

## Nova Scotia

### Prevalence of antibody to leptospiral serovars in veterinarians and slaughterhouse workers in Nova Scotia

As part of our studies of leptospirosis in Canada, we are interested in identifying seroprevalence of infection in human occupational risk groups. Serum samples were obtained from 63 veterinarians in private practice and from 92 slaughterhouse workers in Nova Scotia. These samples had been stored at  $-70^{\circ}\text{C}$  since collection for examination for antibody to *Coxiella burnetii* (1).

The microscopic agglutination test was used to determine agglutinating antibody titers, from 1:25, against the following serovars (ATCC number or strain designation in parenthesis): *autumnalis* (23476), *bratislava* (23578), *canicola* (23470), *grippotyphosa* (CH 31), *hardjo* (Hardjoprajitno), *icterohaemorrhagiae* (23581), and *pomona* (23478). Appropriate antigen and antibody controls were included.

Ten of 63 veterinarians had antibody to serovar *bratislava* (seven at 1:25, two at 1:50, one at 1:100), and one to serovar *icterohaemorrhagiae* (1:25). Eight of 92 slaughterhouse workers had antibody to serovar *bratislava* (two at 1:25, five at 1:50, and one at 1:100); three had agglutinating antibody at 1:25 to serovar *icterohaemorrhagiae*.

The modest prevalence of antibody to serovar *bratislava* in veterinarians and slaughterhouse workers may reflect the high prevalence of infection caused by this serovar in swine and horses, and to a lesser extent, in dogs. The absence of antibody to serovars *canicola*

and *pomona* suggests the relative unimportance of these infections in dogs, and in cattle and swine, respectively. The absence of antibody to serovar *hardjo* was a surprising finding in view of its high seroprevalence in cattle, at least in Ontario (2), and suggests either a lower seroprevalence in Nova Scotia or the poor environmental survival of this leptospire.

The low titers of antibody detected indicate past, rather than active, infection. **Although limited in its scope and opportunistic in its sampling, this study suggests that the most important pathogenic leptospiral serovar in people in these occupational risk groups is *bratislava*, a serovar whose importance in domestic animals is only recently being identified.**

#### References

1. Marrie TJ, Fraser J. Prevalence of antibodies to *Coxiella burnetii* among veterinarians and slaughterhouse workers in Nova Scotia. *Can Vet J* 1985; 26: 181-184.
2. Prescott JF, Miller RB, Nicholson VM, Martin SW, Lesnick T. Seroprevalence and association with abortion of leptospirosis in cattle in Ontario. *Can J Vet Res* 1988; 53: 210-215.

*John Prescott, Allan Gignac, Vivian Nicholson, Department of Veterinary Microbiology and Immunology, University of Guelph, Guelph, Ontario N1G 2W1; Thomas Marrie, Department of Medicine, Dalhousie University and Victoria General Hospital, Halifax, Nova Scotia B3H 2Y9*

## Saskatchewan

### Goiter in foals on a pregnant mare urine farm

A pregnant mare urine (PMU) farm with 215 mares lost more than 20 foals from January to late April, 1991. Some foals were aborted; others were born 3-4 weeks prematurely. Most foals were very weak when born, failed to suckle without assistance, and usually died within 3-4 days. The mares were fed timothy hay and oats, but mineral salts were not given. They were dewormed with ivermectin (Ivomec, MSD AgVet, Kirkland, Quebec), but there had been no vaccination program.

One live and two dead foals were submitted to the laboratory. The live foal was weak and in poor bodily condition. It was unable to stand and sleepy at all times

unless disturbed. The entire body was flaccid, however the hair coat was normal. **Striking necropsy findings in these foals were enlarged thyroid glands, and edema of the soft tissues, particularly in areas between muscle bundles and the fascia. Both thyroid glands of the live foal were noticeably enlarged, and those of the two dead foals were greatly enlarged and protruded at the base of the throat.** The formalized glands of dead foals measured  $4.5 \times 5.5$  cm and  $5 \times 7$  cm, respectively. The glands of one foal were pale and light pink, whereas those of the others were dark red. The bodily condition of each foal was poor and there was no fat in the carcass. Gross lesions were not noted in other organs.

Histologically, the thyroid glands had severe follicular epithelial hyperplasia characterized by densely packed follicles among the stroma. The follicles varied in size and were extremely irregularly angular in shape, similar to the microscopic lesions described by Doige and McLaughlin (1). Colloid was present in some follicles. Specific microscopic lesions were not noted in other tissues. *Streptococcus zooepidemicus* and *Actinobacillus equuli* were isolated from tissues, however they were considered to be insignificant in this instance. The virus of rhinopneumonitis was not detected.

