RSV monoclonal antibody, was positive for BRS virus in paraffin sections from four of seven animals submitted for testing.

Acute and convalescent serum samples from cattle of all ages showed BRSV seroconversion in 46% and 29% of two groups of sera tested. No seroconversion to IBR virus was demonstrated.

The pattern of the disease outbreak, the post-mortem and histological lesions, the serological results, and the immunoperoxidase results are consistent with a diagnosis of BRSV as the primary etiological agent. The total drug bill for the outbreak was nearly \$13,000.00.

So-called "Dietary AIP" was considered in the list of differential diagnoses but the outbreak was not associated with pasture changes and calves were more severely affected than cows.

This virus is causing significant losses throughout the year in Western Canada. The problem is particularly severe in cow-calf operations with outbreaks occurring in many herds repeatedly each year.

The pathological diagnosis of BRSV infection is not difficult in cases with the typical syncytial cell bronchiolitis, and direct immunofluorescence or immunoperoxidase tests are consistently positive in such cases. The difficulty is with the so-called "AIP-like" cases, associated with BRSV outbreaks, thought by some to have a hypersensitivity pathogenesis of the interstitial lesions. In these cases, the histopathological changes are nondiagnostic and both the direct immunofluorescence and immunoperoxidase tests are often negative for BRSV.

References

1. Baker JC, Frey ML. Bovine respiratory syncytial virus. *Vet Clin N. Amer: Food Anim Pract* 1985; 1: 259-275.
2. Baker JC, Ames TR, Werdin RE. Seroepizootiologic study of bovine respiratory syncytial virus in a beef herd. *Am J Vet Res* 1986; 47: 246-253.

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British Columbia

Furunculosis in chinook salmon broodstock

Private salmon hatcheries are a new enterprise on the Pacific coast of British Columbia. Their broodstock are raised in sea pens until reaching sexual maturity. At that time they are transferred to freshwater holding tanks for spawning. The eggs are fertilized, incubated, hatched, and raised until ready for transfer to sea water as smolts. While there are some egg sales at the "eyed" stage, the majority of the hatchery's income is earned from the sale of smolts to marine grow-out farms. Chinook salmon (*Oncorhynchus tshawytscha*) are currently the most desirable Pacific species for mariculture and their young fetch the highest prices.

A commercial hatchery on Vancouver Island experienced losses of four-year-old female chinook broodstock in late October 1987. These fish had been transferred from the seapen site four weeks previously and maintained since that time in ground water at 10°C. Four large female fish, which were almost or fully ripe, were found dead one morning in the holding tanks. The gross external and internal appearance of the carcasses was normal for spawning fish. Culture of tissue from the spleen and posterior kidney resulted in the isolation of pure cultures of *Aeromonas salmonicida*. Multifocal bacterial colonies were seen in the heart, kidney and spleen on histological sections. Furunculosis, as septicemia due to *A. salmonicida* is

commonly called, is a problem in freshwater finfish culture in B.C. It is typically seen in fish prior to smolting, but may also occur in salt water.

Following diagnosis, the remaining broodstock were treated systemically with oxytetracycline. This was injected into the "dorsal sinus", or connective tissue between the epaxial muscles cranial to the dorsal fin. In addition, work schedules of the hatchery staff were altered to complete spawning as rapidly as possible. In total, nine fish, each valued at between \$800 and \$1000, were lost to the disease.

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