Performance of a rapid slide agglutination test for *Brucella canis* with canine sera containing antibodies to *Leptospira* spp.

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*Brucella canis* is a gram negative bacterium that is a cause of canine infertility and abortion. Veterinarians screen for antibodies to *B. canis* with a variety of serological tests including the point-of-care rapid slide agglutination test (RSAT), D-Tec® CB (Zoetis, Florham Park, NJ). False positive results are possible because of cross-reactivity to antibodies produced to other gram negative bacteria, such as *Leptospira* spp. Cross-reactivity between *Brucella* spp. and *Leptospira* spp. antibodies produced through infection or vaccination with the serological tests for brucellosis has been reported for cattle; 1,2 yet, to our knowledge has not been confirmed for dogs. Therefore, we evaluated D-Tec® CB with the sera from dogs experimentally-infected with *Leptospira kirschneri* serovar Grippotyphosa and from dogs suspected for natural infection with *Leptospira* spp. We evaluated sera collected at day zero and between days six and 13 from eight dogs experimentally-infected with Grippotyphosa and sera collected from 20 client-owned field dogs with acute clinical signs compatible with leptospirosis. Microscopic agglutination testing (MAT) was used to confirm experimental and natural infections. All eight experimentally-infected dogs seroconverted (MAT \( \geq 800 \)) between days 3 and 10. To diagnose leptospirosis for the field dogs, a MAT cut off of \( \geq 800 \) was used when the dog was known to have no previous leptospirosis vaccination or the last vaccination was > one year prior. When the vaccination history was unknown, positive confirmation was defined by three possible MAT outcomes: 1) at least one serovar \( \geq 800 \) and at least one other serovar \( \geq 400 \); 2) a single serovar \( \geq 3200 \); or 3) a non-vaccine serovar \( \geq 800 \). The sera from 10 of the 20 field dogs fulfilled these criteria. We tested a total of 36 samples with D-Tec® CB. The sera collected pre- and post-experimental Grippotyphosa infection (n = 16) yielded negative test results for canine brucellosis. The sera from the 10 MAT-negative field dogs also yielded negative test results for brucellosis. Of the sera from the 10 MAT-positive field dogs, only one sample yielded an initial weak positive test result but tested negative with the addition of 2-mercaptoethanol. Although antibodies produced to *Leptospira* spp. may cross-react with *Brucella* antigen with the D-Tec® CB, 3-5 cross-reactivity may not be as common as purported.

**Keywords:** Brucellosis; leptospirosis; canine

**References**