Vol 12 No 2, p 133-134

SEROPREVALENCE OF BRUCELLOSIS IN DROMEDARIES IN GUJARAT

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ABSTRACT

Seroprevalence of brucellosis in dromedaries of north Gujarat and Kutchchh regions of Gujarat state was done. Out of 300 sera tested, 19 (6.33%) and 18 (6.00%) were found positive by RBPT and SAT, respectively. The region wise seroprevalence recorded was 7.04% and 4.60% in Kuchchh by RBPT and SAT, respectively. Almost similar rate of seroprevalence was observed in both the sexes. The result of present study confirms the presence of brucellosis in camels of Gujarat state.

Key words: Brucellosis, camel, Gujarat, RBPT, SAT

Brucellosis is a widespread and economically important zoonotic disease in tropical and subtropical regions and creates problems for the intensive and extensive production systems (Wernery and Kaaden, 2002). Its occurrence in animal reservoirs presents constant hazards of human infections (Gameel *et al*, 1993). Although, camels are crucial in the economy of some developing countries, brucellosis of camels has received comparatively little attention and some doubt still remains with respect to its clinical picture in camels (Azwai *et al*, 2001 and Teshome and Molla, 2002).

In India, many workers have reported brucellosis in cattle, buffaloes, sheep, goats and human beings (Tayshete, 2001). However, not much information is available on brucellosis in camels. The present investigation confirms seroprevalence of brucellosis in camels in Gujarat state.

Materials and Methods

A total of 300 sera were collected from dromedaries of North Gujarat (213) and Kutchchh (87) regions of Gujarat state which consisted of 188 females and 112 males. The sera were placed into screw capped vials and heat inactivated at 56°C for 30 minutes and stored at -20°C until tested.

All samples were screened by Rose Bengal Plate Test (RBPT), (Rose and Roepke, 1957) and Standard Tube Agglutination Test (SAT) using method of Alton and Jones (1967). Both RBPT and *Brucella abortus* plain antigen strain 99 were obtained from IVRI, Izatnagar. In RBPT, a positive result was indicated by definitive clumping, while in case of negative result the mixture remained homogenous without formation of any clumps. In SAT, titres expressed in International Units (IU) and the animals with SAT titres of 80 IU and above were considered positive.

Results and Discussion

In the present study, out of 300 sera screened, 19 (6.3%) and 18 (6.0%) were found positive by RBPT and SAT, respectively. The region wise seroprevalence recorded was 7% and 4.6% in north Gujarat while 4.6% and 4.6% in Kutchchh by RBPT and SAT, respectively. Sex wise female showed 6.4% and 6.4% and male showed 6.3% and 5.4% seroprevalence with both tests.

In constrast to the present study Prajapati *et al* (1998) and Ghoke (2003) reported a higher seroprevalence (40 and 30% by SAT and RBPT) and (19.2 and 25% by RBPT and dot-ELISA). This may be due to the screening of aborted camels only and the difference in sample number and locations from where samples were tested. However, the serological surveys conducted at Nigeria, Libya, Saudi Arabia and Ethiopia have shown a variable seroprevalence ranging from 1.3 to 8.6% (Okoh, 1979; Gameel *et al*, 1993; Radwan *et al*, 1992 and Teshome and Molla, 2002). Teshome and Molla (2002) opined that the difference of camel brucellosis in different countries may be due to husbandry and management conditions in a country, the number of susceptible camels, rate of transmission and the virulence of organisms.

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In the present study, serum samples were from two different regions of north Gujarat and Kutchchh of the Gujarat state. The seroprevalence was 7% and 6% to 4.6% and 4.6% by RBPT and SAT. Such geographical differences are in agreement with previous studies in Saudi Arabia (Radwan *et al*, 1992), Sudan (Abu Damir *et al*, 1984) and Ethiopia (Teshome *et al*, 2003).

Almost similar rate of seroprevalence was observed in both the sexes, though the number of male camels included was lesser to that of female camels. This is in agreement with the reprot of Radwan *et al* (1992) and Teshome and Molla (2002). However, in contrast to present findings, Ghoke (2003) noted higher rate of seroprevalence in females (25.0 and 36.7%) as compared to males (13.3 and 13.4%) by RBPT and dot-ELISA.

This study on camel brucellosis reflects the prevalence of this zoonotic disease and requires attention amongst camel owners. The absence of vaccination and existence of positive animals indicate the occurrence of natural infection (Alton *et al*, 1975). It is clear that brucellosis is quite prevalent in north Gujarat and Kutchchh regions which harbours a large population of camels. There is a need to isolate and identify the species and biotypes of brucella in camels in Gujarat and elsewhere in India.

Acknowledgements

The authors are hightly grateful to Dr. V.P. Vadodaria, Principal and Dean for the facilities being provided and Drs. D.R. Mewada and M.A. Patel, ADIOs for their help in sample collection.

References

Abu Damir H, Kenyon SJ, Khalaf Alla AE and Idris OF (1984). Brucella antibodies in Sudanese camels. Tropical Animal Health and Production 16:209-212.

Alton GG and Jones LM (1967). Laboratory Techniques in Brucellosis. WHO Monograph series 55.

Alton GG, Jones LM and Pietz DE (1975). Serological methods. In: Laboratory Techniques in Brucellosis. 2nd edition WHO Geneva.

Azwai SM, Carter SD, Woldehiwet Z and Mac Millan A (2001). Camel brucellosis: Evaluation of field sera by conventional serological tests and ELISA. Journal of Camel Practice and Research 8(2)185-193.

Gameel SEAM, Mohamed SO, Mustafa AA and Azwai SM (1993). Prevalence of camel brucellosis in Libya. Tropical Animal Health and Production 25:91-93.

Ghoke SS (2003). Epidemiology and clinicopathological studies on major disease conditions of camels (*C.dromedarius*) in north Gujarat. MVSc thesis submitted to Gujarat Agricultural University, Sardarkrushinagar.

OKoh AEJ (1979). A survey of brucellosis in camels, Kano, Nigeria. Tropical Animal Health and Production 11:213-214.

Prajapati CB, Patel PR and Shah NM (1998). Incidence of brucellosis in rural camels in north Gujarat (Cited from Ghoke SS, 2003).

Radwan AI, Bekairi SI and Prasad PVS (1992). Serological and bacteriological studies in camels in central Saudi Arabia. Revue Scientifique et technique de Off Int Epiz 11(3)837-844.

Rose JE and Roepke MH (1957). An acidified antigen for detection of non-specific reaction in the plate agglutination test for bovine brucellosis. American Journal of Veterinary Research 18:550.

Tayshete SR (2001). Seroprevalence of brucellosis in north Gujarat. MVSc thesis submitted to Gujarat Agricultural University, Sardarkrushinagar.

Teshome H and Molla B (2002). Brucellosis in camels (*Camelus dromedarius*) in Ethiopia. Journal of Camel Practice and Research 9(2)125-128.

Teshome H, Molla B and Tibbo M (2003). A seroprevalence study of camel brucellosis in three camel rearing regions of Ethiopia. Tropical Animal Health and Production 35:381-390.

Wernery U and Kaaden OR (2002). Infectious Diseases in Camelids. Blackwell Wissenschafts-Verlag Berlin. pp 109-115.