

Short Communication

AFRICAN SWINE FEVER OUTBREAK IN KUMO, NIGERIA: A CASE REPORT

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INTRODUCTION

African swine fever (ASF) is a highly contagious and fatal trans boundary viral disease of domestic pigs. The aetiology is clearly DNA cytoplasmic deoxy virus of the family *Iridoviridae* (*Asfarviridae*) and specie *Iridovirus* (Dixon *et al.*, 2000). The disease is characterised by high mortality close to 100%, diarrhoea, fever and coughing. The virus causes high devastation in both young and adult pigs regardless of their sexes (Dixon *et al.*, 2000). It is well known that the virus is established in wildlife such as African bush pigs (*Putomochoerus porcus*) giant forest hogs and warthogs (*Phacochoerus aethiopicus*) serves as reservoir hosts (Thompson *et al.*, 1983). The argasid (soft ticks) *Ornithodoros moubata* (Africa), *Ornithodoros erraticus* (Berian Peninsula) and *Ornithodoros porcinus* (Europe) harbour the virus (Bionas *et al.*, 2004). Within the ticks, transovarian, sexual and transtadial transmission occur (Antonlo *et al.*, 1986). The disease was first described in Kenya in 1921, and in South Africa and Angola in 1922 in free-ranging pigs. The impact of this disease has now reached several European and Caribbean countries (Cuba, Haiti and Dominican Republic) and Brazil (FAO, 2000). African countries had recorded tremendous outbreak of this disease (Majiyagbe *et al.*, 2004). In Nigeria, the disease have been confirmed through laboratory tests and reported in about 18 states (Luther, 2000). This case report presents an outbreak of ASF in pigs in Kumo, Gombe state, Nigeria. This will add knowledge to the epidemiology of the disease in Nigeria.

KEY WORDS: African Swine Fever, Outbreak, Kumo-Nigeria

CASE REPORT

History

This report describes how an outbreak of ASF which occurred between 26th July and 12th August 2007, at Kumo town Akko Local government Council (LGC), Gombe State, was managed. The LGC was located in longitude 10N 30E and latitude 20E 60N in the savannah zone of North eastern Nigeria. The outbreak ravaged 156 backyard pig farmers with an average size of 16 pigs per herd, giving a grand total of about 2500 pigs at risk. History revealed that a pig trader bought and transported three boars from a market in Numan in Adamawa state, a distant of 150km from Kumo three days prior to the outbreak and

kept them together with 22 others he had bought from other markets. Further history revealed that these three pigs brought from the Numan market came from porous Mubi-Cameroon border of Adamawa state.

The trader observed that the three pigs died about two days after showing clinical signs of fever, diarrhoea, and coughing. On the fifth day, twenty other pigs from that herd died while exhibiting similar signs of fever diarrhoea and coughing. From this focal point, the disease spread was encouraged by rough handling and slaughter of weak ones by the farmers leftovers were fed to other pigs. Animals that roam about scavenged on the leftovers. The morbidity rate

within and between the herds was close to 100%. There were as well rumoured cases of pig mortality in Numan at the time of this outbreak. When veterinary attention was sought on the sixth day of the outbreak, the disease had already disseminated to nearly 156 herds within Kumo metropolis and case fatality was over 60% and morbidity was over 90%.

MANAGEMENT OF THE OUTBREAK

On arrival to the outbreak areas, it was observed that virtually all the households had the outbreak. The epidemic had a spatial spread over a radius of about 3km. The pigs manifested signs of high fever (41.42°C), increased capillary refill time, depression, anorexia, huddling together, rapid breathing, cyanosis of the skin, vomiting, bloody diarrhoea, abortion, and comma.

Pigs of all ages and sexes died. When post mortem was conducted on the dead pigs, there were cyanosis of skin, hydrothorax and hydroperitoneum, fibrin present in heart and the lungs showed oozing of froth. Kidneys showed pinpoint haemorrhages with ulcers. Intestinal lining were congested and ulcerated and the

contents were bloody. Blood and serum were taken from the ear and ventral abdominal vein using sterilized 5ml syringe, tissues, lymph nodes and organs were collected from posted animals in cold plastic containers. Brain samples were not collected because of logistic problems. Blood, sera and tissues (Lungs, liver, lymph nodes, and spleen) were sent to the diagnostic centre of the Pan African Centre of Epizootics (PACE) area office in Vom, Nigeria for laboratory confirmation. Samples were collected from pigs from all over Kumo covering the North, East, West and South Kumo.

Apparently healthy animals were treated with iron dextran and oxytetracycline long acting at 1mg/kg bwt and 10mg/ kg bwt respectively. Subsequent observations were then followed until the end of the outbreak.

RESULTS AND DISCUSSION

The outbreak is summarized graphically showing the pattern of mortality, the progression, regression the gradation, the index point and the peak (Fig. 1). The outbreak stopped because of the stringent control measures that were conducted by the veterinarians.

