

Short communication:

Brucellosis in Some Wildlife in Darfur States, Sudan

Musa, M. T*.

Nyala Veterinary Research Laboratory, P. O. Box 24, Nyala, Sudan

ملخص البحث

لقد تم مسح مرض البروسيللا في الحيوانات والطيور البرية بحديقة الحيوان بنيالا وحظيرة الرديم القومية بغرب السودان . ولقد وجدت أربع (28.57%) حالات بالمرض في الحيوانات والطيور في كلا الموقعين. ويعتقد أن انتقال العدوى من الحيوانات الأليفة بطرق مباشرة وغير مباشرة علاوة على تغذية الحيوانات والطيور بلحوم مصابة وغير مطهية هي الأسباب وراء الإصابات بميكروب البروسيللا . عليه نوصي بعمل مسوحات لمتابعة المرض في الحياة البرية في حدائق الحيوان وإطعامها لحوم صحية أو طهيها قبل إطعامها حتى تتم السيطرة على المرض .

Prevalence rate of brucellosis was investigated in wildlife in Nyala zoo and El Radom National Park in western Sudan. Prevalence rate with the disease in both localities was found to be 28.57%. Direct and indirect contacts of the wildlife with infected domestic livestock and feeding raw and infected meat to animals and birds in captivity were thought to be factors responsible for the transmission of brucellosis. Continuous screening of wildlife in zoos for the disease, feeding them with healthy or properly cooked meat and keeping them under good hygienic conditions are recommended for control of the disease in the animals in captivity.

Livestock in western Sudan is owned mainly by nomadic people who keep moving to different places in the country. In doing so, the nomadic livestock is subjected to intermix freely with wildlife both in and outside El Radom National Park in the area. The livestock in the study area was known to be infected with brucellosis (Musa and Mitchell, 1985; Musa, 1995).

The aim of this study was to examine some species of wildlife for prevalence of brucellosis as a result of their direct and indirect contacts with domestic livestock.

Fourteen wild animals and birds in Nyala zoo and El Radom National Park were bled for serum samples for serological diagnosis of brucellosis.

* *Present Address: Animal Resources Research Corporation, P.O.Box 610, Khartoum, Sudan*

The Rose Bengal Plate test (RBPT), Serum Agglutination test (SAT) and Complement Fixation test (CFT) were used for the diagnosis. The tests were performed according to Morgan *et al.* (1978), employing standardized antigens supplied by the Central Veterinary Laboratory, New Haw, UK.

Four out of the 14 wild animals and birds (28.57%) were positive for brucellosis. Types of animals and birds examined and the results of the serological diagnosis are presented in Table 1. As shown in the table, the positive cases were observed in both the zoo and El Radom national park.

Table 1: Prevalence rates of brucellosis in wild animals and birds in Nyala Zoo and El Radom National Park

Locality	Animals and Birds examined	No. +ve/ Total No. examined	Serological tests results		
			RBPT	SAT	CFT
Nyala zoo	Hyena	1/1	+ve	1/80 (102.5 iu)	1/100
	Gazelle	0/1	-ve	-ve	
	Dikdik	1/1	+ve	3/5 (287 iu)	1/20
	Ostrich	0/1	-ve	-ve	
	Crowncrane	1/1	+ve	2/5 (246 iu)	2/20
	Guinea fowl	0/1	-ve	-ve	
El Radom National Park	Warthog	0/5	-ve	-ve	
	Marbou	0/2	-ve	-ve	
	birds	1/1	+ve	1/5 (205 iu)	NT
	Gazelle				

+ve= positive, -ve= negative, NT= not tested, Numerator= Degree of agglutination, Denomenator = Dilution of serum, iu = international units

None of the wild animals and birds found positive for brucellosis is known to be a primary host for any of the *Brucella* species recognized today. According to FAO / WHO Report (1986), brucellosis is transmitted to wild animals and birds from the principle carriers of *Brucella*. Wildlife in national parks are exposed to the disease by direct contact with infected domestic animals or their infected materials in pastures and water or indirect by insects such as flies and ticks (FAO / WHO Report, 1986). Brucellosis was reported in wildlife in many parts of the world (Anon, 2004). In zoos, however, animals and birds are brought early in their life and it is most likely that they contract the disease either by being kept in contaminated premises, fed uncooked meat or coming in contact with infected females during or after parturition. In Nyala zoo, it was observed that the animals were fed raw meat from Nyala abattoir, where many brucellosis positive animals were detected (Musa, 1995). Such food was incriminated as a source of infection to animals and birds in the zoo. The fact that the

prevalence of brucellosis in Nyala zoo was 50% and in El Radom park it was 12.5%. This may indicate that animals and birds in captivity were more prone to the disease than those free ranging. This might further support the hypothesis that meat provided to animals in the zoo may be incriminated in the transmission of the disease.

It is recommended to apply the stamping out process (examine animals in the zoos in brucellosis endemic areas and slaughter positive) or keep them isolated during and after parturition while their premises should be disinfected. Meat provided to animals and birds in captivity should be healthy, free from *Brucella* infection and well cooked to be rendered safe for consumption. It was difficult to examine large numbers of wild animals. The intention was to prove or disprove infection of wildlife with brucellosis in western Sudan under the stated husbandry methods and suggest control measures to cut the cycle of infection between the latter and domesticated livestock and birds.

Acknowledgments

The author would like to thank Chief, Game Warden of Nyala Wildlife Conservation and El Radom National Park and his colleagues for their help and allowing the study team to collect samples from the different species examined.

References

- Anon. (2004).** Report of the meeting of the OIE working group in wildlife diseases. OIE, Paris 9 – 11 February, 2004.
- FAO / WHO Report. (1986).** Expert Committee on Brucellosis 6th Report. WHO Technical Report Series 740, 101, World Health Organization, Geneva, Pp 50.
- Morgan, W. J. B.; Mac Kinnon, D. J.; Gill, K. P. W.; Gower, S. G. M. and Norris, P. I. W. (1978).** Brucellosis Diagnosis. Standard Laboratory Techniques. Ministry of Agriculture, Fisheries and Food, London. Pp.
- Musa, M. T. (1995).** Brucellosis in Darfur States: The Magnitude of the Problem and Methods of Diagnosis and Control. Ph. D. Thesis, Faculty of Veterinary Medicine, University of Khartoum, Sudan.
- Musa, M. T. and Mitchell, N. B. (1985).** A field case of contagious abortion in Darfur, western Sudan. *Sudan J. Vet. Sci. Anim. Husb.*, **15**: 11 – 15.