

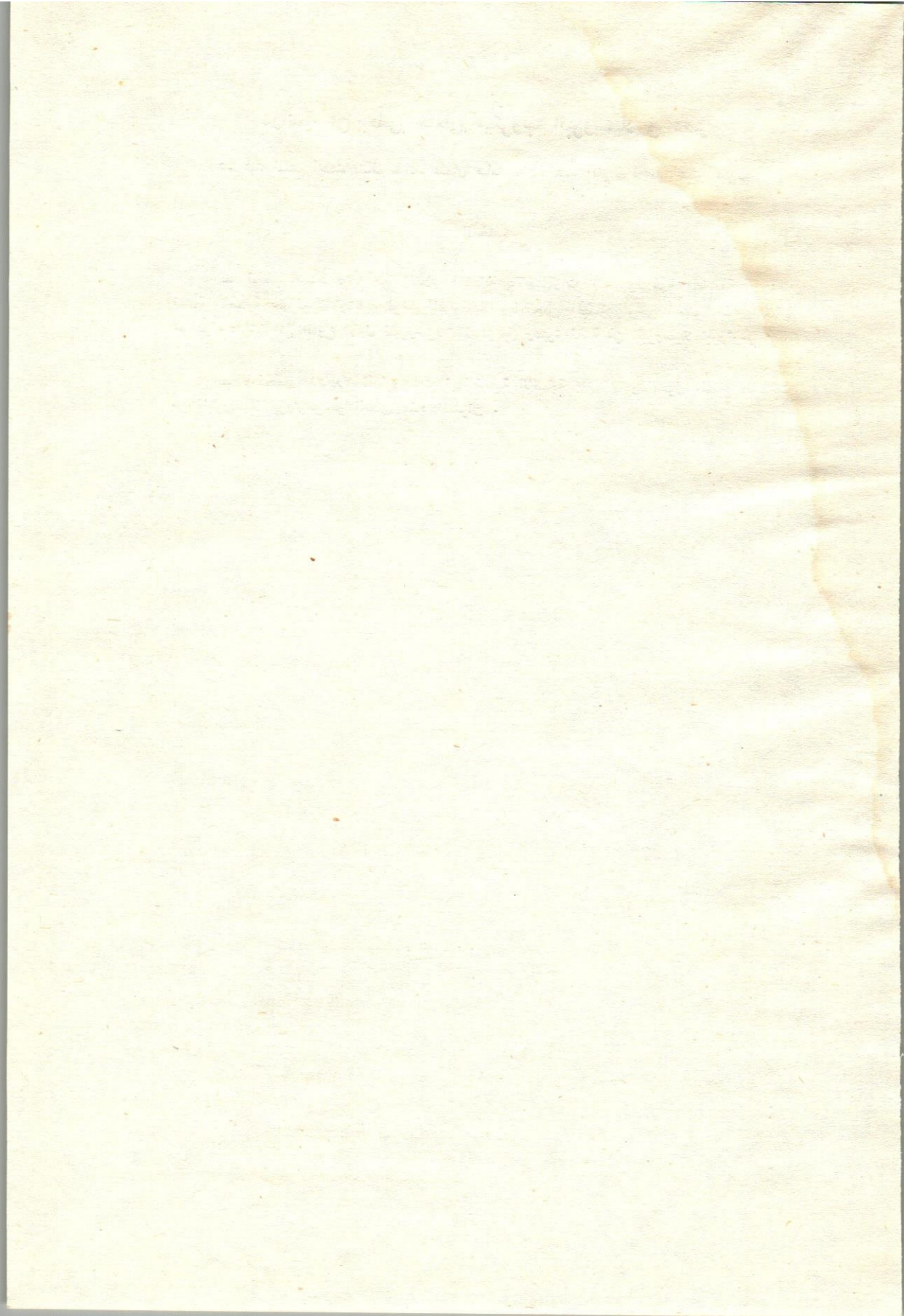
دراسة عن بعض حاملي ميكروب البروسيلا في مصر

د. عبد المنعم أحمد سالم - د. عثمان حامد - د. عبد الكريم محمود عبد الكريم

الملخص

- فحص عدد ١٣٥ من الكلاب الضالة بالاختبارات السيرولوجية المختلفة ووجدت نسبة الإصابة حوالي ٢٩٫٧٤٪ لمرض البروسيلا وبالفحص البكتريولوجي لبعض هذه الكلاب تم عزل عثرتين من النوع الأول للبروسيلا ميلتينزيس وعترة ثالثة من البروسيلا ابورتوس .