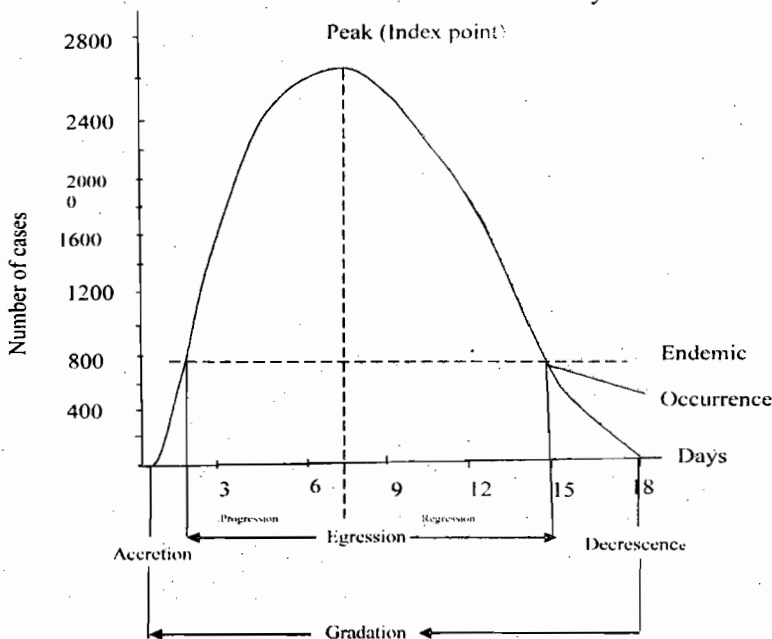


Fig 1: A relationship between population density and prevalence of ASF in kumo

Out of the 2500 affected pigs, 1420 samples were collected from 700 pigs and tested by ELISA and immunofluorescence. All the samples tested positive of ASF virus (Table 1). The clinically affected pigs were weak, they showed high fever (41.42°C) and flushing of the skin was different from the diamond skin lesions seen in dysipelas.

Some of the pigs developed swaying gait, with the hind legs appearing weak. Thick whitish discharges from the nose and eye indicated secondary bacterial infection. Pregnant sows aborted at all stages of pregnancy which was different from *Brucella* abortion which occurred more in the third trimester.

TABLE 1: Samples tested with immunofluorescence and ELISA during outbreak of ASF in Kumo

Area covered	Blood/serum	Liver	Spleen	Lymph Nodes	Result
Kumo East	150	100	120	50	All positive
Kumo North	50	80	150	60	All positive

Post-mortem findings showed that the pigs died of ASF using the criteria of recognising African Swine Fever by FAO (2000). There was bloody froth from the nose, trachea and mouth; watery discharge from the eyes; tail and area under the tail were soiled with bloody faeces. There was hydropericardium and hydro peritoneum with blood stained exudates and ulcers within the intestinal lining, similar to lesions seen in hog cholera, but hog cholera is caused by a different virus and ulcers were not seen at post mortem. Lymph nodes and kidneys were enlarged, haemorrhagic and contained blood clots.

federal level. Poor disease reporting renders ASF outbreaks in many states unreported. Stringent regulation for importation of pigs and pig products, into the country is useful to enhance prevention and control programmes. Unauthorised importation and transborder movement of pigs should be discouraged. Disinfection of premises is an essential component of control. The premises were left to fallow for not less than 3 months before restocking are made from ASF free herds.

The source of infection of the three pigs was from Cameroon which was imported through the porous borders into Numan. The disease spread to this locality possibly because of inadequate government quarantine services and lack of understanding of the nature and dynamics of the disease. The lack of poor existing system for dissemination of information for prompt reporting to veterinary authorities aggravates this problem. From this study, farmers resorted to panicky disposal and slaughter of affected pigs or pig products to evade uncompensated compulsory slaughter. Others disposed their dead pigs or piglets in wells, household pit toilets and suburb of the town. These factors contributed to the spread of the disease in the area investigated.

The government should provide adequate compensation to farmers who had incurred great economic and financial losses as a result of this devastating disease. The government should also equip veterinary personnel with protective clothing, drugs and other necessary tools in order to curb this disease in outbreak areas. Movement of pigs within the infected area was restricted to about 3 km radius and infected and suspected farms were placed in strict quarantine. Infected pigs were separated from uninfected ones. There was mass slaughter of all infected and incontact pigs. The piggeries were disinfected with Izal* and hygienic conditions were strictly maintained in the outbreak area. Pig owners were educated about the dangers of feeding swill that might contain remains of pigs and that the swill should be boiled for 30 minutes or cooked before feeding. Carcasses that were found dead were burnt and others were deeply buried with

In order to control ASF, government should review the legislation on disease reporting, to guarantee flow of information between local, state and

lime. Vehicles, personnel, clothing and wears were disinfected on entry and leaving the outbreak area.

The treatment regime administered to the animals reduced the intensity of the clinical signs, presumably, due to suppression of bacterial infections that always complicate viral diseases. Factors may be responsible for the spread might include stress and the presence of concurrent infections as identified by Bionas *et al.* (1977) which might be responsible for susceptibility of pigs to ASF virus.

CONCLUSION

The results of this study suggest that the pigs in Kumo suffered from ASF rather than other gastrointestinal or other infectious agents. It is possible that the control measures instituted in this study prevented further spread of this disease to other susceptible areas. Constant report of diseases of this nature is important in developing new methods of control.

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