قسم : التوليد والتلقيح الصناعي .
كلية : الطب البيطرى ـ جامعة أسيوط.
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نسبة الاصابة بمرض الاجهاض المعدى في حيوانات المزرعة في محافظة أسيوط

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تم تحديد نسبة الاصابة بمرض الاجهاض المعدى في الأنواع المختلفة من حيوانات المزرعة في محافظة أسيوط، وذلك باختبار عينات مصل دم هذه الحيوانات باختبارى الروز بنجال وتلازن المصل بالأنابيب .

وقد أسفرت النتائج عن تحديد أعلى نسبة للاصابة بهذا المرض بين الجمال (١١ر٨٪) ، وتلتها الأبقار (٧ر٢٪) ، ثم الجاموس (٤٤ر١٪) ، ولم تظهر عينات الاغنام والماعز التي تم اختبارها ايجابية لهذه الاختبارات.

وقد تمت أيضا مناقشة الأهمية الصحية بالنسبة للانسان والحيوان وكذلك الخطوط الرئيسية لمقاومة هذا المرض والتخلص منه .

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INCIDENCE OF BRUCELLOSIS AMONG FARM ANIMALS IN ASSIUT GOVERNORATE

(With 4 Tables)

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SUMMARY

The rate of Brucella infection among the different species of farm animals in Assiut Governorate was estimated by serological examination of 431 animal blood sera, using Roe Bengal Plate test (RBPT) and tube agglutination test (TAT).

The results indicated that the highest incidence of brucellosis detected was in camels (8.11%) followed by cattle (2.7%) and buffaloes (1.44%). On the other hand, no positive reactors were found among sheep and goats.

The animal and public health significance together with the main basis for erradication of the disease were discussed.

INTRODUCTION

Brucellosis is one of the most widespread and economically ravaging of zoonoses. Distribution of the different types and biotypes of Brucella varies with geographic areas. Brucella abortus is the most widespread type while Brucella melitensis and Brucella suis are irregularly distributed. The presence of Brucella canis has been bacteriologically confirmed in only few countries. Brucella ovis appears to be distributed in all major sheep-raising countries (MATYAS, 1983).

The incidence of Brucella infection among the different species of animals differ greatly from one locality to the other. However bovine brucellosis caused by Brucella abortus occurs in cattle in most parts of the world. Some countries are free from the disease either because of measures taken to prevent its entry or to eradicate it, but where the disease is endemic, the incidence may approach 20-30% (JUBB and KENNEDY, 1970).

In Egypt, the incidence of brucellosis among the different species of animals is still a disputable matter. YEHIA (1961) found that 6.6% of cattle, 10.16% of buffaloes and 1.4% of sheep were positive reactors for Brucella. In the same year KAMEL and ABDEL-FATTAH recordedthat the rate of infection among the Egyptian cows and buffaloes was 7% and 23% respectively.Moreover, ALTON (1963) detected an incidence of 4.8% of Brucella - positive reactors between cattle in Egyptian governmental farms. On the other hand, HAMADA et al. (1963) revealed that the rate of Brucella infection among cattle, buffaloes and camels was 0%, 0.46% and 10.30% respectively. More recently Fayed et al. (1982) estimated a percentage of 1.9, 0.47 and 8.33 respectively among cattle, buffaloes and camels in Aswan Governorate.

The present work aimed at the monitoring of Brucella infection among the different species of farm animals in Assiut Governorate.

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MATERIAL and METHODS

A total of 431 blood samples were aseptically collected from different species of animals including cattle, buffaloe, sheep, goats, and camels, using a sterile 10 ml vacutainer tubes (Table 1). The collected blood smples were kept in the refrigerator over night. The serum obtained was carefully decanted and transferred into 2 ml sterile tubes. Turbid sera were clarified by centrifugation at 3000 r.p.m. for 15 minutes.

All the blood sera were subjected to the Rose Bengal Plate test (RBPT), and those gave positive reactions were furtherly subjected to the tube agglutination test (TAT).