- ويفحص عدد ٣٨ فأرا وجدت فيها نسبة الإصابة ٧٩٫٧٩٪ وتم عزل النوع الثالث من البروسيلا ابورتوس من احدى هذه الفئران .



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STUDIES ON SOME BRUCELLA CARRIERS IN EGYPT

(2 tables)

By

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(Received at 1/4/1974)

SUMMARY

Serological examination for brucellosis of 135 stray dogs gave 28.88%, 28.8 % and 29.6 % of infection by using the slide agglutination tube agglutination and complement fixation tests respectively.

Two strains of *Br. melitensis* biotype 1 and one strain of *Br. abortus* biotype 3 could be isolated from some serologically reactor dogs.

Examination of 38 wild rats by using the slide and tube agglutination tests only, gave 7.79% of infection. One strain of *Br. abortus* biotype 3 could be isolated from some one of these rats.

INTRODUCTION

HAGAN (1922) was the first to demonstrate brucella infection among the common Brown rat (*Rattus norvegicus*).

KARKADINOVSKY (1936) examined 34 captured rats from three different infected premises and recovered *Br. abortus* from 11 of them. MENTON (1937), FITCH and BISHOP (1938) and McDIARMID (1951) reported a low incidence of brucellosis among wild rats. BOSWORTH (1937 & 1940) found that five out of 12 rats fed on *Br. abortus* contaminated materials yield the organism and reported that one out of 167 captured rats from infected dairy farm yielded *Br abortus* organisms.

BERECHINKO (1943) reported that dogs are susceptible to *Br. melitensis* infection, if they are fed on infected faeti, faetal membranes or any other infected materials of sheep or goats. HEISCH, COOKE, HARVEY and DE SOUZA (1963) had isolated *Br. suis* type III from rodents near Mombasa.

Mc ERLEAN (1966) reported a case of *Br. abortus* in a dog suffering from posterior paralysis, arthritis, muscular tremors and undulant fever. CLEGG and RORRISON (1968) reported a case of *Br. abortus* in a dog suffering from polyarthritis. LEWIS (1972) detected brucella agglutinins during his investigation on 650 dogs.

In the present investigation, dogs and rats have been studied to clear their role in the epidemiology of brucellosis in Egypt.

MATERIALS AND METHODS

A total of 135 stray dogs and 38 wild rats were collected from different localities in Egypt.

Blood from dogs was procured from the saphina vein or at autopsy for serum collection, while rats were sacrificed for the same purpose.

The collected sera were subjected to the following tests :

1. The quantitative plate agglutination test using the Brucella stained antigen (HUDDLESON, 1932).
2. The tube Agglutination test was used according to the technique of the Central Veterinary Laboratory, Weibridge England (ALTON and JONES, 1967).
3. The complement Fixation test according to TRILENKO (1956). This test was applied only to dog's sera which were inactivated by incubation in water bath at 60°C for 30 minutes. Two serum dilutions 1 : 5 and 1 : 10 were used.

The spleen, liver, kidneys, lymph nodes and the urinary bladders of serologically reactors 11 dogs and 3 rats were subjected to bacteriological examination for isolation of brucella organisms. Isolation was conducted by culture method and animal inoculation. Meat-liver infusion agar media were used for isolation. Inoculated media were incubated at 37°C under 5-10% CO₂ tension, as well as under normal atmospheric condition.

For animal inoculation two brucella free guinea pigs were used for each sample. The inoculation of the laboratory animals were conducted subcutaneously or intramuscularly. The animals were killed 4-6 weeks after inoculation. Blood was collected from the heart just before killing for serological examination. At autopsy, lesions were noted and cultures were made from the lymph nodes, bone marrow and internal organs.