Serum samples from five mares and plasma from the live foal were assayed for thyroxine (T4) and triiodothyronine (T3) by the Western College of Veterinary Medicine, Saskatoon. The T4 values were 21–46 nmol/L for the mares, and 226 nmol/L for the foal. The T3 values were 1.55–2.72 nmol/L for the mares, and 5.28 nmol/L for the foal. These values were within the normal range (2), and likely resulted

because the herd was fed mineral salts shortly after the onset of the perinatal deaths. Blood samples were collected at the same time as the carcasses were submitted to the laboratory, which was three weeks after the ration was supplemented with mineral salts. On the basis of the findings, we believe that the PMU farm experienced goiter in perinatal foals because the ration did not contain mineral salts, including iodine. Since the introduction of iodinated feeds to the ration, the problem has been corrected.

#### References

1. Doige CE, McLaughlin BG. Hyperplastic goitre in newborn foals in western Canada. *Can Vet J* 1981; 22: 42–45.
2. Chen CL, Riley AM. Serum thyroxine and triiodothyronine concentrations in neonatal foals and mature horses. *Am J Vet Res* 1981; 42: 1415–1417.

*Choon W. Yong, Provincial Veterinary Laboratory, 4840 Wascana Parkway, Regina, Saskatchewan S4S 0B1; Sidney Griffin, Carnduff Veterinary Clinic, Box 308, Carnduff, Saskatchewan S0C 0S0*

## Alberta

### Thrombotic encephalitis, myocarditis, and pneumonia in lambs

In mid-July, 1991, acute deaths started to occur in a group of 130 lambs at pasture. By the end of July, 11 animals had died; sick lambs did not recover. All affected lambs were in excellent bodily condition. Most were discovered dead or dying, and the majority had bloody froth discharging from the nostrils, with reddening and swelling of the conjunctiva. Following injection of oxytetracycline into healthy lambs, deaths halted for three weeks. Then another lamb was found in lateral recumbency with agonal breathing; it died shortly thereafter. Tissues taken at necropsy from this and two previous dead lambs were submitted to the Western College of Veterinary Medicine, Saskatoon. Gross lesions included pneumonia and hemorrhages in the myocardium and meninges. Histopathological examinations of tissues submitted to the laboratory revealed similar lesions in each lamb. In all three animals, there were multifocal suppurative encephalitis and meningitis, associated with thrombosis of blood vessels and bacteria within small blood vessels. Multifocal suppurative pneumonia was present in two animals from which lung was available. In two animals there was myocarditis, and the third animal had congested myocardial vessels that sometimes contained bacterial colonies.

**A bacterial organism with the cultural and biochemical characteristics of the *Haemophilus somnus* group was isolated in heavy, pure culture from the brain and lung of one lamb, and in light growth from the brain of a second lamb.** Fixed tissues from all three lambs were examined by the avidin biotin complex immunoperoxidase test for the presence of antigens of *H. somnus*, with positive results in each case.

Until we have further proof, it should not be assumed that the bacteria isolated were identical to *H. somnus* isolated in Canada from cattle with infectious thrombotic meningo-encephalitis (ITME). Other

bacterial agents, notably the recognized ovine pathogens *H. agni* and *Histophilus ovis*, are very similar to *H. somnus* in most of their characteristics, and it is very difficult to distinguish between them (1). Some investigators suggest that these agents should be considered to be the same species (1).

In Canada, there are previous reports of septicemic conditions caused by *H. somnus* and *H. agni* in lambs (2,3). It should be noted that in one report (2), all six affected lambs were males, and that in the outbreak reported here, 10 of 12 affected lambs were males. There were no cattle on the premises on which the outbreak occurred. However, investigators have been able to isolate *H. somnus* frequently from normal genital tracts of both male and female sheep (3). **Regardless of the preceding comments, the pathological similarities of this disease in lambs to ITME in cattle are striking, although that disease of cattle occurs almost exclusively in fall and winter.**

#### References

1. Kirkham C, Biberstein EL, Lefebvre RB. Evidence of host-specific subgroups among "*Histophilus ovis*" isolates. *Int J System Bacteriol* 1989; 39: 236–239.
2. Lundberg MS. Isolation of *Haemophilus agni* from six Alberta ram lambs with septicemia. *Can Vet J* 1986; 27: 501–503.
3. Lees W, Meek AH, Rosendal S. Epidemiology of *Haemophilus somnus* in young rams. *Can J Vet Res* 1990; 54: 331–336.

*Jim Orr, Department of Pathology, Manuel Chirino-Trejo, Debbie Haines, Maggie Schwab, Department of Microbiology, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, Saskatchewan S7N 0W0; Peter Moisan, Doug Ebbott, Thomas Uhleg, North Woods Veterinary Services, 9708-128 Avenue, Grande Prairie, Alberta T8V 6K4*