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CROSS-CANADA DISEASE REPORT

RAPPORT DES MALADIES DIAGNOSTIQUEES AU CANADA

Ontario

Neospora abortions in eastern Ontario dairy herds

Fifteen of approximately 80 cows in a dairy herd in eastern Ontario aborted during an 18-day period in January and February of 1994. Most aborting cows were 3 to 7-years old and aborted at 4 to 8-months gestation. Four fetuses were submitted to the Kemptville regional veterinary laboratory of the Ontario Ministry of Agriculture, Food and Rural Affairs for examination. All fetuses had lesions that were consistent with abortion due to *Neospora* spp., including multifocal nonsuppurative encephalitis, nonsuppurative skeletal and cardiac myositis, and necrotizing placentitis; hepatitis, nephritis, and pneumonia were inconsistently present. Formalin-fixed brain from 1 fetus tested positive in an avidin-biotin complex immunoperoxidase test, using *Neospora caninum* antiserum (Dr. D. Haines, Western College of Veterinary Medicine, Saskatoon, Saskatchewan).

Neosporosis was first diagnosed at the Kemptville regional veterinary laboratory as a cause of bovine abortion in eastern Ontario in 1993. From February 1993 to July 1995, neosporosis was diagnosed by histology and/or immunoperoxidase testing in 24 herds; it was suspected in 7 additional herds from which brains of aborted fetuses had not been submitted for histologic examination, but from which other fetal tissues had lesions compatible with neosporosis. Almost all cases occurred in dairy herds, and most affected herds had a history of multiple abortions; at least 2 herds had more than 10 abortions.

Neosporosis is considered a significant cause of bovine abortion. However, the life cycle and definitive host(s) of the parasite are unknown. Histopathology of the fetal brain is similar to that associated with protozoal infections in other species, such as *Toxoplasma gondii* in sheep (1). In one study of abortion in dairy cattle in California, 88 of 95 fetal brains with focal encephalitis reacted with antiserum to *Neospora caninum* to the immunoperoxidase procedure (1). Fecal contamination of feed by a carnivorous host was the suspected source of these infections.

Calves exposed in utero to *Neospora* spp. may be born with neurological signs, or develop them within a few days of birth. Some cows with a history of neospora fetal infection may abort again, or deliver neospora-infected calves in their next pregnancy (2).

Formalin-fixed brain (especially medulla), even if autolysed, heart, skeletal muscle, placenta and other tissues routinely submitted for diagnosis of abortions are essential for confirmation of neosporosis. At present, fetal and maternal serology are not considered as determinate as histopathology and immunohistochemistry in the diagnosis of this disease (3).

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