The techniques described by MORGAN et al. (1978) were carried out. The antigen used in the two tests (RBPT and TAT) was prepared and standardized in the Central Veterinary Laboratory (CVL) in Weybridge, Britain.

1. Rose Bengal Plate Test.

A ruled white enamel strips marked 1-10 were used. One drop (0.03 ml) of the antigen was placed on each square of the enamel strip, using a special antigen dispenser. One drop (0.03 ml) of the tested sera was dispensed onto the strip, using an Eppendorf 30 micro-litre pipette. The antigens and sera were thoroughly mixed and rocked for 4 minutes. Any degree of agglutination was considered as positive.

2. Tube Agglutination Test (TAT).

The antigen used is normally issued as a concentrate and it was diluted 1/10 in phenol saline solution.

The standard tube agglutination test with doubling dilutions of sera from 10 to 640 was used. The degree of agglutination was read by comparing with the standard. The titre of the serum was considered as the highest dilution giving a definite (1+) reading or more.

DISCUSSION

The Rose Bengal Plate test (RBPT) was used as a screening procedure for detection of Brucella positive reactors among the different species of farm animals. This test was chosen due to its practicability and efficiency (SCHILF, 1967; NICOLETTI, 1967; MORGAN et al., 1969 and CORBELL, 1972).

The prevalence of Brucella infection among the tested 148 cattle sera was 2.7%. Such percentage is considered lower than that previously recorded by YEHIA (1961), KAMEL and ABDEL-FATTAH (1961) and ALTON (1963) who estimated an infection rate of 6.6%, 7% and 4.8% respectively. However HAMADA et al. (1963) failed to detect any positive reactors among cows.

Only two (1.44%) out of 139 buffaloes were serologically positive reactors, a finding that is somewhat higher than that reported by HAMADA et al. (1963) and FAYED et al. (1982) who recorded an incidence of 0.46% and 0.47% respectively. On the other hand YEHIA (1961) and KAMEL and ABDEL-FATTAH (1961) detected a higher infection rate of Egyptian buffaloes with brucellosis and as much as 10.16% and 23% respectively.

In regard to the extent of Brucella infection among sheep and goats, it was found that all the 109 blood sera of these animals were serologically negative, a result that coinside with what was reported by FAYED et al. (1982) who failed to detect any positive reactors among sheep in Aswan Governorate. Conversly, ZAGHLOUL (1980) recorded an incidence

of 2.13% and 3.14% Brucella positive reactors among sheep and goats respectively.

The 37 camel sera subjected to the serological investigation revealed that 3 (8.11%) were positive. A nearly similar result was obtained by FAYED et al. (1982) who detected an incidence of 8.3% between camels in Aswan Governorate. On the other hand, HAMADA et al. (1963) estimated an incidence of 10.3% among this species of animals.

It is clear from this investigation that the highest incidence of brucellosis detected was in camel (8.11%) followed by cattle (2.70%) and buffaloes (1.44%). The higher incidence of the infection betwen camels necissate more investigation of the disease among this species of animals.

Comparing the obtained results with that previously reported by other workers, it was found that the infection rate of brucellosis among farm animals in Egypt is not static. however, the evolutionary changes in the animal husbandry as well as the extent of population movement are considered the main factors which increase the exposure potential of individual animals or herds to brucellosis. Therefore, the need of a regular investigation must be stressed in order to determine the extent of Brucella infection among farm animals.

From the epidemiological point of view, it is important to appreciate that hygienic measureson the farms, however good, can not be effective against the disease where a symptomless carrier, which may be negative to serological tests, can suddenly dissiminate the organism in large numbers and become a source of infection and contamination to other animals, man as well as the surrounding environment. Therefore, an eradication program must be achieved in order to minimize the risk of Brucella infection among farm animals to an acceptable level. We should nave a new look at such erradication program. It should involve application of research informations to local herd and area conditions. It should also include economics and the evolutionary changes in modern liveotock husbandry.

