



## Northern Ireland Disease Surveillance Report, October to December 2022

- Mycoplasma bovis infection in cattle
- Abomasitis in milk fed calves
- Malignant catarrhal fever in cattle
- Ovine pulmonary adenomatosis (OPA) in sheep
- Johne's disease in sheep
- Larval paramphistomosis in sheep

These are some of the matters discussed in the Northern Ireland animal disease surveillance quarterly report for October to December 2022

## CATTLE:

### Respiratory diseases

During the reporting period, *Mycoplasma bovis* was a common cause of pneumonia in calves up to one year of age. Mycoplasmosis was frequently combined with other infections including IBR, other bacteria (*Histophilus somni*) and lungworm (*Dictyocaulus viviparus*), giving rise to serious disease with poor response to treatment and high morbidity and mortality. The histology of *Mycoplasma bovis* infection is distinctive (FIGURE 1); there are frequent foci of acidophilic caseous and coagulative necrosis bordered by degenerating neutrophils. Fibrinous exudation into the airspaces is accompanied by leucocytic aggregation and presence of intra-alveolar macrophages. Interlobular septae and pleural membranes are distended by fibrin, oedema and inflammatory infiltrate. It was noted that in some cases BVDv nucleic acid was detected in blood and lung tissue by RT-PCR suggesting that these animals were either viraemic at the time or persistently infected. It was also noted that parasitic pneumonia was common during the quarter and that in some cases cattle had probably been housed with lungworm infection.

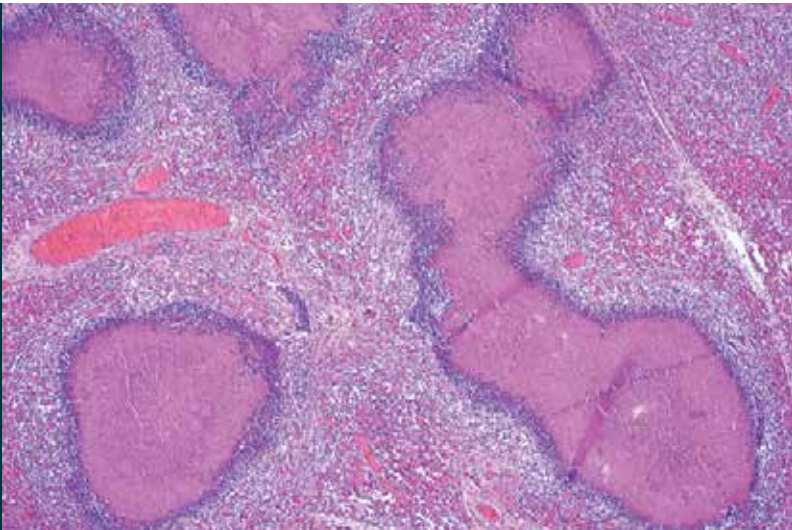


FIGURE 1: Histology of *Mycoplasma bovis* pneumonia, the necrotic foci bounded by degenerating leucocytes can clearly be seen.

### Infectious bovine rhinotracheitis

Severe purulent tracheitis with pseudo-membrane formation (FIGURE 2), anterio-ventral consolidation and emphysema of the lungs was seen on gross examination of two heifers from the same herd which had died of severe respiratory disease shortly after calving. Lung histology showed multifocal necrosis, neutrophils, macrophages, fibrin and haemorrhage within alveoli. Bronchioles contained necrotic debris and inflammatory cells. BHV-1 nucleic acid was detected in the trachea and lung in both cases and *Trueperella pyogenes* was recovered on profuse growth from lung tissue.

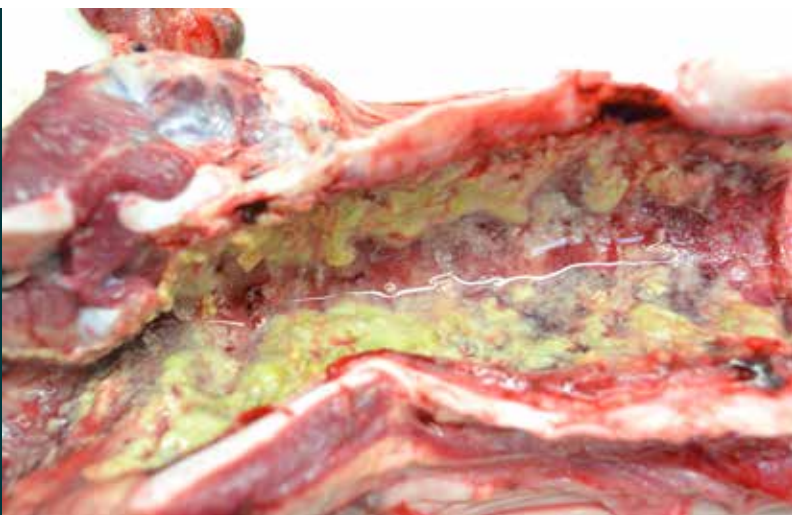


FIGURE 2: IBR in a heifer, showing purulent tracheitis.

