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FIRST REPORTED CASE OF DOG ASSOCIATED PIG RABIES IN GHANA

Tasiame William, Folitse Raphael. D, *Emikpe Benjamin.O, Adongo Joseph Awuni

School of Veterinary Medicine Kwame Nkrumah University of Science and Technology
Central Veterinary Laboratory, Ministry of Food and Agriculture, Accra Ghana
*** E-Mail:** banabis2001@yahoo.com

Abstract

Background: Pig rabies is uncommon and there is paucity of information on rabies in pigs in West African countries other than Nigeria. This communication presents a case of dog associated pig rabies in Adidome, Ghana.
Materials and Methods: Case history, Dog assessment in adjoining communities, human exposure, clinical presentations and mortality in affected pigs were evaluated using standard techniques. Laboratory screening of brain samples collected was by Fluorescent antibody technique.
Results: Stray dog bitten affected pigs showed anorexia, constipation, hyper excitation, twitching of head, roaring and foaming with resultant category 1 and 11 human exposure, 17% mortality and 75% case fatality rate. Laboratory examination of swine brain specimens tested positive for Rabies virus using Fluorescent Agglutination Test.
Conclusion: This report described the first documented case of dog associated pig rabies in Ghana and emphasis was laid on continued advocacy and prompt reporting of suspected neurological conditions in pigs in Ghana

Key words: Dog associated Rabies, Pig, Ghana

Introduction

Rabies is a viral zoonotic disease, caused by rabies virus (Rupprecht et al. 2002). Throughout the world, including Africa, dogs are the most important source of the infection to humans (Kayali et al. 2003). Rabies is estimated to cause at least 55,000 deaths per year worldwide, about 56% of which occur in Asia and 44% in Africa, particularly in rural areas on both continents, where dogs remain the principal host. It is estimated that up to 300 individuals are exposed to the rabies virus every 15 minutes in Africa (Rupprecht et al. 2002) while in Ghana, despite yearly vaccination programmes of dogs, incidence of rabies is still high with hospital case reports of 8 persons that died of the disease (Alonge and Abu, 1984).

Rabies in pigs is uncommon and there is paucity of information on the occurrence of rabies in pigs in West African countries other than Nigeria (Osiyemi et al. 1978; Okoh 1981) hence a case of dog associated pig rabies in Adidome, Ghana was hereby reported.

Case History

On 13th of September 2011, a community livestock worker attached to the district veterinary officer described a strange behavior in a sow which had been bitten by a stray dog a month earlier in Afalekpo. Afalekpo in the North Tongu District of Volta Region of Ghana, is a fishing and farming community of about 25 km West of Adidome Township. The community has a population of 472 persons (Ghana Statistical Service, 2000) and 35 pigs (Ghana District Veterinary Services, 2011). There are no dogs in this community; however, other adjoining communities have several hunting dogs.

Briefings from the owner

The owner reported that a stray dog entered the pig pen and bit some weaners, gilt and engaged a recently farrowed sow in a fight. The sow killed the dog but sustained various injuries on the head, snout and ears. Other pigs sustained injuries which she nursed. A month after the incident, the sow started showing signs of abnormal shaking of the head and went off-feed and water. The woman also confirmed that no dogs are kept in the community but there are hunting dogs in the nearby communities: Vome and Boekome.

Dog assessment in adjoining communities: Vome and Boekome

Dog assessment in adjoining communities was undertaken by asking relevant questions as regards the presence of hunting and stray dogs in the bushes around the afflicted community. The chief and elders of Vome and Boekome corroborated the fact that there are dogs kept in their

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communities of which none was vaccinated and that people believed that hunting dogs would no more be wild if vaccinated. They complained that these dogs sometimes attack their livestock and people in their homes. It was also found out that most of the dogs are used for hunting and they are not properly fed so they move from compound to compound in search of food.

Human Exposure

The World Health Organisation (WHO) standards were adopted to categorise the human exposures. Six persons had access to the pigs when involved in the processing of the carcass for consumption (Fig 1D) and therefore were at risk. Their ages ranged from 19 years to 51 years with 4 males. Out of the 6 exposed persons, 5 had category I exposure and one with category II exposure.

Farm History

The farm originally contained 23 pigs made up of 12 weaners, seven piglets, two growers, a gilt and sow (Fig 1A). These are raised in 9 pens constructed in 2 rows with a common corridor. A total of 4 pigs were bitten by the stray dog giving exposure rate of 17%. Out of the 4 exposed, 3 developed signs and died between 3 and 4 weeks.

