SHORT COMMUNICATION

Serological Survey of Porcine *Brucella* Infection in SouthEast, Nigeria.

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INTRODUCTION

Porcine brucellosis, also called contagious abortion of swine is an infectious and zoonotic disease of swine caused by bacteria of the genus Brucella (Young, 1995). *Brucella suis* is the species found primarily in pigs. It is a zoonotic infection of domesticated and wild animals which humans (especially occupationally exposed workers), acquire by ingestion of improperly cooked contaminated pork, direct contact with infected animals or inhalation of infected aerosols (Radostits, 1995).

Brucella infection in pigs is of wide spread occurrence, but the prevalence is low in most countries with the exception of South America and Southeast-Asia where the prevalence is high (Starnes *et al.*, 1999). Pig production is drastically affected by Brucella infection through abortion, birth of weak/unthrifty piglets, infertility and orchitis in the boar and these constitute serious economic losses (Ogundipe *et al.,* 2001). Productivity of pigs in most countries is generally low due to high piglet mortality, slow growth rate, lack of adequate feed stuffs, ectoparasitism, trypanosomosis, helminthosis, lack of government' incentives, poor housing, lack of veterinary services and poor feed conversion ratio (Rekwot, 2003).

This study was undertaken to determine the prevalence of Brucella infection in swine in southeast Nigeria.

KEY WORDS: Serology, Brucella, Pig, Rose-Bengal Plate Test Southeast, Nigeria.

MATERIALS AND METHODS

Study area

This survey was carried out in Anambra, Enugu and Ebonyi states, southeast, Nigeria. These states lie between latitudes 6.8^0 and 8.5^0 and longitudes 6.8^0 and 7.5^0 in Nigeria (Paul, 1988). The southeast is characterized by warm climatic conditions for most part of the year. The wet season extends from April to October with annual rainfall ranging from 168mm to 1700mm while dry season spans from November to March (Oformata, 1978).

Study design and sampling procedure

The survey covered two out of the three senatorial zones that constitute each of the states. In each senatorial zone, two local government areas were covered and two farms from each local government area were selected and sampled. Ten per cent (10%) of the flock were sampled in each farm visited. The farms were visited on weekly basis between March and August, 2008. A total of twelve local government areas and twenty-four (24) farms were covered.

Blood sample collection

After pig restraint, the two ears were scrubbed clean and disinfected with methylated spirit. Sterile hypodermic needle was used for blood collection from the ear vein. Two to three milliliters of blood were collected into a sterilized glass container without anti-coagulant. The blood in the containers was allowed to clot and sera formed were harvested and stored until tested for *Brucella* antibodies.

Sample Analysis

A total of 351 blood samples from adult pigs above 1 year of age were collected and screened for *Brucella* antibodies. Two different antigens (*Brucella abortus and Brucella melitensis*) procured from New Haw, Addle Stone, Surrey KT 15-3NB, UK, were used. Rose Bengal Plate Test (RBPT) was carried out on each of the sera using both antigens but separately according to the standard procedures of Morgan *et al.* (1978).

Data analysis

The significance of the association between prevalence of *Brucella* infection among sexes and ages of pigs surveyed were determined using Chi-square statistics. The analysis was done using SPSS package version 16.0 for windows at 5% probability level.

RESULTS

The result showed that of 351 sera samples; 139(39.6%) from Anambra, 183 (52%) from Enugu and 29 (8.3%) from Ebonyi states were screened for *Brucella* antibodies. Seventy six (21.7%) and 275 (78.3%) *of the pigs were* males and females respectively. Out of 351 sera examined for *Brucella* infection, two (0.6 %) sera from sows of about 2 years old in Emene (Enugu east LGA) were positive for *Brucella* antibodies. The positive sera showed antibodies to both *Brucella abortus* and *Brucella melitensis* organisms signifying mixed infections.

Table I: Result of Serological test*ing* for Porcine *Brucella* Infections in Southeast, Nigeria.

Location	No of pigs screened	Males	Females	RBPT	Prevalence (%)
Anambra State	139	27	112	-	-
Enugu State	183	4 4	139	++	0.6 %*
Ebonyi State	29	6	23	-	-
Total	**351**	**76**	**275**	**2+ ve**	**0.6%**

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DISCUSSION

The need to serologically survey porcine *Brucella* infection was based on reports of abortion and infertility problems by the farmers in the study area as well as its public health and economic implications. The seriousness attached to cases of brucellosis by the farms visited was informed by the zoonotic nature of the disease. Secondly, the disease causes abortion and still birth in sows, orchitis and hygroma in boars and these constitute huge economic losses. The prevalence of 0.6% of swine *Brucella* infection in southeast is rather low, when compared with the prevalence in other animal species like cattle and goats. Olayinka and Ogundipe (2001), reported a prevalence of 6.28% in trade cattle at Ibadan. Onunkwo *et al.* (2007), reported a prevalence of 1.6% in trade goats in Nsukka, Enugu state while Junaidu *et al.* (2010), recorded a seroprevalence of 22.93% in goats in Sokoto, North west Nigeria. However, the 0.6% seroprevalence recorded in this study is high when compared with 0% prevalence in pigs as reported by Cadmus *et al.* (2006), in Ibadan South west Nigeria. The 0.6% prevalence is not unexpected because most of the farmers in the study area usually select replacement stock from their own farms or reputable farms that have no history of abortion and infertility problems and usually adopt good control measures against the infection. All the pig farmers visited practiced intensive system of husbandry. This shows that there is little or no contact between the pigs in the pens and other animals in the same farm. However, in Enugu east local government area (Emene), where the two positive sera were obtained, pigs were intensively managed, but were provided with drinking water from a nearby stagnant lake which also serve as source of drinking water for trade cattle and goats grazing in the area. The water and pasture may have been contaminated by infected cattle and goats drinking and grazing in the same area. This may have resulted in the mixed infections of *Brucella abortus* (cattle) and *Brucella melitensis* (goats) reveled in this study. Ocholi *et al.* (2004), suggested that herding together various animal species like cattle, goats and sheep for grazing and watering in the same field helps to spread diseases within the population.

The low prevalence rate recorded in this survey suggests that there is increasing awareness among the farmers in the study area on the importance of good farm management in form of improved sanitation, good feeding and biosecurity measures as control strategies against diseases. The epidemiological importance of this survey is that, the risk of acquiring human *Brucella* infection through exposure to pigs is less when compared to that of other animals as reported by Onunkwo *et al.* (2007) in the same study area. *Brucella* infection *may be* a minor problem in pig production in southeast, Nigeria but should not be ignored in view of the public health importance of the disease. Therefore the affected farm should be depopulated, disinfected and re-stocked with pigs free from the disease. Water sources to the farm must be treated to reduce the chances of *Brucella* infection and other infections inimical to pig production.

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