

First report of antibodies to *Neospora caninum* in Nigerian cattle

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Introduction

Neospora caninum is an apicomplexan protozoan parasite morphologically similar to *Toxoplasma gondii* but with the sexual reproductive stage occurring in dogs and wild canids [1]. Infections in cattle can cause significant economic losses due to abortions, birth of weak calves, fertility problems, reduced milk production, and increased culling [1,2]. Infections with *N. caninum* have been suggested as a major cause of reproductive failure in cattle in Europe and the USA [2] but there is limited information on their occurrence in Africa. Although there is serological evidence that the parasite occurs in Sub-Saharan Africa [3,4], it is not known if it is present in Nigeria where abortions and poor fertility are common [5].

The study

To provide this information we conducted a serological survey for *N. caninum* in cattle brought for slaughter from the major cattle-producing states of Nigeria. Five hundred convenience samples of sera from indigenous breeds (White Fulani, Red Bororo, Sokoto Gudali, Kuri, Ndama, and mixed breeds) from 14 Nigerian states were obtained at the Bodija municipal abattoir in Ibadan, Oyo state, between December 2010 and November 2011. Sera were tested for antibodies to *N. caninum* with the commercial *N. caninum* ELISA kit (Herdcheck, IDEXX Laboratories, Westbrook, ME, USA) according to the manufacturer's instructions.

The overall frequency of *N. caninum* antibodies was 2.8%, with 3% (12/401) of males positive and 2% (2/99) of females. Antibodies were detected in Sokoto Gudali (5/161; 3.1%), Red Bororo (4/120; 3.3%),

White Fulani (4/139; 2.9%) and Kuri (1/44; 2.3%). Sera obtained from N'dama (10) and mixed breeds (26) were negative. As shown in Table 1, positive animals were found in 6 of the 14 states from which cattle were sampled.

Table 1. Origins of cattle with anti-*Neospora caninum* antibodies

State of origin	Number tested	Positive	(%) Sero-Positive
Bauchi	11	0	0
Borno	23	1	4.3
Kaduna	4	0	0
Kano	22	1	4.5
Katsina	42	4	9.2
Kebbi	71	4	5.6
Kogi	4	0	0
Nasarawa	22	1	4.5
Niger	128	3	2.3
Ogun	7	0	0
Oyo	24	0	0
Sokoto	106	0	0
Yobe	31	0	0
Zamfara	5	0	0

Our study provides the first evidence that *N. caninum* is present in Nigeria although infections in cattle appear uncommon. We did not investigate the source of infection but suspect it was from oocysts shed from herd dogs and wild canids, which are common in the semi-intensive cattle rearing system practiced in Nigeria. It is not clear whether there is a difference in breed susceptibility to *N. caninum* since there were variations in the frequency of anti *N. caninum* antibodies among the indigenous breeds.

Conclusion

Our study is the first to provide serological evidence of *N. caninum* infection in cattle in Nigeria. The disease should be included in the list of emerging diseases in Nigeria and larger epidemiological surveys are indicated to determine the extent of the problem and the need for control measures.

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