## Alimentary diseases

### Abomasitis in milk fed calves

Emphysematous abomasitis (FIGURE 3) following ruminal feeding, fermentation of milk and acidic overspill into the abomasum resulting in chemical damage to the mucosa and *Sarcina ventriculi* colonisation was seen in several milk fed calves from separate herds. Sequelae included haemorrhage, fungal infection and perforation with peritonitis. Over-feeding or stomach tubing with too - high milk intake is often the root cause of this condition



FIGURE 3: Emphysematous abomasitis in a calf

## Reproductive and mammary diseases

### Abortion

Leptospiral antigen was detected by immunofluorescence in the kidney of a bovine foetus which had been aborted approximately three weeks early. Detection of antigen in one organ only of the foetus was previously considered to provide inconclusive evidence that the abortion was caused by leptospirosis. However, in this case, with no history of vaccination in the dam, it was considered likely that leptospirosis was the cause.

### Udder cleft dermatitis

Udder cleft dermatitis in an eight-year-old dairy cow caused septic phlebitis of the right superficial mammary vein, septic thrombo-embolism, septic pulmonary arteritis, aneurysm and septic pneumonia, haemorrhage and haemothorax (FIGURE 4).



FIGURE 4: Haemothorax in a cow, a spectacular lesion which originated from udder cleft dermatitis.

## Other diseases of cattle

### Malignant catarrhal fever

Malignant catarrhal fever (MCF) was diagnosed on the basis of gross pathology, histopathology and RT-PCR results in a six-month-old heifer which presented with bilateral corneal opacity, crusting of the muzzle, erosive lesions in the mouth, nasal cavity, pharynx and oesophagus. There was also a severe nephritis in this case (FIGURE 5).



FIGURE 5: Corneal opacity in a case of MCF in a heifer.

## Nephrosis in a calf

Brown, inspissated necrotic foci were detected in the medulla of both kidneys in two three-week-old calves submitted for post-mortem examination. Histologically there was evidence of well-defined and severe papillary necrosis in the renal medulla, with congestion and haemorrhage surrounding the affected areas. The changes seen in the kidneys were considered to be most likely the sequel of neonatal bacterial infection, although it was noted that similar changes have been associated with use of some NAIDs

## SMALL RUMINANTS: SHEEP

### Respiratory diseases

Numerous incidents of pneumonic pasteurellosis were recorded during the reporting period with typical pneumonia and fibrinous pleurisy being detected on gross examination. In one case there was underlying ovine pulmonary adenomatosis (OPA). This disease is a significant predisposing cause of pasteurellosis even in fully vaccinated flocks and vaccination programmes usually have to be bolstered by additional autumn injections as well as full primary programmes and pre-lambing boosters. Ultrasound chest scanning is the best way of detecting the disease in a flock.

### Alimentary diseases

#### Johne's disease

Johne's disease was diagnosed in a hogget and a ewe from the same flock. In each case there was mild intercurrent parasitism but the clinical picture was considered to be primarily due to MAP infection. Histological lesions were present in each case and MAP nucleic acid was detected in faeces by RT-PCR.

#### Larval paramphistomosis

Larval paramphistomosis (infection with larvae of the rumen fluke *Calicophoron daubneyi*) was diagnosed in adult ewes at grass in November. At necropsy there was inflammation of the abomasum and upper small intestine with immature larval paramphistomes being observed at moderate levels in the abomasum and high levels in the small bowel in which 267,000 larvae were detected. (FIGURE 6). Every year a small number of outbreaks of larval paramphistomosis are recorded, frequently with high death rates.



FIGURE 6: Larval paramphistomosis in a ewe, high numbers of larvae were recovered from the small intestine.

## Neurological diseases

Cerebro-cortical necrosis (CCN) was diagnosed in a six-month-old lamb at grass. On gross examination the brain was unremarkable but there was indistinct yellow fluorescence of the

cerebral grey matter on UV examination. On histological examination of the brain, there was regional spongiform change deep in the grey matter of the cerebral cortex. There was associated shrinkage and disintegration of neuronal cell bodies with gliosis and presence of gitter cells. In this case the condition may have been precipitated by poor quality grazing and autumn (October) *nematodiosis*.

## Urinary tract disease

Urolithiasis was diagnosed in a seven-month-old ram lamb. This caused obstruction of the penile urethra and urethral process leading to rupture and uroperitoneum (FIGURE 7). Management advice concerning appropriate concentrate feed and water supply is very important in these cases and action must be prompt because of the high number of lambs in the group which may be sub-clinically affected.



FIGURE 7: Uroperitoneum in a ram lamb following urolithiasis, an example of how this condition has serious welfare consequences.