Brucellosis in camels in Iran

E. ZOWGHI and A. EBADI *

Summary: A survey on camel brucellosis in Iran was carried out in 1986 and 1987 at the Razi Institute. A total of 953 serum samples and over 3,500 lymph nodes from 300 camels were examined. In serological investigations, 77 cases (8%) showed laboratory evidence of Brucella infection. Strains of Brucella were isolated from three lymph node cultures (1%). The isolates were Brucella melitensis biotype 1 (1 case) and B. melitensis biotype 3 (2 cases).

KEYWORDS: Brucella melitensis - Brucellosis - Camels - Epidemiological surveys - Iran - Serological techniques.

INTRODUCTION

Brucella abortus was identified as a causal agent of bovine abortion in Iran in 1944 (5). The first report on the isolation of B. melitensis as a cause of abortions in sheep and goats dates back to 1950 (8). Since that time many review articles on investigations into brucellosis in cattle, sheep and goats, and human beings have been published (9, 10, 11, 14, 15, 16, 17, 18). This report presents serological and bacteriological studies of brucellosis in camels, identified in Iran for the first time.

MATERIALS AND METHODS

Samples

During 1986 and 1987, a total of 953 serum samples and the lymph nodes from 300 camels were obtained from the Ziaran and Abyek slaughterhouses. Serum samples were stored at 4°C and tested on the same day or two to three days after collection. The lymph nodes were cultured directly onto agar plates of serum dextrose antibiotics.

Antigens

Antigens for the tube agglutination and Rose Bengal plate (RBP) tests were prepared and standardised according to the method recommended by Alton et al. (1).

Serological tests and interpretation

The RBPT, serum agglutination test (SAT), complement fixation test (CFT) and 2-mercaptoethanol (ME) test were conducted using the standard procedures described by Alton et al. (1) and Brinley Morgan et al. (3).

* Razi Institute, P.O. Box 11365/1558, Teheran, Iran.
The RBPT was read as positive with any degree of agglutination and negative when agglutination was absent.

Titres of 1/80 or above in the SAT were considered positive, taking into account the other serological tests as well.

The titres of 1/40 or above in CFT were taken as positive.

The ME test was interpreted in relation to SAT, and titres of 1/40 or above were considered positive.

**Lymph node cultures**

Over 3,500 lymph node samples from 300 camels were inoculated on serum dextrose agar (with antibiotics). Each lymph node was cultured on 2-3 plates, and all plates were incubated at 37°C in a carbon dioxide incubator for *B. abortus*, and in an ordinary incubator for *B. melitensis*. These were examined over 4 to 7 days for *Brucella* colonies. Subcultures of *Brucella* isolates were biotyped by using techniques described by Corbel *et al.* (4).

**RESULTS**

Of 953 serum samples from camels obtained during 1986 and 1987, 77 (8%) were positive in serological tests for brucellosis. Samples positive to RBPT and SAT were cross-checked by the CF and ME tests.

*Brucella* strains were isolated from 3 of the 300 camels from which a total of 3,500 lymph nodes had been cultured. All the organisms were biotyped and were *B. melitensis* biotype 1 (1 case) and *B. melitensis* biotype 3 (2 cases). The rate of positive cultures for 300 camels was 1%.

**DISCUSSION**

Brucellosis has been diagnosed in camels in many countries in the Middle East (2, 6, 7, 12, 13). In addition, there are many reports on *B. abortus* abortion in camels (2, 12, 13), but infection of camels with *B. melitensis* is rare.

In Iran, sheep and goats are the principal farm animals, and *B. melitensis* has spread in many areas of the country. Hence the occurrence of *B. melitensis* in camels is not surprising.

The regional distribution of infection in camels can be controlled by differential serological tests once a year and the isolation of reactors. The movement of animals should be controlled. Nevertheless, the control of disease among camels would be more successful if reactors were slaughtered, and other animals such as calves and lambs vaccinated with S19 and Rev 1 vaccines respectively.
ACKNOWLEDGEMENTS

Our grateful thanks are conveyed to the personnel of the Ziaran and Abyek slaughterhouses, Mr M. Emami, Mr M. Kiani and Mrs Z. Naserkhaki for their technical assistance.

* * *

LA BRUCELLOSE DU CHAMEAU EN IRAN. — E. Zowghi et A. Ebadi.

Résumé : Une enquête sur la brucellose du chameau en Iran a été réalisée en 1986 et 1987 par l'Institut Razi. Les examens ont porté au total sur 953 échantillons de sérum et plus de 3 500 ganglions lymphatiques prélevés sur 300 chameaux. Les épreuves sérologiques ont permis de mettre en évidence l'infection brucellique dans 77 sérums (8 %). Des souches de Brucella ont été isolées dans trois cultures de ganglions lymphatiques (1 %). Il s'agissait dans un cas du biotype 1, et dans deux cas du biotype 3 de Brucella melitensis.

MOTS-CLÉS : Brucella melitensis - Brucellose - Chameaux - Enquêtes épidémiologiques - Iran - Techniques sérologiques.

* * *

BRUCELOSIS DEL CAMELLO EN IRÁN. — E. Zowghi y A. Ebadi.

Resumen: En 1986 y 1987, el Instituto Razi realizó una encuesta sobre la brucelosis del camello en Irán, examinándose un total de 953 muestras de sueros y más de 3 500 ganglios linfáticos extraídos de 300 camellos. Las pruebas serológicas demostraron la presencia de infección brucelica en 77 sueros (el 8%). Se aislaron cepas de Brucella en tres culturas de ganglios linfáticos (el 1%), tratándose del biotipo 1 en un caso y, en los otros dos, del biotipo 3 de Brucella melitensis.

PALABRAS CLAVE: Brucella melitensis - Brucelosis - Camellos - Encuestas epidemiológicas - Irán - Técnicas serológicas.

* * *

REFERENCES