ISOLATION OF RINDERPEST VIRUS FROM THE PANZOOTIC OF 1983 IN NIGERIA.

D.R. NAWATHE, E.N. OKEKE AND W.P. TAYLOR*
National Veterinary Research Institute, Vom, Nigeria,
**Animal Virus Research Institute, Pirbright, England*

The Joint Project 15 aimed at the Eradication of Rinderpest in Nigeria launched between 1962-65 had dramatic effect on the incidence of the disease. The number of outbreaks fell from 400 to 2 per year (Lepissier, 1971). There was little upsurge of infection during the civil war (1967-70) but since 1974 the country had been completely free from rinderpest. In September 1980 the disease was introduced into Sokoto State through the Niger border (Nawathe and Lamorde, 1982). This was not totally unexpected because a warning was sounded on the falling level of immunity of the national herd as early as 1978 (Nawathe, 1978). Between 1980-82, some 71 outbreaks were reported affecting 14,554 animals with 2,852 sick and 1,576 dead or subjected to emergency slaughter (Lamorde and Nawathe, 1983). The outbreaks were brought under control by prompt restriction of movement of cattle and ring vaccination in which 2.8 million cattle were protected. Over 75 specimens were obtained and positive diagnosis was based on the demonstration of specific antigen by agar gel precipitation test (AGPT) and immuno-electrophoresis test (IEOPT), (Majiyagbe, 1983).

The year 1983 opened a new chapter in the epidemiology of rinderpest in Africa. A highly contagious and virulent strain of the virus emerged from Sudan and made its way to Nigeria via Chad and Cameroon. The disease appeared in early January 1983 at Dikwa control post in the

bordering Borno State, (Nawathe and Lamorde, 1983). Within 2 months the disease spread to all the states in the federation except Imo State (see fig. 1). By the end of July 1983, over 950 outbreaks were reported involving half the national herd 1.6 million sick and 0.38 million dead or subjected to emergency slaughter. Direct losses due to mortality alone were estimated to be over ₦300 million. There were some states which were still reporting sporadic outbreaks of the disease.

On the 4th of March 1983, a 13-day old outbreak in Tambo village of Song Local Government Area of Gongola State was visited where 5 herds with 354 heads of cattle were affected. By then 28 animals had died and about equal number were sick. One bull calf with 106°F temperature was sacrificed and lymph nodes and spleen were placed in antibiotic solution and transported to laboratory on ice. Without freezing the specimens, 10% suspension of lymph nodes was inoculated on to two roux flasks containing 2 day old bovine embryo kidney cells and one flask was kept as control. The cells were not confluent by then. The cell sheet was washed after incubation at 37°C for one hour with maintenance medium. Cytopathic effect which was focal on the 5th day became confluent by 9th day. The infected cells became stellate, rounded and with increased refractility. A few multinucleate syncytia were also seen. Two further passages were made and the

ISOLATION OF RINDERPEST VIRUS

Fig. 1. Map of Nigeria showing geographical distribution of rinderpest outbreaks during 1980-82 (triangular dots) and during 1983 (circular dots). Arrows indicate the direction of spread of the epizootics.

virus titrated in the presence of known negative and positive (to rinderpest) sera. The positive serum neutralised 4.5 logs of the virus (Johnson, 1962). Later Majiyagbe (1983) reported isolation of rinderpest viruses from Borno, Kwara and Plateau States.

Collection of specimens for virus isolation is very vital. Dehydrated and emaciated animals have low titres of virus. Samples from dead or dying animals are not suitable for virus isolation. Samples of choice are those collected during first 4 days of fever before the onset of diarrhoea (Dardiri, 1978). Isolation of rinderpest virus in cell cultures from field specimens is by no means an easy task. Glycerinated samples and those preserved at temperatures higher than

-70°C become unsuitable for virus isolation though antigen can be demonstrated by serological tests. Virus isolation and identification in cell cultures or animals is much more satisfying but always requires longer time; say 3-4 weeks at least. The detection of virus specific antigen by AGPT or IEOPT is relatively quicker and easy to perform. IEOPT gives results in an hour or two and is 8 to 16 times as sensitive as AGPT (Majiyagbe *et al*, 1982). Immunofluorescence test and complement fixation tests fall in the same category. For field diagnosis of rinderpest, AGPT or IEOPT should suffice and this will provide taking of prompt action by field officers to prevent further spread of the disease.

NAWATHE *ET AL*
REFERENCES

- DARDIRI, A.H. (1978). In Foreign Animal Disease Manual. Plum Island Animal Disease Centre, Greenport NY11094 USA.
- JOHNSON, R.H. (1962). Rinderpest in tissue culture. *Brit. Vet. J.* **118**: 133—140.
- LAMORDE, A.G. and NAWATHE, D.R. (1983). The present situation of rinderpest in Nigeria. Paper given at I.B.A.R. Meeting at Lagos held on March 15—16, 1983.
- LEPISSEIER, H.E. (1971). Gen. Tech. Report, OAU/STRC Joint Campaign Against Rinderpest in Central and West Africa, Lagos, Nigeria.
- MAJIYAGBE, K.A., ABEGUNDE, A. and NAWATHE, D.R. (1982). IEOP Technique in the diagnosis of rinderpest infection. *Nig. Vet. J.* (In Press).
- MAJIYAGBE, K.A. (1983). Summary of rinderpest diagnosis. Paper given at the National Co-ordination Committee Meeting held at Kaduna July 21-22, 1983.
- NAWATHE, D.R. (1978). Diagnosis of rinderpest-like diseases. Paper given at the National Livestock Development Committee Meeting held at Enugu in January 1978.
- NAWATHE, D.R. and LAMORDE, A.G. (1982). Recurrence of rinderpest in Nigeria. *Vet. Research* **111**: 203.
- NAWATHE, D.R. and LAMORDE, A.G. (1983). Recrudescence of Rinderpest in Nigeria. *Vet. Record.* **113**: 156—157