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Investigation of antibodies of Brucella melitensis in sheep

الكشف عن الأجسام المضادة لجرثومة *Brucella melitensis* في الأغنام

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الخلاصة

تضمنت الدراسة تقدير وجود الأجسام المضادة لجرثومة *Brucella melitensis* في 192 عينة مصل من الأغنام

production and is wide spread in many areas of the world, particularly in some Mediterranean and middle eastern countries [2] .

In Iraq brucellosis, is still an endemic serious disease among domestic animals and human in spite of the attempt that were implemented in the country to control the disease [3] . In sheep and goat ,the major clinical sign is abortion but other signs may be observed , such as orchitis, epidymitis, hygroma, arthritis, metritis, and subclinical mastitis . animals may develop self-limiting infections or become latent carrier with potential excretion of the bacteria. This stage is frequently associated with a persistent infection of the mammary gland, supramammary and genital lymph nodes with shedding of the organism in milk and genital secretions .Abortion usually occur late in gestation in goats [4].

Various serological tests have been used for the diagnosis of brucellosis, the most common tests used are serum agglutination test ,coombs anti-brucella test , rose Bengal test and complement fixation test [5].Unequivocal diagnosis can be made only by the isolation and identification of Brucella organism from abortion materials (foetal stomach content and cotyledons),milk and vaginal discharge[6,7],but it is not always practical and possible ,and bacterial culture results are often negative for infected animals [7,8,9].Therefore ; it often necessary to resort to serological tests to identify the specific antibodies in the presence of Brucella antigen [7,8].serological tests can be divided broadly into two groups :screening tests such as RBT ,which is a spot agglutination technique, because it does not need special laboratory facilities and it is simple and easy to perform .It is used to screen sera for Brucella antibodies [10].And confirmatory tests such as ELISA. The present study conducted for detection of Brucella antibodies in sheep sera in Basra province by using RBT and ELISA tests and for comparison between them .

Materials and methods

Sera samples from 180 sheep (54 males and 126 females) slaughtered in the Basrah slaughter house was tested from January 2008 to May 2008 using commercial kit for Rose Bengal Test (Biomerieux, France)and ELISA test according to (Bahr,et al) [11]. The statistical analysis were made using the qi-square (X^2)test.

Results

Table (1) showed that 98 sera (54.4%) were positive in RBT and 124 sera (68.8%) were positive in the ELISA test .On other hand ,82 sera (45.5%) were negative in the RBT but 56 sera (3.11%) were negative in the ELISA .

The highest percentage of positive results were detected by ELISA (68.8%) in compared to RBT (54.4%).

Table (2) show that the highest rate of positive results in both RBT and ELISA test was in female's sera (75.5% , 77.4% respectively) in compared to male's sera (24.4% ,22.5%) .

Table (1) comparison of RBT and ELISA results in 180 serum sample

Test	No. of positive case	percentage	No. of negative case	percentage
RBT	98	54.4	82	45.5
ELISA	124	68.8	56	3.11

Table (2) The result of RBT and ELISA test in male and female

Test	Female		Male		Total
	No. of positive cas	Percentage %	No. of positive case	Percentage %	
RBT	74	75.5	24	24.4	98
ELISA	96	77.4	28	22.5	124

Discussion

RBT is considered as a survey test to investigate the infection occurrence for its high sensitivity ,it can detect the infection even with the lowest antibodies titers and detect the infection in it's early stage , this is due to that the IgM antibodies are the only predominant antibodies during the acute phase of the disease and more active than IgG.[12,13].

According to present results , there is significant difference ($P< 0.05$) between females and males in the percentage of positive results of RBT (75.5% ,24.4% respectively) and ELISA (77.4% ,22.5% respectively) .The explanation of this discrepancy is based on the resistance to infection depends on age , sex ,stage of pregnancy and natural resistance to Brucella which may influence the progressive of infection .Pregnant females are more likely to become infected than non-pregnant females or males .This is because a gravid uterus sustains growth of the organism .On other hand in the male ,localization of the organism in the reproductive organs generally results in the shedding of Brucella in the

semen .However ,when used for natural mating ,the risk seems low that infected males transmit the disease to susceptible females .Furthermore ,the course and incidence of the disease is also influenced by natural resistance to infection with' Brucella [14,15].

The standard RBT and complement fixation tests(CF) are the main serological tests used to detect antibodies against *B. abortus* and *B.melitensis* infection [15].In case of making a comparison between results of both serological tests ,our result was in agreement with [16] who found a positive result in each RBT, bacterial isolation and ELISA test 69% ,5% and 100% respectively .Also the results agreement with line of [17], they reported that when testing the sera from 219 *B.melitensis* culture positive sheep ,both RBT and ELISA tests were more sensitive 98.6% and 96.8% respectively than RBT and CF test 95.0% ,92.7% respectively .

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