Clinical Signs observed in pigs

The clinical signs observed in the pigs include: anorexia, constipation, hyper excitation, twitching of head, roaring and foaming

Laboratory Investigations

Two decapitated whole head samples of affected pigs, placed in a cold box were dispatched to Accra Veterinary Laboratory on 14th September 2011 while the third head sample (Fig 1B & C).was sent a week later. All the brain specimens were tested for Rabies virus (RABV) using Fluorescent Agglutination Test (FAT) and were found to test positive for Rabies virus (RABV)

Discussion

This report described for the first time the outbreak of dog associated pig rabies in Ghana resulting in 13% mortality in a herd of 23 pigs. The outbreak in pigs was due to the pigs been bitten by a stray rabid dog which came from adjoining communities for hunting and other purposes, three of the four bitten showed clinical signs and died of the disease. This further elucidated the fact that stray and hunting dogs are often prone or harbor rabies virus as opinioned by Olugasa et al. (2011) and Oluwayelu et al. (2015).

This finding is however in contrast with the first report of dog associated pig rabies in Yongzhou city, China (Jiang et al, 2006) where a neighbor's rabid dog was implicated.

The incubation period observed in the present study showed acute form of the disease with an incubation time of 21-24 days, this incubation period is consistent with those observed in other studies (Luangtongkum et al.1986; Jiang et al. 2006) who reported incubation periods of pig rabies infections caused by dog bites were 8–16 days and 20-30 days respectively.

The clinical signs observed were in agreement with similar cases reported elsewhere (Luangtongkum et al.1986; Jiang et al. 2006). Jiang et al (2006) reported of hyper excitation, roaring and attacks on other pigs which were not reported in this case, this contrast may be attributed to the measure taken by the farmer to separate affected pigs; this measure could have prevented any attacks on other pigs. The death of affected pigs within 1-3 days of the appearance of symptoms was similar to those described previously by other workers (Yates et al. 1983; Jiang et al 2006).

Unlike other reports from Thailand (Luangtongkum et al.1986) and China (Jiang et al. 2006) where there was no reported human exposures, this report clearly identified six exposed persons with category I and II exposures which was associated with the processing of dead affected sow.

This calls for public advocacy on the risk associated with the consumption of rabid carcasses. In this report, the six men with category I and II exposures were asked to wash their hands with plenty of water and soap with a further directive to attend a nearby Government hospital for assessment and post exposure treatment.

The affected and adjoining communities were later sensitised on Rabies and its management using audio visual materials. Further management and control measures were discussed with the traditional leaders, District Chief Executives, District Health Management Team, security agencies and other stakeholders which included teachers and pastors of schools and churches in the communities.

This report described the first documented case of dog associated pig rabies in Ghana, wherein there was category 1 and 11 human exposure and 17% mortality and 75% case fatality rate. Emphasis was laid on continued advocacy and prompt reporting of suspected neurological conditions in pigs and other livestock of interest in the affected and adjoining community.

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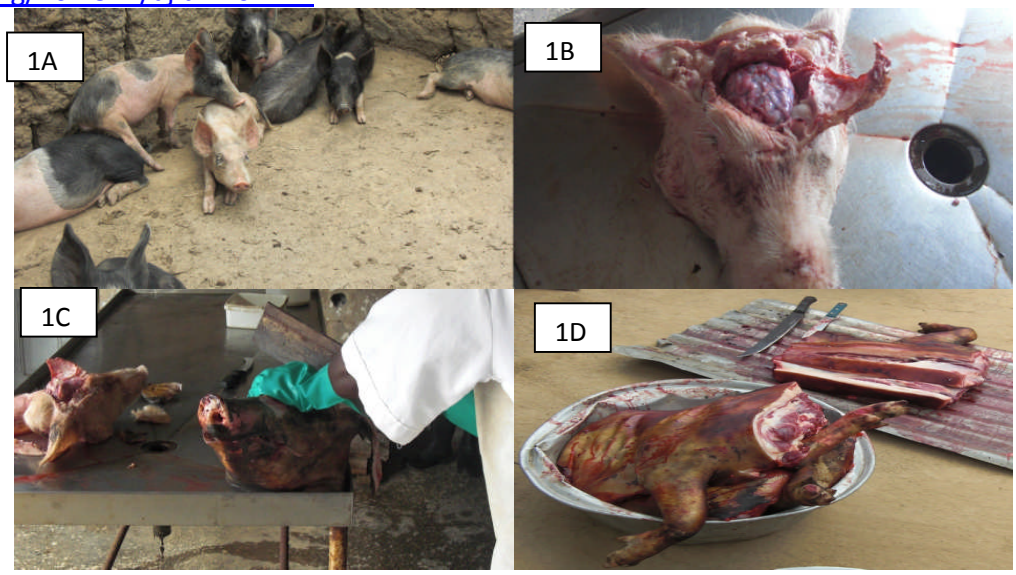

1A: Some of the pigs in the affected herd **1B:** The decapitated head of the gilt that was FAT positive. **1C:** The decapitated sow and gilt head at the laboratory **1D:** The pork from the affected pig.

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