

■ ■ ■ BOTULISM

Detection of *Clostridium botulinum* type A toxin in a cow in Northern Ireland

Clostridium botulinum plays a vital role in the natural carbon recycling process, growing to high amounts in decaying organic matter, including animal and bird carcasses, and producing high levels of one of several toxin types (A to G). Cattle are very sensitive to the effects of certain *C. botulinum* toxins; major clinical signs are flaccid paralysis leading to recumbency and death. In recent years bovine botulism has emerged as a significant clinical problem in Northern Ireland and elsewhere. Outbreaks have often been associated with the spreading of broiler litter contaminated with carcasses on grazing land, and the most commonly detected toxin type observed has been type D, followed by type C toxin, with some positive samples being neutralised by antisera to types C and D (which may indicate the presence of a chimeric type C/D toxin). Ruminants are thought to be more resistant to toxin types A, B and E, which are more commonly associated with human disease.

We would like to report the detection of *C. botulinum* type A toxin in a sample collected from a 12-year-old beef suckler cow that was submitted to the Veterinary Sciences Division for postmortem examination in April 2008. The animal had been recumbent before death. On postmortem examination the carcass was autolysed. There was extensive oedema of the muscles in the hindlimbs and subcutaneous oedema over the ventral abdomen and hindlimbs. There was a large quantity of fibrous forage and straw in the rumen and the small intestinal contents were scanty. A large, near-term fetus was present in the uterus.

Examinations for bovine spongiform encephalopathy were negative. No significant bacteria or gastrointestinal parasites were detected. *Clostridium perfringens* toxins were not detected. *C. botulinum* type A toxin was detected in the abomasal contents, but botulinum toxin was not detected in the rumen contents, small intestinal contents or the faeces. This diagnosis was confirmed by the Central Veterinary Institute of Wageningen UR, Lelystad.

The Food Standards Agency (Northern Ireland) (FSA[NII]), the Department of Agriculture and Rural Development,

Northern Ireland (DARD) and the private veterinary practitioner were informed of this result and a member of DARD veterinary service visited the farm to give veterinary and public health advice.

A recent report by the Advisory Committee for the Microbiological Safety of Food (ACMSF 2006) for the FSA recommended that, due to the low apparent risk to humans presented by botulinum types C and D, which predominate in animal outbreaks, voluntary restrictions should be placed on meat and milk from clinically affected cattle. The report also recommended that restrictions need not be applied to unaffected cattle. However, the report recommended that this advice be kept under review, especially if types of botulism more likely to cause disease in humans were detected. In this case it was thought that the type A toxin was likely to be an incidental finding, with malnutrition in the latter stages of pregnancy more likely to have caused the clinical signs, which were not consistent with bovine botulism.

C. botulinum type A has been recorded in zebu in Brazil (Schocken-Iturrino and others 1990), but to our knowledge this is the first incident where *C. botulinum* type A has been recorded in cattle in the UK.

H. M. Hartley, H. J. Clarke, D. A. Graham, H. J. Ball, F. E. Malone, AFBI, Veterinary Sciences Division, Stoney Road, Stormont, Belfast BT4 3SD
e-mail: helen.hartley@afbini.gov.uk

N. W. R. Beggs, Veterinary Sciences Division, 43 Beltany Road, Omagh, County Tyrone BT78 5NF

H. J. Roest, Department of Bacteriology and Fish Diseases, Department of Bacteriology and TSEs, Central Veterinary Institute of Wageningen UR, PO Box 65, 8200 AB Lelystad, The Netherlands

References

- ACMSF (2006) Botulism in cattle, Report by ad hoc group. www.food.gov.uk/multimedia/pdfs/botulismincattlereport1206.pdf
- SCHOCKEN-ITURRINO, R. P., AVILA, F. A., BERCHIELLI, S. C. P. & NADER FILHO, A. (1990). First case of type A botulism in zebu (*Bos indicus*). *Veterinary Record* **126**, 217-218