

A serological study of brucellosis in camels south of Kirkuk, Iraq

M. Yawoz, S. E. Jaafar, A. I. Salih and M. H. Abdullah*

Medical Laboratory Science Technique Department, Technical College, Kirkuk, Iraq

*Veterinary Hospital, Kirkuk, Iraq

Corresponding Author: E-mail: shaheenekram@yahoo.com

(Received February 22, 2012; Accepted September 16, 2012)

Abstract

A study of the prevalence of antibodies to camel brucellosis has been carried out in the south of Kirkuk city during March 2011. A total of 66 camels (6 male, 60 female) involved in this study with age between 6 months to 22 years. Blood samples were collected from jugular vein and the sera samples were screened by using Rose Bengal Plate Test (RBPT). The sera that were positive by using RBPT have been tested again by using the 2-Mercaptoethanol (2ME) test. The results of this study revealed that two camels from 66 camels (3.03%) were seropositive for *brucella* antibodies in South of Kirkuk city.

Keywords: Brucellosis; Camel; Kirkuk; Serology.

Available online at <http://www.vetmedmosul.org/ijvs>

دراسة مصلية لمرض البروسيلا في الجمال جنوب كركوك، العراق

محمد ياوز نورالدين، شاهين إكرام جعفر، عبد المنعم إبراهيم صالح ومحمد حميد عبد الله*

قسم التحليلات المرضية، الكلية التقنية، كركوك، العراق

*المستشفى البيطري، كركوك، العراق

الخلاصة

تمت دراسة انتشار اضرار مرض البروسيلا في الجمال في جنوب مدينة كركوك خلال شهر اذار من سنة ٢٠١١. شملت هذه الدراسة ٦٦ جملا (٦ ذكور و ٦٠ أنثى) باعمار تراوحت بين ٦ شهور الى ٢٢ سنة. أخذت عينات الدم من الوريد الوداجي للحيوانات. تم فحص المصل التي اعطت نتائج موجبة باستخدام اختبار وردية البنكال. المصل التي اعطت نتائج موجبة باستخدام اختبار وردية البنكال تم فحصها مرة اخرى باستخدام اختبار ٢-مركبتوايثانول. نتائج هذه الدراسة أظهرت ان اثنتين من مجموع ٦٦ جملا (٣,٠٣%) الموجودة في جنوب مدينة كركوك كانتا موجبتين لتواجد اضرار البروسيلا.

Introduction

Brucellosis has been an occupational risk for farmers, veterinary surgeons and employees in the meatpacking business (1). Brucellosis which caused by *brucella spp.*, is an important zoonotic disease and has become a major world wide human concern (2). The disease is causing abortion and birth of non-viable offspring in female, and orchitis and epididymitis in male animals and infertility in both (3). Serological evidence for *Brucella* infection in

camels has been reported from Asia and Africa (4). There are so many factors that can affect the prevalence of brucellosis in various species of livestock (5). Prevalence of brucellosis can vary according to climatic conditions, geography, species, sex, age and diagnostic tests applied (5). A survey of the seroprevalence of brucellosis in sheep, goats, cattle, buffalo and camel in Iraq was made in May 2005 in cooperation with FAO and it's covered the 18 Governorates of Iraq and a total of 34,560 serum samples (18,360 sheep and goats, 9,720 cattle, 5,940 buffalo and

540 camels) were screened using the Rose Bengal test, as screening test, the apparent prevalence of the disease in camels were 0% (6).

This study was aimed to determine the seroprevalence of brucellosis among camels in the South of Kirkuk city \ Iraq.

Materials and methods

Sample Collection

Blood samples were collected by jugular vein from 66 (6 male and 60 female) clinically healthy camels 6 months to 22 years old. Sera were separated after centrifugation at 2000 rpm for 5 minutes and stored at -20°C until performing the serological tests.

Serological Test

The antibodies to *brucella spp* were detected initially by RBPT using commercially available test kit (Refik Saydam Hygiene center Antigen-Antiserum Production and Research Laboratory-RSHM). Rose Bengal test was carried out according to the instruction of manufacturer, then positive reactor sera were retested by the 2-mercaptoethanol test (2ME) test according to (7).

Results

Two out of 66 camels tested (3.03%) were found to be seropositive to brucellosis in the RBPT. The affected camels were female and their ages were 4 and 10 years respectively. A positive 2ME test was found in both cases at titer 1:160.

Discussion

According to the Food and Agriculture Organization (FAO), the World Health Organization (WHO) and the Office International des Epizooties (OIE) brucellosis is still one of the most important and widespread zoonoses in the world (8). More over there is public health hazards and high-risk human other than occupational contactors through consumption of milk or milk products of seropositive animals (9).

In our study the seroprevalence of antibodies to camel brucellosis was 3.03%. In camels, the seroprevalence of brucellosis based on serological tests has been ranged from 0.0-17.20 % in Arabian and African countries (5), from 26.5-30 % in Sudan (10), from 8-15% in Kuwait, while the seroprevalence of camel brucellosis was 1.86% in Saudi Arabia (11).

In Mosul, Iraq, there are many serological studies: in a study achieved by Al-Obaidi *et al.*, (12), the prevalence of milk samples in ewes and does positive to antibodies of brucellosis was 6.6% and 11.3%, respectively (12), bovine

brucellosis %5.8 (13), lambs 25.3- 27.5% (14). In the area studied in Kirkuk, the little contact of the camels with small ruminants and in addition to that the high uncontrolled animal movements through the borders could explain the main factor of this high prevalence where camels reared with small ruminant animals.

RBPT has been found more efficient than other serum agglutination tests although antigens produced by different laboratories and working procedures may affect the sensitivity (15,16). Accordingly, RBPT is considered as satisfactory screening test (17), while the studies by Rhaymah *et al.* (18) and Mohammed *et al.* (14) concluded that the Indirect ELISA test was more sensitive than rose Bengal, tube agglutination and 2- Mercapto-ethanol tests. However, some surveys apply more confirmatory tests in addition to demonstration of *Brucella spp* in culture (19).

In this study we used the Rose Bengal test to screen all samples and confirmed the positive samples by (2ME) test. The 2ME will block all IgM antibodies by breakdown disulphide links that permit to assess pure IgG antibodies which had value in detecting active brucellosis (20). This shows that both positive cases by RBPT have IgG antibodies which reflect acute exacerbation of the previous attack of brucellosis.

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