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JUST THE FAQS - CANINE INFECTIOUS TRACHEOBRONCHITIS

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WHAT IS CANINE INFECTIOUS TRACHEOBRONCHITIS?
Canine infectious tracheobronchitis (CITB) or ‘kennel cough’ is a multifactorial disease that commonly occurs when dogs from different origins are brought together for boarding, shows or field trials. Generally the disease is an irritating, but self-limiting condition; however, it can progress to bronchopneumonia in some cases, especially in individuals that may be immunosuppressed for a variety of reasons.

WHAT CAUSES CITB?
Aside from the recognized environmental and physiological, stress-related, co-factors, several infectious agents, including, canine adenovirus type 2 (CAV-2), canine parainfluenzavirus and Bordetella bronchiseptica have historically been implicated in a causal role.

ARE THERE ANY OTHER “NEW BUGS” ASSOCIATED WITH CITB?
Other less-frequently recognized agents that have been causally associated with CITB include, canine herpesvirus and Mycoplasma ssp. Most recently, a group 2 canine coronavirus was implicated as an important and prevalent infectious co-factor in cases of respiratory disease in dogs in humane shelters in the United Kingdom. This virus is closely related genetically and antigenically to bovine coronavirus and human (respiratory) coronavirus strain OC43 and distinct from canine enteric coronavirus. The prevalence and incidence of canine respiratory coronavirus in other parts of the world is currently unknown.

WHAT TYPE OF VACCINE IS BEST FOR “KENNEL COUGH”? Work in the last few years suggests that intranasal vaccines may be best for priming immune responses; whereas, parenteral vaccines may be superior for boosting primary responses. The apparent efficacy of intranasal vaccines given shortly before boarding or during outbreaks may have more to do with the induction of interferon and the enhancement of local innate immunity, rather than specific immunity.

HOW COME MY DOG IS SICK WITH “KENNEL COUGH” WHEN HE HAS BEEN VACCINATED FOR BORDETELLA?
Cases of apparent “vaccine failure” in outbreaks of respiratory disease in dogs; i.e. in situations when dogs that are well-vaccinated develop respiratory disease after kenneling or other exposure to infected dogs are probably often due to the involvement of an agent that is not in currently available vaccines, such as canine coronavirus or Mycoplasma ssp. Since there are currently no commercial vaccines for dogs that contain the group 2 canine coronavirus, available vaccines would not provide clinical protection. Based on the significant antigenic dissimilarity between the canine enteric coronavirus and the canine respiratory coronavirus, that have only about 20% identity of amino acids in the immunologically important spike protein, it is highly unlikely that dogs vaccinated with the enteric virus would be protected from disease associated with infection by the respiratory (group 2) virus.

HOW COME MY DOG THAT YOU DIAGNOSED AS HAVING “KENNEL COUGH” IS STILL COUGHING EVEN THOUGH YOU HAVE GIVEN HIM ANTIBIOTICS? As probably often happens in human patients who are treated with antibiotics for the common cold, remember, there are very few specific treatments for virus infections. So while B. bronchiseptica is susceptible to a range of antibiotics, Mycoplasma infections are more difficult to treat, and most virus infections are untreated per se. Another important often overlooked factor is that many of the clinical signs associated with respiratory tract infection are due to the associated inflammation and not the infection per se.

WHY IS IT IMPORTANT TO ATTEMPT A DEFINITIVE DIAGNOSIS IN CASES OF “KENNEL COUGH”? Having a definitive diagnosis can impact on choices for therapeutic intervention and prognosis. Since antibiotic use is coming under increasing scrutiny, it is becoming more important to establish that there is an etiologic agent that can actually be treated with the available drugs.

WHY CAN IT BE DIFFICULT TO GET A DEFINITIVE ETIOLOGIC DIAGNOSIS IN CASES OF “KENNEL COUGH”? For example definitive diagnosis of respiratory canine coronaviruses would likely be problematic in most clinical settings, contributing to the probable underappreciation of this agent as a cause of respiratory disease in dogs. In the recently documented case of high prevalence of respiratory coronavirus infection in the United Kingdom no coronaviruses were isolated; the diagnosis was based on polymerase chain reaction (PCR) and retrospective serology. Both of these techniques would not be routinely applied in those clinical cases in which definitive diagnosis is attempted. The “negative” culture results in the previous study could be related to the timing of sampling or the choice of cells in used for culture. Isolation of the closely related bovine (respiratory) coronavirus is most successfully achieved in specific clones of a human rectal carcinoma cell line, which may not be routinely used in cases where isolation of canine respiratory viruses is attempted. Further studies employing paired serology are likely to implicate canine coronavirus in undiagnosed cases of canine respiratory disease and should be considered as an approach in outbreaks of respiratory disease in dogs.

REFERENCES

