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Detection of Brucella antibodies in sera of dogs using Rose Bengal test

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Summary

Using the rose Bengal test 114 blood samples collected from dogs , and tested for Brucella antibodies , (30.7 %) were found positive for Brucella antibodies while (64.3 %) were found negative for Brucella antibodies .

Key words : Brucella antibodies , dogs .

الكشف عن اضداد البروسيلا في أمصال الكلاب باستعمال اختبار وردية البنغال

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الخلاصة

باستعمال فحص وردية البنغال فحصت 114 عينة دم من كلاب لاضداد البروسيلا (30,7 %) وجدت موجبة لاضداد البروسيلا بينما كانت (69,3 %) وجدت سالبة لاضداد البروسيلا .

Introduction

The main species of genus Brucella affecting domestic animals are, B . abortus , B . suis , B .melitensis , B . canis and B . ovis (1) . Brucella . canis was first isolated in 1966 from the placenta and of aborted pups , subsequently it was identified as the cause of widespread abortions and reproductive failures in dogs (2). Brucella canis also can be considered as a cause of infant puppy mortality , although primarily with abortion in bitches , epididymitis and infertility in adult male dogs , the bacterium has also been isolated from the blood and organs of weakly or dead puppies born to infected dams (3) .

Dogs can be affected by B-cains , B . abortus , B . melitensis and B .suis (1). In Iraq B . abortus has been proved in sheep (4) , B . melitensis proved in sheep and goats (4). In cows and buffaloes only B . abortus has been proved (5).

The aim of this investigation was to detect the presence of antibodies against brucella in dogs as a preliminary investigation.

Materials and Methods

Blood samples were collected from (114) local stray dogs during the campaign of dog eradication in Baghdad governorate. Hundreds of dogs were shot by bullets , but blood was collected only from the wounds of dog showing extensive bleeding , all dogs were mature no puppies were included , both sex were included.

From each dog 5-10 ml blood was collected , serum separated and stored at (-20 c) till testing.The test used was benga test (rose bengal-stained acidified buffer antigen for the serological diagnosis of brucellosis by rapid slide agglutination) symbiotic , France . The suspension contained concentrated B-abortus (weybridge strain 99) inactivated by heat and phenol (0.5 %) , dispersed in an acid buffer and stained by rose Bengal . The procedure of testing was carried according to the manufactures instructions.

Results

During the campaign the focus was on the number of dogs killed eliminating the exact age and sex of the dogs .All dogs were mature , the females were around 60% and males

around 40% . The numbers and percentage of positive and negative cases are shown in table (1).

Table (1) . The Positive and Negative cases to Brucella antibodies of the investigation .

Total No. of dogs	No. Positive (%)	No. Negative (%)
114	35 (30.7 %)	79 (69.3 %)

Discussion

Since some antigens are shared by members of the genus brucella (2) , and dogs can be are affected by B.canis , B.abortus , B.melitensis and B.suis (1) , the rose bengal test containing B.abortus antigen will detect specific antibodies(against B.abortus) and non-specific (against other mentioned brucella) antibodies .

Canine brucellosis was initially believed to be widespread only in beagles , the disease now has been diagnosed in various breeds and its occurence has been recorded throughout the USA and several other countries (3) .

In Nigeria using the rose Bengal test containing B.abortus antigen, out of 249 dogs (38.2%) were positive of antibodies (6) .In China using eight serological methods (rose Bengal one of them) to detect B.cains antibodies , 12949 dogs were examined in 23 provinces and cities , the positive cases varied from (0.3% - 42.7%) according to place, the rose Bengal proved to be sensitive (7) .In Iran employing the rose Bengal test to detect antibodies in stray and herding dogs in shiraz , (29.1%)of the cases were positive(3) .The results of this investigation (30.7%) positive cases are within the ranges of the above three mentioned surveys and agree with them .

Other surveys or researches employing tests (other than rose bengal) and containing B.canis antigen in their test mentioned lesser percentages as in Japan it was 11.2% (9) . In Canada using the rapid agglutination test it was 5% (10). In Turkey using the tube agglutination (TAT) , 2 mercapto-ethand tub agglutination test and the ELISA the percentages were 12.7 ,7.73 ,and 7.45 respectively (11) . In Argentina using the buffered plate antigen test (BPAT) the percentage was 7.3% (12) . Also in Iran but not (8) other researchers employing the immunochromotogrophy assay detected (4.9%) cases to be positive for B.canis antibodies (13).From the results of researches (9,10,11,12,13)it can be seen that using B.canis antigen gave lesser percentages than researches (6,7,8) using B.abortus antigen , which is mostly due to the detection of the specific antibodies when B.canis was used .

The way or place of living of the dogs can also affect the results since the dogs in researches (9, 10, 11, 12, 13) were mostly from shelters , Kennels , clinics, hospitals or homes while the closest way of living of the dogs to the dogs of this survey was the survey done by (8) whom concentrated an stray dogs and their result was (29.1%) verses ours (30.7%).

Since this was a pioneering and preliminary survey, a further and wider investigation is need in Iraq , using B.canis antigen , taking into consideration many aspects not included in this investigation , isolation of B.canis being one of them .

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