However, the justifications for the control and prevention of brucellosis are usually divided into three main categories. These are vaccination, test and isolation or slaughter of sero-positive reactors as well as the management practices that reduce exposure potential.

REFERENCES

Alton, G.G. (1963): Report to the government of United Arab Republic on the Control of brucellosis. Rome : FAO, Report No. 1933.

Corbell, M.J. (1972): Identification of the immunoglobulin class active in the Rose-Bengal Plate test for bovine brucellosis. J. Hyg. Camb. 70, 779 - 795.

Fayed, A.A., Karmy, S.A., Yousef, H.I. and Ayoub, M.M. (1982): Serological studies on brucellosis in Aswan Province. Accepted for publication in Vet. Med J. Cairo University.

Hamada, S., El-Hidik, M., Sherif, I., El-Sawah, H. and Yousef, H. (1963): Serological investigation on brucellosis in Cattle, buffaloes and Camels. J. Arab. Vet. Med. Ass. 23, 173 - 178.

Jubb, K.V.F. and Kennedy, P.C. (1970): Abortion and Stillbirth. In Pathology of Domestic Animals, 2nd Ed., Vol. 1, 528 - 543, Academic Press, New York.

Kamel, H.M. and Aabdel-Fattah, A.H. (1961): Unusual type of Brucella isolated from cattle, and buffaloes in Egypt. J. Arab. Vet. Med., Ass. 21, 409 - 415.

Matyas, Z. (1983): Brucellosis in the world. International Symposium on Brucellosis. Brucellosis III. Alger.

Morgan, W.J.B., Mackinnon, D.J., Lawson, J.R. and Cullen, C.A. (1969): The Rose Bengal Plate agglutintion test in the diagnosis of brucellosis. Vet. Rec. 85, 636 - 641.

Nicoletti, P. (1967): Utilization of the Card test in brucellosis erradication. J. Am. Vet. MED. Ass 151, 1778-1783.

Schilf, E.A. (1967): Brucellosis card test. Proc. U.S. Livestock Sanit. Ass. P. 93.

Yehia, S.I. (1961): Trials for the application of rapid tests in the detection of brucellosis using stained antigens. Proc. 2nd Arab. Ann. Vet. Cong. Held in ARE P. 117 - 125.

Zaghloul, A.H. (1980): Bacterial abortion in sheep and goats. M.V.Sc. thesis, Assiut University.

Table 1

Numbers and Localities of the examined animals

Locality	Species of animals				
	Cattle	Buffaloe	sheep	goats	camel
El-Awamre Farm	88	-	-	-	-
Beni-Mur Farm	20	-	-	-	-
El-Hawatka Farm	--	102	-	-	-
Faculty of agricul-ture	--	-	-	52	-
Faculty of Vet. medicine	--	-	14	-	-
Private animals	40	37	20	21	37
Total	148	139	34	73	37

Table 2

Incedence of Brucella positive reactors among different species of farm animals

Species of animals	No of animals	RBPT		TAT			
		No	Frequency %	Titre --- 1/40	1/80	1/160	----- 1/320
Cattle	148	4	2.70	-	-	2	2
Buffaloe	139	2	1.44	-	1	1	-
Sheep	34	-	-	-	-	-	-
Goats	73	-	-	-	-	-	-
Camel	37	3	8.11	-	2	1	-
Total	431	9	2.09	-	3	4	2

Table 3

Results of serological tests on blood sera of the different breeds of cattle

Locality	Breeds of animals	No. of animals	Positive reactors		Titre
			No	Frequency %	
El-Awamre Farm	Baladi	88	1	1.14	1/320
Beni-Mur Farm	Friesian	20	1	5	1/160
Private	Baladi	40	2	5	1/160 & 1/320
Total		148	4	2.70	

Table 4

Results of serological tests on buffaloe's blood sera

Locality	Breeds of animals	No. of animals	Positive reactors		Titre
			No	Frequency %	
El-Hawatka Farm	Saedi	102	1	0.98	1/160
Private	Saedi	37	1	2.70	1/80
Total		139	2	1.44	