Infectious Canine Abortion

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During 1965 and 1966, breeders of beagles in many parts of the United States noticed an unusual number of abortions and stillbirths. Litters of dead puppies were sent to the Cornell Research Laboratory for Diseases of Dogs where the cause was discovered. In 1966 Dr. Leland E. Carmichael reported to the American Medical Veterinary Association on his work in isolation, identification, and classification of the organism now known as Brucella Canis. The disease Canine Brucellosis has since been found to be present in several breeds of dogs. Several cases in human beings also have been confirmed to be caused by B. Canis.

The route of infection by B. Canis in the dog is by direct contact host with the organism. The organism is able to penetrate the lining of the mouth, eyes, nose, digestive tract, or genital tracts of all animals. An animal may become infected by eating, inhaling, licking brucella organisms or during mating.

Canine brucella organisms grow most abundantly in the liver, spleen, and lymph nodes. In infected sexually-mature males, it also is found in abundant numbers in the prostrate gland and epididymides, at the back of the testis. The uterus of the pregnant female is a common site of infection. The placenta, aborted fetus, and amniotic fluids contain extremely high concentrations of the organisms. In females that have aborted, brucella organisms may be present in vaginal and uterine discharges for several weeks following the abortions.

The disease is not readily apparent in immature and non-pregnant dogs because they show no symptoms. Pregnant females may abort without preliminary warning. Undetectable embryonic death may occur as early as 30 days of gestation, but more commonly after 50 to 55 days have passed. Prolonged vaginal discharge follows the late abortions. The sexually mature male may have an inflammation of the testicles, the prostate, and the scrotum with testicular abscesses and atrophy (shrinking) often resulting in sterility. Infected dogs of either sex may experience an inflammatory disease of the back bone. B. Canis infections should be considered when there is evidence of spinal pain.

Most infected dogs are free of clinical signs with perhaps only a loss of vigor, and obscure reproductive failure. The organism often causes a persistent bacteria in the bloodstream and can be found in various tissues for up to one year.

Diagnosis

Diagnosis is often difficult. In cases of suspected Canine Brucellosis the dead puppies, fluids, or placenta should be cultured. Blood cultures may also be attempted from the live animals.

Specific circulating antibodies to B. Canis appear following infection. Semen antibodies can be detected with the use of an antigen prepared from B. Canis organism.

Testicular abscess through scrotum of sexually-mature male.

The Council on Public Health and Regulatory Veterinary Medicine recommends the following which was published in the Journal of the American Veterinary Medical Association, June 1, 1976, Vol. 168, No. 11, page 987:

1) In the event of positive screening test, paired serum samples should be taken 30 days apart and submitted to the Veterinary Services Laboratory, APHIS, Ames, Iowa; or to a state diagnostic laboratory which utilizes the B canis antigen provided by the Diagnostic Reagent Laboratory of the Veterinary Services Laboratory of APHIS.
2) Titers greater than 1:200 should be considered a positive reaction and indicative of active infection. Titers less than 1:200 should be considered as evidence of possible infection.

3) In the event of a clinical presentation consistent with canine brucellosis, the owner involved should be advised of human health implications and the questionable value of treatment. Advisability of euthanasia should be explored.

The commercial screening test should be used only as a screening test. Any positive samples using this test should be confirmed by use of the specific B. canis tube test or by a culture of the infected tissues.

Treatment

Effective treatment must completely eliminate B. canis from the body. This is a very difficult task in all brucella infections as there is no completely successful treatment. Various antibiotics have been tried, especially tetracycline along with streptomycin and sulfonamides. Although treatment with these compounds has produced remissions, relapses generally occur within two months after treatment was stopped. Treatment has been more successful in females than in males; eradication of the organism from the tissues of infected postate gland has been unsuccessful. Treatment is expensive and may require several months. Success cannot be assured.

Control in breeding kennels is an especially difficult problem. Elimination has been achieved only by repeated serological tests and blood cultures with distinction of all infected animals. All new animals introduced into any kennel should be tested at least one month prior. All infected animals should be isolated from noninfected animals and not allowed to breed.

The organism does not survive long on kennel floors and walls. The use of good strong disinfectants or household detergents rapidly inactivates B. canis. Currently there are no vaccines available for use in preventing B. canis in the dog.