Suspected colonies were confirmed as brucella by microscopical examination of stained smears as well as by the agglutination with a known positive brucella serum and not with a negative one.

Typing of the Brucella isolates was carried out according to the methods recommended by the International Committee of Taxonomy of FAO/WHO for typing of Brucella Organisms (Report of International Committee of Nomenclature of bacteria, 1967). Before typing of the isolates, they were proved to be in smooth form by using the methods recommended by BRAUN and BONESTELL (1947), WHITE and WILSON (1951) and by the thermo-precipitation test.

RESULTS

The results of the serodiagnostic tests are shown in Table I.

TABLE 1: Showing the results of serodiagnostic tests on dogs and rats

Species	Total No. tested	SAT		TAT		CFT	
		Positive	%	Positive	%	Positive	%
Dogs . . .	135	39	28.8	26	19.2	40	29.6
Rats . . .	38	3	7.8	5	7.8	not done	

SAT = Slide agglutination test.

TAT = Tube agglutination test.

CFT = Complement fixation test.

The results of bacteriological examination of 11 serologically positive dogs and 3 rats are given in Table II.

TABLE 2: Showing the types of Brucella organisms isolated from seropositive dogs and rats

Species	Serodiagnostic test			Isolation		Typing
	TAT	Titre of SAT	CFT	Culture	G. pig	
Dogs . .	+	1 : 80	+	—	+	Br. abortus biotype 3
	+	1 : 160	+	+	+	Br. melitensis „ 1
	+	1 : 160	+	+	+	Br. melitensis „ 1
Rat . . .	+	1 : 40	Note done	+	+	Br. abortus „ 3

SAT = Slide agglutination test.

TAT = Tube agglutination test.

CFT = Complement fixation test.

DISCUSSION

Brucellosis has been implicated in causing great economical losses to animal industry, MEYER (1956), ORLOV (1958) and others. Control of brucellosis is a difficult task, specially in areas where straying of animals as dogs are actively taking place.

The present study was carried out to investigate the possibility of reservoirs remaining among some straying animals in Egypt ; that co-habit with our grazing or housed stock and even with man ; in order to clarify their role in the epidemiology of brucellosis.

Serological investigation of 135 stray dogs by using the slide agglutination, tube agglutination and complement fixation tests gave 21.4%, 19.2% and 28.8% infection respectively. Bacteriological examination of 11 serologically positive dogs gave two strains of *Br melitensis* biotype 1 and one strain of *Br. abortus* biotype 3. These findings are supported by BERECHINKO (1943), McERLEAN (1966) and CLEGG and RORRISON (1968). The high incidence of brucellosis among dogs and their susceptibility to the infection, not only with *Br. abortus*, but also with *Br. melitensis* in Egypt, should be taken in consideration, because these dogs can propagate this disease among animals and man.

Three out of 38 examined rats were positively reactors to the slide agglutination and the agglutination tests.

Bacteriological examination of these three rats yielded one strain of *Br. abortus* biotype 3. These results are supported by HAGAN (1922), BOSWORTH (1937 & 1940), KARKADINOVSKY (1936), MENTON (1937), FITCH and BISHOP (1938) and McDIARMID (1951).

The results of the present investigation proved the existance of brucella infection in stray dogs and rats in Egypt. These animals act as scavengers and are capable of transmitting brucella infection to domestic animals and man by contaminating pastures, food or water troughs with their discharges.

Therefore dogs and rats in Egypt can act as potential source for dissimination of brucella infection and this should be taken in consideration in organizing control programes for eradcation of brucellosis.

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MEMORANDUM

TO : Mr. Tolson

FROM : Mr. [Name]

SUBJECT : [Subject]

Reference is made to the report of the [Name] dated [Date].

The [Name] has advised that [Information].

It is noted that [Information].

The [Name] also stated that [Information].

It is suggested that [Information].

The [Name] has further advised that [Information].

It is noted that [Information].

The [Name] has also stated that [Information].

It is suggested that [Information].

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The [Name] has further advised that [Information].