

## An outbreak of listeriosis in cattle in Nigeria

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Une épidémie de listériose, accompagnée de mortalité, d'avortements, de signes d'atteinte du système nerveux et de mortalité a été observée dans un troupeau de bovins. L'histopathologie n'a pas révélé de micro-abcès cérébraux typiques, mais l'existence d'une méningite purulente très importante. L'examen bactériologique a permis d'isoler *Listeria monocytogenes* en culture. *Mots clés* : Bovin - Listériose - *Listeria monocytogenes* - Avortement - Méningite - Nigeria.

### Introduction

Listeriosis is a disease of ruminants in which the clinical features include encephalitis, septicaemia and abortion (6). The disease is of importance in temperate countries but rare in the tropics and subtropical regions, although it has been reported from Africa (2). The encephalitic and genital forms rarely occur together in the same animal or even in the same flock of sheep (3), and both the visceral and central nervous system may be involved more frequently.

The common feature of listerial encephalitis is circling although there may be unilateral facial paralysis (4). The disease is more acute in calves and sheep than in adult cattle with death occurring within 3-4 days (1). This paper reports an outbreak of listeriosis in which abortion, encephalitis and death were recorded in adult cattle while death and encephalitis were seen in calves.

### History

The farm located in the derived Savannah zone of Oyo State in the south-western part of Nigeria is made up of 391 Ndama cattle (calves inclusive) and was established in 1983 with animals imported from Gambia. All animals are routinely treated with diminazene aceturate against trypanosome and babesia infections twice a year and vaccinated against black quarter, anthrax, haemorrhagic septicaemia, brucellosis, contagious bovine pleuropneumonia and rinderpest. Animals are taken out to graze uncultivated pasture during the day and brought back to paddock at sunset. They are given salt lick, dried brewers grain, and water is provided from a small dam within the farm. New imports added to the original flock in 1989 were also treated and vaccinated routinely. Records of calvings, deaths and transfers are kept on the farm.

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### Clinical signs

Within nine months after the introduction of the new batch of animals, 26 calves between the age of 1-6 months and nine adults were reported to have died. Before death, the adult animals were observed to show pyrexia (41.5 °C), anorexia, dullness and nervous signs of circling. Some of the deaths in adults occurred suddenly or overnight. The calves were aggressive, circled and were ataxic. Some of the deaths in calves occurred after animals had been off-feed for a few days.

### Gross pathology

One calf and one cow were examined post-mortem. In both cases the carcasses were fresh but very markedly dehydrated and lean. The lungs were congested, liver moderately yellow and the abomasum empty. Pericardial and peritoneal fats were absent and the intestinal contents watery.

### Histopathology and Bacteriology

Tissues obtained from the brain and spinal cord were processed routinely for histopathology and stained with haematoxylin and eosin. Portions of the brain and spinal cord were also examined bacteriologically. Tissues were cultured by direct inoculation onto blood agar plates and incubated both aerobically and microaerobically at 37 °C for 24 h. No haemolysis was seen on human blood agar. The colonies and biochemical characteristics of the organism were as described by MAVROTHALASSITIS (5). Lesions observed in the brain were characterized by very marked purulent meningitis (photo 1). Pure cultures of *Listeria monocytogenes* (serotype 4b) were isolated from the brain and spinal cord. The aborted or still birth foetuses were not available for postmortem examination.

### Discussion and Conclusion

A review of the literature indicates that although listeriosis is a common disease in ruminants, it is more currently encountered in the temperate countries than in the tropics where it occurs sporadically (2). In the case reported here, a total of 35 animals (calves and adults) were lost and four abortions/still births were observed. This constitutes a large economic loss to the owner of the farm apart from the other financial commitments in disease treatment and control.

Both calves and adults showed clinical signs of circling, ataxia and pyrexia as described by YOUSIF *et al* (7) and BLOOD and RADOSTIS (1). On histopathology however, although micro-abscesses usually associated with *Listeria* encephalitis (6) were not observed, a marked purulent meningitis, also associated with listeria infection was seen. Although the clinical picture of the infection could be suggestive of heart water, no clusters of *Cowdria ruminantium* were seen in brain smears or sections. The association between the lesions and listeria infection was confirmed on the identification of *Listeria monocytogenes* from the two carcasses examined post-mortem. Again,

## Communication



Photo 1 : Calf brain showing purulent meningitis (H & E x 750).

when cotrimozazole to which the organism was sensitive was used to treat the rest of the herd which did not show nervous signs of listeria infection, deaths were no longer recorded on the farm. The source of infection was not known although it is possible that the organism was introduced into the flock by the recently introduced animals.

The authors are not aware of any other reported cases of listeria infection in ruminants in Nigeria. We therefore suggest that cases of nervous signs especially circling should be properly investigated to confirm the aetiological agent.

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An outbreak of listeriosis in a herd of cattle associated with still birth, abortion, nervous signs and death is reported. Typical micro abscesses in the brain were not observed on histopathology but a marked purulent meningitis was seen and *Listeria monocytogenes* was isolated on culture. *Key words* : Cattle - Listeriosis - *Listeria monocytogenes* - Abortion - Meningitis - Nigeria.

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